Glan Llyn, Llanwern

Remediation Strategy

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Remediation Strategy

for

St. Modwen Developments Ltd.

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Executive Summary

The following presents a summary of the remedial requirements for the development Site and should not be referred to in isolation.

Instruction	Rodgers Leask Limited (RLL) was commissioned by St. Modwen Developments Ltd. to prepare a Remediation Strategy for the proposed works for part of the Glan Llyn, Llanwern Site.
Site Location and Description	The Site is centred approximately 5.35km east-south-east of Newport city centre at National Grid Reference 336336E, 186851N and covers an area of approximately 136 hectares, comprising a former steel works which was demolished in 2004. Steelworks ancillaries located within the confines of the Site included mineral stockyards, coal stockyards, blast furnaces, offices, railway sidings and the 'Bitmac' Plant, a benzole refinery. The Site is bounded to the north by a railway line, to the west by previous residential phases of the Glan Llyn development, to the south by Queen's Way (A48110) and to the east by the operational Tata steelworks.
Proposed Development	The proposed development includes the construction of up to 4,500 dwellings comprising residential houses, apartment blocks alongside associated public open space and infrastructure. A 50ha commercial development is proposed within the east of Site.
Environmental Setting	**Site History**: Historically the Site exclusively comprised agricultural land. The wider Site was extensively developed as a steelworks in the 1960s. Prior to construction, marshland and arable farmland within the Site boundary was subject to approximately 2m of land raise and engineering to bring ground level to current levels. Steel making operations ceased in the western half of the wider site in 2001, with the majority of infrastructure demolished in 2004, following land transfer to St. Modwen Developments Ltd. **Geology**: Superficial Tidal Flat Deposits. Bedrock comprises the Mercia Mudstone Group, Penarth Group and St. Mary's Well Bay Member. **Hydrogeology**: The Mercia Mudstone Group is classified as a Secondary B Aquifer. The Penarth Group is classified as a Secondary (undifferentiated) Aquifer. The St. Mary's Well Bay Member is classified as a Secondary A Aquifer. The Tidal Flat Deposits are classified as unproductive strata. **Hydrology**: Several reens divide the Site north to south. Monks' Ditch (which is considered a 'main river') cross cuts the Site from north-south. Julian's Reen runs approximately parallel to the western boundary, 10m away at the nearest point. The reens are connected to

	east-west drains which run the length of the Site within 50m from the southern boundary and the north carrier drain within the Site adjacent to the northern boundary. The River Usk is located approximately 2.9km to the west and the Severn Estuary is located approximately 4.2km to the south.
Proven Ground Conditions	Numerous phases of ground investigation have been undertaken within the Glan Llyn site, Llanwern. Made Ground was encountered across the Site at thicknesses of between 0.2m to 2.6m. Superficial deposits were encountered in all exploratory holes that penetrated the Made Ground at thicknesses of between 7.0m and 10.0m. The Mercia Mudstone Formation was encountered during the intrusive investigations. The thickness was not proven.
Contamination Assessment	The sources of contamination within the Site are known to be the Made Ground, which was historically used to build up the level of the Site and known to include imported materials (slag, concrete, brick, burnt shale) from other steelworks in addition to natural deposits. Chemical compounds associated with metal production industry are: metals and metalloids, inorganic compounds, acids and alkalis. Contaminants, particularly related to coke-making include; PAHs, cyanides, ammoniacal liquors, sulphur and sulphates, BTEX VOCs and also include petroleum-based fuels and oils.
Controlled Waters Risk Assessment	The initial CWDQRA, prepared by Atkins in 2017, was issued with the intention that, as more extensive site specific information was collected, the assessment would be reviewed and updated. An updated CWDQRA was prepared by RLL in 2019 which concluded that the compaction and validation testing of the re-engineered Made Ground assists in verifying that the earthworks have a remediation/ stabilising benefit, by creating a low permeability material. The low permeability re-engineered material inhibits the downward migration of infiltrated rainwater. Lowering the permeability of this material also greatly increases time taken by the perched water to travel within the material. The Atkins CWDQRA assumed 100% of rainfall would infiltrate the Made Ground, allowing leachable contaminants to mobilise and impact surface wates therefore very conservative reuse criteria were proposed. Taking into account more realistic conditions, the RLE CWDQRA proposed a scenario based on 40% infiltration for a residential and commercial end use.

	It is proposed that 40% infiltration is assumed to derive the Site Acceptance Criteria for this Remediation Strategy.
Reclamation Strategy	Based on the results of the previous ground investigations and the updated CWDQRA, the key driver for the remediation of the Site is considered to be the removal of significant sources of contamination, below ground obstructions and re-engineering of near-surface Made Ground to reduce infiltration for the protection of surface waters and installation of a clean cover system for the protection of human health. For the purpose of the remediation, the Site has been divided into two strategies broadly responding to the division of the site between residential use and commercial use. Herein referred to as the 'Full Turnover Specification' and the 'One Meter Turnover Specification'. The Full Turnover Specification comprises the excavation of Made Ground to a depth where the natural underlying Tidal Flat Deposits are exposed before a minimum of 2m of suitable material is placed and reengineered. The One Meter Turnover Specification requires a trim and chase process excavating material to a depth minimum of 5.3mAOD before approximately 2m of suitable material is placed and reengineered to a formation level of 7.25mAOD. Practical measures to identify, remove and validate the absence of gross contamination and known and potential obstructions extending below 5.3mAOD shall be undertaken. Several phases of trial pitting have been undertaken across the Site to assess and characterise the Made Ground for suitability for reuse. Material present within the proposed residential area that exceeds residential SAC shall be transferred and re-used in the commercial phase of the development. Where material is not suitable for either a residential or commercial end use the contractor should inform the Client's Engineer on and propose a method for its treatment that will allow re-use (at the supervising engineers discretion) or, options for off-site disposal.
Validation and Reporting	The following validation testing will be required: ▪ Non-targeted grid validation sampling shall be undertaken at a frequency of 1 sample per 500m^3 of placed material. ▪ Delineation and validation of the base and sides of hotspot excavations. ▪ Delineation and surveying of obstructions / deeper areas of Made Ground encountered. A Validation Report of the remediation shall be prepared and submitted to the regulatory authorities pursuant to the discharge of planning conditions with respect to contaminated land. The Validation Report shall provide information on the works undertaken together

	with the supporting information and required onward mitigation measures (i.e. clean cover and ground gas membranes).
Anticipated Onward Developer Actions	The remedial works includes the following scope of works: ▪ Undertaking required remediation excavation works including buried obstruction removal. ▪ Treatment or offsite disposal of impacted soils (where required). ▪ Chemical and geotechnical validation of the turnover. ▪ Post remediation ground gas and vapour assessment. ▪ Preparation of a Remediation Validation Report; and. ▪ Regulator liaison and submission pursuant to the discharge of relevant planning conditions.
Anticipated House Builder Actions	Onward housebuilder actions to include. ▪ Placement and validation of a clean cover system. ▪ Provision and validation of appropriate gas / vapour membranes in buildings ▪ Designing of appropriate concrete for aggressive ground. ▪ Installation of appropriate chemical resistant water pipes.

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1.0 Introduction

1.1. Terms of Reference

Rodgers Leask Ltd (RLL) was commissioned by St. Modwen Developments Ltd. (SMD) to prepare a sitewide Remediation Strategy for the proposed works for part of the Glan Llyn, Llanwern site (hereafter referred to as the 'Site'). This Remediation Strategy does not cover the 'Coking Works' or early residential phases in the west of the wider site which have already been developed. A site location plan with a red line boundary of the area covered by this report is shown on Drawing 18669-RLL-21-XX-RE-O-0164.

A contractor shall be employed by SMD to undertake the ground preparation and reclamation works, to include the requirements of this strategy. A monitoring engineer will oversee the works to monitor that the requirements of this strategy are achieved.

It is proposed that a phased approach will be adopted for the redevelopment. The majority of the west of Site is to be redeveloped for a residential end use. A school, shops, sports fields and other associated leisure facilities will also be constructed. The east of Site is to be redeveloped for a commercial end use. An illustrative masterplan (ref. 8111-08-A011, dated April 2019) is available in **Appendix A**.

1.2. Objectives

The objective of this document is to specify both the remediation and validation works required to facilitate the proposed development and mitigate identified potential risks to human health and controlled waters. The remediation works will also seek to mitigate previously unidentified risks to human health and controlled waters, should they be encountered.

The primary focus of this strategy is decreasing the infiltration through Made Ground by way of the re-engineering limiting mobilisation of leachable contaminants to the surface waters.

The remediation will comprise the excavation of hardstanding, buried obstructions and removal of contamination identified from previous phases of ground investigation and during the remedial turnover. Material is to be turned over and placed with an onward verification sampling programme to assess compliance with the remediation criteria established within this document for the Site.

Onward developer requirements are detailed in Section 6.

1.3. Planning Status

The Site currently subject to an outline planning application 06/0471 which is for the *'redevelopment of site to create a mixed use urban extension comprising: a range*

of new homes (apartments, houses and some sheltered accommodation for the elderly – use classes C2 & C3); new offices, workshops, factories, and warehouses (use classes B1, B2 & B8); community facilities including new schools and community centres (use classes D1 & D2); a local centre incorporating shops, offices and commercial leisure facilities including new bars, cafes and licenced premises (use classes A1, A2, A3 & D2); a network of open spaces including parkland, footpaths, sports pitches and areas for informal recreation; new roads, accesses and paths; healthcare and fitness facilities (use classes D1 & D2); provision for a new railway halt/ station; other ancillary uses and activities; and requiring: site clearance, treatment and preparation; the installation of new services and infrastructure; the creation of new water bodies and drainage channels; improvements/ works to the highways network and other ancillary works and activities.'

It is understood that this document will be submitted as part of a planning application for the Site towards the end of 2021.

1.4. Reference Reports

The following documents have been reviewed and should be read in conjunction with this report:

- Atkins: Glan Llyn Local Centre, Llanwern, Geo-Environmental Interpretive Report. Ref: 5111373-LLA-OUT-135.
- Atkins: Glan Llyn Primary School, Llanwern Geo-Environmental Interpretive Report. Reg: 511373-LLA-OUT-0183.
- Atkins: Glan Llyn Phases 2a & 2e, Llanwern, Geo-Environmental Interpretive Report. Ref: 511373/Geo-Environmental Interpretive Report.
- Atkins: Glan Llyn Development, Construction Management Plan, April 2014
- Atkins: Glan Llyn, Llanwern, Controlled Waters Detailed Quantitative Risk Assessment (Version: 3).
- Atkins: Glan Llyn, Llanwern, Controlled Waters Position Statement and Local Centre DQRA. Ref: Technical Note 197.
- Atkins: Glan Llyn, Newport – Engineering Measures to Reduce Permeability and Infiltration, 2016. Ref: Technical Note 256 5111373-LLA-OUT-0256.
- The Institute of Occupational Medicine: Llanwern, Assessment of Asbestos Contamination at Former Llanwern Steelworks Site, Newport, Wales, March 2014. Ref. 610-34464.
- Ian Farmer Associates: 2016. Llanwern Site Wide CWRA and Phase 2d Rotary Core Drilling Logs.
- Rodgers Leask Environmental: Glan Llyn, Phase 4D Desk Study and Phase 2 Geo-Environmental Report, August 2021, Ref: 18669-RLE-21-XX-RP-O-0146.

- Rodgers Leask Environmental: Glan Llyn, Phase 4H Desk Study and Phase 2 Geo-Environmental Report, October 2021, Ref: 18669-RLE-21-XX-RP-O-0146.
- Rodgers Leask Environmental: Glan Llyn, Llanwern (Sitewide) Controlled Waters Detailed Quantitative Risk Assessment, August 2019, Ref: 18669-RLE-19-RP-O-0006.

1.5. Limitations and Confidentiality

All conclusions and recommendations made within this report are based upon and limited to the factual information. No responsibility can be taken by RLL Ltd for information obtained by third parties and it has been assumed that all third party information provided is true and correct.

No liability can be accepted for conditions not revealed within the exploratory holes or pits undertaken. The exploratory points cover only a small portion of the total Site area. RLL Ltd has, where necessary, undertaken extrapolation between locations and no responsibility can be taken for different conditions which may occur between locations.

RLL Ltd has undertaken the work in accordance with our understanding of current best practice at the time of undertaking the report. Further assessment and revision of the report may be required should new information come to light or legislation/changes to best practice be introduced after the date of issue of the report. RLL Ltd has prepared the report for the sole use and reliance of the Client. The report may not be used or relied upon by any unauthorised third party without the explicit written agreement of RLL Ltd.

The work undertaken within this report remains the intellectual property of RLL Ltd and must not be divulged to any commercial third party without the prior written agreement of RLL Ltd.

2.0 Background Information

2.1. Proposed Development

The proposed development includes the construction of up to 4,500 dwellings comprising terraced, semi-detached and detached residential houses, apartment blocks alongside associated public open space and infrastructure. Additionally, the proposed development includes the construction of schools, sports fields, shops and other associated leisure facilities. A 50ha commercial development is proposed within the east of Site which presently comprises an Amazon distribution centre, a CAF rolling stock (train) factory and two recently completed commercial buildings (Units 2 & 3).

The Site is cross-cut and bounded by a series of north to south orientated reens (surface water ditches) which historically were box culverts beneath the Site and were cut into the natural clay. The drainage system for the proposed development comprises a number of reens cut into the clay set at similar invert levels to the former culverts.

2.2. Site Setting

The Site is centred approximately 5.35km east-south-east of Newport city centre at National Grid Reference 336336E, 186851N and covers an area of approximately 136ha. A site location plan showing the location approximate Site boundary is included in **Appendix A**.

The Site is bounded to the north by a railway line, to the west by previous residential phases of the Glan Llyn development, to the south by Queen's Way (A48110) and to the east by the operational Tata steelworks. The former Coking Works is located within the north of the Site however is subject to a separate Remediation Strategy.

2.3. Site History

Details of the documented Site history are provided in the reference reports (Section 1.4). In summary, historically the Site exclusively comprised agricultural land segregated into fields by hedgerows and drains. The wider Site was extensively developed as a steelworks by Richard Thomas and Baldwins Ltd in the 1960s. Prior to construction, marshland and arable farmland within the Site boundary was subject to approximately 2m of land raise and engineering to bring ground level to current levels. Within the confines of the development Site, steelworks ancillaries included but were not limited to; mineral stockyards, coal stockyards, blast furnaces, offices, railway sidings and the 'Bitmac' Plant, a benzole refinery.

Steel making operations ceased in the western half of the wider site in 2001, with the majority of infrastructure demolished in 2004, following land transfer to St. Modwen Developments Ltd.

It is much of the materials used as part of this pre-development land raise, together with demolished former steelworks buildings and structures that comprise the existing Made

Ground across the Site, which will be subject to the proposed reengineering and compaction works associated with this redevelopment.

2.4. Geology and Hydrogeology

Information presented on the British Geological Survey website, GeoIndex[1] indicates that the Site is underlain by superficial geology of Tidal Flat Deposits comprising clays and silts.

The superficial deposits are described on the BGS Lexicon as '*tidal flat deposits, including mud flat and sand flat deposits, deposited on extensive nearly horizontal marshy land in the intertidal zone that is alternately covered and uncovered by the rise and fall of the tide. They consist of unconsolidated sediment, mainly mud and/or sand. They may form the top surface of deltaic deposit. Normally a consolidated soft silty clay, with layers of sand, gravel and peat. Characteristically low relief*'.

The superficial deposits are shown to be underlain by bedrock strata of the Mercia Mudstone Group across the majority of the Site apart from a strip along the northern boundary and the north-east corner of Site which is shown to be underlain by bedrock strata of the Penarth Group and St Mary's Well Bay Member.

The Mercia Mudstone Group is described on the BGS Lexicon as comprising '*Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite widespread; sandstones are also present*'.

The Penarth Group is described on the BGS Lexicon as comprising '*Grey to black mudstones with subordinate limestones and sandstones; predominantly marine in origin'.*

The St Mary's Well Bay Member is described on the BGS Lexicon as comprising '*Limestone and mudstone, interbedded'*.

The Tidal Flat Deposits are classified as unproductive strata.

The Mercia Mudstone Group is classified as a Secondary B Aquifer. Secondary B aquifers are defined by the Environment Agency (EA) as: '*predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers'*.

The Penarth Group is classified as a Secondary (undifferentiated) Aquifer; this classification is defined by the EA as being: *'predominantly lower permeability layers which may*

The St Mary's Well Bay Member is classified as a Secondary A Aquifer; this classification is defined by the EA as: *'permeable layers capable of supporting water supplies at a local*

[1] http://mapapps2.bgs.ac.uk/geoindex/home.html

rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.'

Information presented in the Landmark Envirocheck Report (2021) indicated that there are no recorded groundwater abstractions licences or potable water abstraction licenses within 500m of the Site and it is not within a groundwater source protection zone.

2.5. Hydrology

The surface water drainage onsite comprises several man-made surface water drainage ditches (reens) cut into the natural clay which divide the Site north to south, receiving water from the land to the north in addition to onsite drainage baseflow. Monks' Ditch (which is considered a 'main river') cross cuts the Site from north-south and Julian's Reen runs approximately parallel to the western boundary, 10m away at the nearest point. The reens are connected to east-west drains which run the length of the Site along A4810 (Queen's Way Road) within 50m from the southern boundary and the north carrier drain within the Site adjacent to the northern boundary; ultimately discharging to the water treatment works at the operational Tata steelworks to the east of the Site.

The River Usk is located approximately 2.9km to the west and the Severn Estuary is located approximately 4.2km to the south.

Information presented on the Natural Resources Wales (NRW) Flood Map for Planning website[2] indicates that the Site lies in Flood Zone C, land served by significant infrastructure, including flood defences. Several small areas, notably in the centre of Site, to the west of Monks' Ditch, are indicated to lie in Flood Zone B, areas known to have flooded in the past.

2.6. Radon

Information presented on the UK Health Security Agency 'UK Maps of Radon' website[3] indicate that the majority of the Site is not within a Radon Affected Area, as less that 1% of properties are above Action Level. The north and eastern part of the Site lies within an area of elevated radon potential, with a maximum radon potential of 5-10%. Further assessment is required on a phase by phase basis to ascertain if radon protection measures are needed.

[2] https://naturalresources.wales/flooding/flood-map-for-planning-development-advice-map
[3] https://www.ukradon.org/information/ukmaps

3.0 Pre-Remediation Ground Investigations

Numerous phases of ground investigation have been undertaken within the Glan Llyn site, Llanwern. Historically ground investigations were undertaken on a phase by phase basis and local conditions are presented in respective factual and geo-environmental reports.

A sitewide ground investigation was undertaken in 2016, the CWRA Ground Investigation (IFA, 2016) which provides a sitewide coverage, information on the regional groundwater and deeper geology.

Information relevant to pre-remediation ground conditions are presented within the RLE Controlled Waters Detailed Quantitative Risk Assessment 2019 (**Appendix B**)

3.1. Geological Summary

The geology on site is well assessed with intrusive investigations recording the Site to be underlain by Made Ground overlying Tidal Flat Deposits. Bedrock strata of the Mercia Mudstone Group underlies the Tidal Flat deposits.

Topsoil

Topsoil was found only locally within some exploratory holes and was often of nominal thickness. Where present the topsoil was described as soft brown slightly sandy clay.

Made Ground

Made Ground was present in all exploratory hole locations. Thickness varied between 0.2m to 2.6m and was present at ground level within the majority of exploratory holes. The DQCWRA described three distinct types of Made Ground:

- Grey occasionally clayey sandy gravel of angular to subangular fine to coarse slag with occasional tarmac, concrete, brick, limestone and ceramic/fused slag.
- Red brown/ brown clayey sandy gravel (locally gravelly sand) with cobbles and boulders
- Red brown/ brown soft to firm sandy gravelly clay with cobbles and boulders. Gravel includes subrounded to angular fine to coarse burnt shale, brick, slag, sandstone, mudstone, shale and occasional coal.

Tidal Flat Deposits

Tidal Flat deposits were encountered in all locations where the Made Ground was penetrated. Thickness of the tidal flats varied from 7 – 10m. Descriptions of the deposits were variable, typically comprising interbedded clays, peat and sands.

Within the Tidal Flat deposits, distinct horizons are described as followed in the sequence order below;

- Upper Clay – Generally very soft to firm blue grey slightly gravelly silty clay with rare localised pockets of peat.
- Upper Peat – Generally spongey dark brown occasionally clayey fibrous peat
- Lower peat - Generally spongy to plastic dark brown occasionally clayey occasionally sandy pseudo fibrous to amorphous peat.

- Lower Clay – generally soft to firm bluish grey slightly sandy slightly gravelly clay. Gravel is angular to subangular fine to medium sandstone.
- Red Clay – generally firm to stiff red brown mottled grey slight gravelly clay, gravel is angular to subangular fine to medium mudstone.
- Basal sand – Generally medium dense light brown slightly silty slightly gravelly fine grained sand the gravel is of subrounded to subangular fine siltstone and quartzite.

Not all horizons were identified in all holes and it is understood that horizons are variable across the site.

Solid Geology

The solid geology of the Mercia Mudstone Group was encountered during the intrusive investigations. The thickness was not proven. The Mercia Mudstone was described as stiff to very stiff reddish brown slightly gravelly clay and extremely weak to very weak occasionally laminated red brown mudstone.

Groundwater

A summary of groundwater levels recorded in deep and shallow wells were presented in Appendix C of the RLE 2021 CWDQRA Report.

It was considered that groundwater levels recorded during the CWRA GI and subsequent monitoring suggested that the groundwater is present beneath the proposed development as follows:

- Shallow / perched groundwater within the Made Ground (shallow boreholes); and
- Groundwater within the Tidal Flat Deposits (confined to the basal sand layers) and Mercia Mudstone (deep boreholes).

Groundwater monitored within the deep boreholes was considered to be primarily derived from the bedrock geology, and hydraulic continuity between the upper perched shallow groundwater and 'regional' groundwater was considered likely to be limited. Post-development, the excavation and re-compaction of the Made Ground was recognised as likely to reduce its permeability, lowering still further, the hydraulic continuity.

3.2. Contamination Assessment

The sources of contamination within the site are known to be the Made Ground, which was historically used to build up the level of the site and known to include imported materials (slag, concrete, brick, burnt shale) from other steelworks in addition to natural deposits.

Chemical compounds which have the potential to contaminate the ground outlined by the Department of Environment (DoE, 1995) as being associated with metal production industry are: metals and metalloids, inorganic compounds, acids and alkalis. Contaminants, particularly related to coke-making include; PAHs, cyanides, ammoniacal liquors, sulphur and sulphates, BTEX VOCs and also include petroleum-based fuels and oils.

4.0 Controlled Waters Risk Assessments

4.1.1. Atkins 2017, Controlled Waters Detailed Quantitative Risk Assessment

The initial Controlled Waters Detailed Quantitative Risk Assessment (CWDQRA) prepared by Atkins (Version: 3 and dated February 2017), was issued with the intention that, as more extensive site specific information was collected, the assessment would be reviewed and updated. It was described as the starting point and that the proposed criteria were understood to be conservative. The CWDQRA modelled two site conditions for the mixed use development; comprising residential and commercial end usage. More details are included in the following reports:

- Atkins: Glan Llyn, Llanwern, Controlled Waters Detailed Quantitative Risk Assessment (Version: 3).
- Atkins: Glan Llyn, Llanwern, Controlled Waters Position Statement and Local Centre DQRA. Ref: Technical Note 197.

The CWDQRA included the following:

Sources

With respect to controlled waters, the following potential sources of contamination were identified:

- Made Ground – Historically used to build up the level of the site, is known to include imported waste products (slag, concrete, brick, burnt shale) from other steelworks in addition to natural deposits.
- Chemical compounds which have the potential to contaminate the ground associated with metal production industry:
    - Metalloids, inorganic compounds, acids and alkalis.
- Chemical compounds which have the potential to contaminate the ground associated with the coke production industry:
    - PAH, fuels and oils.
- Groundwater within the bedrock noted to have contaminants associated with the former steel producing industry.

Pathways

With respect to controlled waters, the following potential pathways were identified:

- Leaching of soil-borne contamination in Made ground and subsequent lateral migration through permeable pathways in Made Ground to Monks' Ditch via onsite reens.

No effective pathway was identified between the shallow perched water in the Made Ground and the deep groundwater within the Mercia Mudstone Secondary B Aquifer due to the low permeability of the clay-rich Tidal Flat Deposits.

Receptors

With respect to controlled waters, the following potential pathways were identified:

- Monks' Ditch (into which surface water from the development site is to be pumped).
- Mercia Mudstone Secondary B Aquifer.

Monks' Ditch, as a Main River, was considered to the principal receptor for any Controlled Waters impact at the site.

Remediation Target Values

The Atkins CWDQRA modelling generated material re-use criteria for the soils which is shown in the following table:

Atkins 2017 Material Re-use Criteria				
Determinand (PCOD)	**EQS (mg/l)**	**EQS Reference**	**Commercial Area**	**Residential Area**
Inorganic Metals and Metalloids				
Arsenic	0.05	1	4,328.7	1,093.5
Cadmium	0.00025	1	124.8	31.5
Chromium	0.0047	1	1,611.6	4,071.1
Copper	0.001	1 (d)	770.8	194.7
Iron	1	1	520,673.3	13,152.73
Lead	0.0012	1 (d)	26,890.6	6,792.8
Manganese	0.123	1 (d)	56,930.2	14,381.1
Mercury	0.00007	1	224.9	56.8
Nickel	0.004	1 (d)	19,667.7	4,968.3
Selenium	0.01	8	1,199.4	303
Vanadium	0.02	3	2,744.2	693.2
Zinc	0.0109	1 (d)	235.023.1	59,369.2
Other Inorganics				
Ammoniacal Nitrogen	0.3	1	263.9	66.7
Cyanide	0.001	1	3.5	0.87
Organics				
Benzene	0.01	1	6.5	1.6
Toluene	0.074	1	219.5	55.4
Ethylbenzene	0.02	4	137.2	34.7
Xylene	0.03	3	126.7	32.0
Phenol	0.0077	1	5.2	1.3
TPH Criteria Working Group31.5				
TPH Aliphatic >C_5-C_6	0.01	6	124.8	31.5
TPH Aliphatic >C_6-C_8	0.01	6	613.8	155.1
TPH Aliphatic >C_8-C_{10}	0.01	6	4,854	1,226.2
TPH Aliphatic >C_{10}-C_{12}	0.01	6	38,531.7	9,733.5
TPH Aliphatic >C_{12}-C_{16}	0.01	6	768,731.7	194,189.4
TPH Aliphatic >C_{16}-C_{21}	0.01	6	96,776,235.1	24,446.657.1
TPH Aliphatic >C_{21}-C_{35}	0.01	6	96,776,235.1	24,446.657.1
TPH Aliphatic >C_{35}-C_{44}	0.01	6	96,776,235.1	24,446.657.1
TPH Aromatic >C_5-C_7	0.01	1, 2 (benzene)	14.5	3.7
TPH Aromatic >C_7-C_8	0.074	1 (toluene)	302.6	76.4
TPH Aromatic >C_8-C_{10}	0.01	6	245.4	62

Atkins 2017 Material Re-use Criteria				
Determinand (PCOD)	**EQS (mg/l)**	**EQS Reference**	**Commercial Area**	**Residential Area**
TPH Aromatic >C_{10}-C_{12}	0.01	6	387.6	97.9
TPH Aromatic >C_{12}-C_{16}	0.01	6	771.1	194.8
TPH Aromatic >C_{16}-C_{21}	0.01	6	2,433.3	614.7
TPH Aromatic >C_{21}-C_{35}	0.01	6	19,311.7	4,878.3
TPH Aromatic >C_{35}-C_{44}	0.01	6	19,311.7	4,878.3
TPH Aromatic >C_{40}-C_{44}	0.01	6	19,311.7	4,878.3
Polycyclic Aromatic Hydrocarbons				
Acenapthene	0.0001	5	28.6	7.2
Acenapthylene	0.0001	5	50.8	12.8
Anthracene	0.0001	1	58.3	14.7
Benzo(a) anthracene	0.001	5	1,037	262
Benzo(a)pyrene	0.00000017	1	11	0.28
Benzo(b)fluoranthene	0.00000017	1	5.8	1.5
Benzo(k)fluoranthene	0.00000017	1	8.6	2.2
Benzo(g,h,i)perylene	0.00000017	1	22.7	5.7
Chrysene	0.0001	5	1,0611	268.1
Di-benz(a,h)anthracene	0.0001	5	1,431.4	361.6
Indeno(1,2,3-cd)pyrene	0.00000017	1	43.3	10.9
Fluoranthene	0.0000063	1	11.3	2.9
Fluorene	0.0001	5	46.3	11.7
Napthalene	0.002	1	46.9	11.8
Phenanthrene	0.0001	5	46.3	11.7
Pyrene	0.0001	5	130.6	32

The residential end use was assumed to have a rainwater interception/ infiltration ratio of 60:40. The commercial end use was assumed to have a rainwater interception/ infiltration ratio of 95:5. The interception is where roofs, roads and hard paving take the rainwater and transfer it directly into the surface water reens. The infiltration is where rainwater lands on grassed of landscaped areas and is able to percolate into the construction material (soils, piling mat, sub-base etc.) and underlying post-development Made Ground. The current evapotranspiration rate for grassed areas is estimated as 600mm/a against an annual rainfall rate of 953mm/a. The earlier Atkins value utilised, (applicable to permeable areas) was 416mm/a.

The Atkins CWDQRA, which generated the initial criteria, assumed that 100% of the infiltrated rainwater (12.85mm per year or 1.3% of total rainfall) percolated through the construction material and in to the Made Ground.

On derivation of their soil re-use criteria (calculated to be expressed as mg/kg for direct comparison against actual soils analytical data obtained), it was previously noted by Atkins in their 2017 CWDQDRA Report and demonstrated in their associated Table 5.5 that the maximum and average soil sample concentrations resulted in some exceedances for inorganic compounds, copper and vanadium. It was also noted that there were exceedances in surface water analyses for iron, manganese, cyanide and ammoniacal nitrogen. Although these had not been previously analysed by Atkins in soil samples, subsequent analyses has included these determinands.

Exceedances were also noted in soil samples analysed for organic compounds, especially C_{12}-C_{35} species aromatic TPH (total petroleum hydrocarbons), and a number of PAH (polycyclic aromatic hydrocarbons) species as compared to the

derived soil re-use criteria. Concentrations of PAHs present in actual soil analytical data obtained were, in some cases, over on order of magnitude in excess of the calculated re-use criteria, suggesting that attenuation, particularly of heavy fraction TPH and PAHs is likely to be an issue on this site requiring further consideration as part of the proposed remedial and redevelopment works. Although previous analysis of soils samples undertaken by Atkins did not include phenols, recent analyses has included this determinand.

4.1.2. Rodgers Leask Environmental 2019, Controlled Waters Detailed Quantitative Risk Assessment

The 2019 CWDQRA (**Appendix B**) was prepared by RLE to update and further develop the earlier Atkins CWDQRA. The principal rationales for reviewing the model that generated the initial criteria were:

- The amount of additional field, site specific data collected since preparation of the earlier Atkins CWDQRA.
- The remedial benefit of the currently proposed turnover and re-engineering process were not included in the earlier Atkins CWDQRA.

More detail is included in the following report:

- Rodgers Leask Environmental: Glan Llyn, Llanwern (Sitewide) Controlled Waters Detailed Quantitative Risk Assessment, August 2019, Ref: 18669-RLE-19-RP-O-0006 (**Appendix B**).

The CWDQRA was undertaken based on sampling data obtained prior to the completion of remedial works within the Site, hence it is anticipated to be in its worst condition. The undeveloped Site is considered a worst case scenario where rainfall is free to percolate through material that has not been compacted to reduce permeability. Removal of unsuitable material and increased compaction through re-engineering and the subsequent redevelopment of the Site will reduce infiltration and mobilisation serving to improve the currently monitored conditions. The reclamation, in terms of surface water quality, will be at its most effective when the Site is fully built out.

The updated CWDQRA identified the following:

<u>Sources</u>

With respect to controlled waters, the following potential sources of contamination were identified:

- Made Ground - Historically used to build up the level of the site was known to include imported waste products (slag, concrete, brick, burnt shale) from other steelworks in addition to natural deposits.
- Chemical compounds which have the potential to contaminate the ground associated with metal production industry:

    - Metals and metalloids, inorganic compounds, acids and alkalis.
- Chemical compounds which have the potential to contaminate the ground associated with the coke production industry:
    - PAHs, cyanides, ammoniacal liquors, sulphur and sulphates, BTEX VOCs and petroleum-based fuels and oils

Pathway

With respect to controlled waters, the following potential pathways were identified:

- Leaching of soil-borne contamination in Made Ground and subsequent lateral migration through permeable pathways in Made Ground to Monks' Ditch via on-site reens.

No effective pathway was identified between the shallow groundwater in the Made Ground and the deep groundwater within the Mercia Mudstone Secondary B Aquifer, due to the low permeability of the clay-rich Tidal Flat Deposits and the aquifer being under sub-artesian pressure.

Receptors

With respect to controlled waters, the following potential receptors were identified:

- Monks' Ditch (into which surface water from the development site is to be pumped).
- Mercia Mudstone Secondary B Aquifer.

Monks' Ditch, as a Main River, was considered to the principal receptor for any Controlled Waters impact at the site.

Re-Engineering

In 2016, geotechnical information relating to the permeability of the Made Ground was assessed (Atkins Ltd Permeability Infiltration Technical Note Ref: 5111373-LLA-OUT-0256, dated 15th December 2016), but this was not used in the model for the Atkins 2017 CWDQRA. The Atkins Ltd Technical Note presented information on the characteristics of the reengineered ground. Previous phase specific Earthworks Specifications for the placement of material (following the turnover to natural clay), requires particle size distribution (PSD) tests, density tests, compaction tests and air void tests on each layer to validate the material has been compacted sufficiently.

The particle size distribution within the Made Ground is known to be well graded and when compacted, the permeability is assessed as having a low permeability/ poor drainage potential. A number of falling head tests were undertaken within a re-engineered plot, which returned failed test results. The reengineering therefore has a remediation/ stabilising benefit, by creating a low permeability material and this can be assessed by the geotechnical validation information collected for each

phase. The compacted material would be considered difficult to dig by normal mechanical means.

In contrast to the re-engineered ground, the construction materials (6F2 piling mat & clean soils) placed above the Made Ground are likely to be of good drainage potential (if they are not, then they will only serve to further limit the downward migration of rainwater).

The low permeability re-engineered material inhibits the downward migration of infiltrated rainwater as the pore water in the construction material does not readily flow into the material with much reduced pore spaces (air voids <10%). Lowering the permeability of this material also greatly increases time taken by the perched water to travel within the material.

The engineered characteristics have two distinct remedial benefits as follows:

- The volume of infiltrated water entering the body of re-engineered Made Ground is reduced, therefore the volume of water exposed to mobile contaminants is also reduced;
- The time taken for migration of the perched water within the re-engineered ground is greatly increased and therefore, the volume of perched water reaching the surface water via this route is reduced, increasing the ratio of clean rainwater in the surface water reens. Where this passage is also through areas of cleaner reengineered Made Ground, there are likely to be benefits associated with increased contamination attenuation prior to reen discharge. These are the areas of the site where some retardation (degradation and/ or sorption) of contaminants within the Made Ground is considered possible. On this basis it is proposed to place ‘cleaner’ Made Ground closer to the reens which are known to be the surface water receptors for the perched waters.

The Atkins CWDQRA, that generated the initial criteria, assumed that in areas of soft landscaping, 100% of the infiltrated rainwater (12.85mm per year or 1.3% of total rainfall) percolated through the construction material (imported top soils) and in to the Made Ground. This value takes account of estimated surface-water run-off (55% of total rainfall) and evapotranspiration (43.7% of total rainfall). It is considered likely that the lowest achievable, permeability of the post-development Made Ground is like to be in the region of (1x10-7 m/s).

It was also apparent in the Atkins CWDQRA and Conceptual Site Model that although lateral drainage within the capping layer was anticipated, this wasn’t accounted for in the calculations, where it assumed that essentially all (1.3% of the total rainwater) passed into the underlying post-development Made Ground. It is therefore reasonable to assume that a reduction in infiltration into post-development Made Ground will be enabled by the placement of higher permeability ground surface construction materials (imported piling mat & soils) and any possible introduced gradient within this layer which will encourage an element of lateral flow.

In order to gauge potential impacts on the existing calculated soil reuse criteria, a process of sensitivity analyses was therefore proposed using a scenario where 40% of the 12.85mm per year (5.14mm/year) penetrates into the underlying post-development Made Ground. It is recognised that this modelling is of a further potential reduction in what is already, apparently, a low rate of rainwater infiltration (1.3% of total rainfall). Reuse criteria would then be derived for the range of determinands previously selected by Atkins, and it was proposed that these criteria now also include iron, manganese, cyanide, ammoniacal nitrogen and phenol, which would be modelled in current revision to the report.

Remedial Target Values

The 2019 CWDQRA has derived Site specific reuse criteria for 40% infiltration. The tables below present the proposed reuse criteria, pink highlighted cells represent where the maximum recorded concentration exceeds the CWDQRA criteria:

Determinand	Commercial Area				Residential Area			
	Re-use Criteria C_{mq} (mg/kg)	Maximum Soil Sample Value* (mg/kg)	Average Soil Sample Value* (mg/kg)	95th Percentile	Re-use Criteria (mg/kg)	Maximum Soil Sample Value (mg/kg)	Average Soil Sample Value* (mg/kg)	95th Percentile
Inorganic Metals and Metalloids								
Arsenic	11468.786	397.00	12.12	22.00	2902.688	397.00	12.12	22.00
Cadmium	330.551	31.30	0.66	2.22	83.661	31.30	0.66	2.22
Chromium	42699.080	3090.00	123.26	533.00	10806.907	3090.00	123.26	533.00
Copper	2042.252	1970.00	25.60	53.84	516.883	1970.00	25.60	53.84
Iron	1379515.806	*2390000.00*	92413.21	255000.00	349148.010	*2390000.00*	92413.21	255000.00
Lead	71246.366	4220.00	81.71	211.60	18032.071	4220.00	81.71	211.60
Manganese	150835.652	*408000.00*	8689.62	32270.00	38175.690	*408000.00*	8689.62	32270.00
Mercury	595.859	*14.00*	0.61	1.40	150.809	*14.00*	0.61	1.40
Nickel	52109.372	313.00	25.04	43.86	13188.601	313.00	25.04	43.86
Selenium	3177.881	51.70	5.62	15.60	804.305	51.70	5.62	15.60
Vanadium	7270.791	2880.00	186.56	645.25	1840.198	2880.00	186.56	645.25
Zinc	622690.141	13300.00	281.36	771.40	157599.516	13300.00	281.36	771.40
Other Inorganics								
Ammoniacal Nitrogen	699.276	*1590.00*	62.39	269.00	176.983	*1590.00*	62.39	269.00
Cyanide	9.140	*272.00*	2.53	4.58	2.313	*272.00*	2.53	4.58
Organics								
Benzene	17.220	7.03	0.15	0.20	4.358	7.03	0.15	0.20
Toluene	581.530	28.30	0.13	0.14	147.182	28.30	0.13	0.14
Ethylbenzene	363.617	1.15	0.06	0.08	92.030	1.15	0.06	0.08
Xylene	335.724	61.50	0.20	0.20	84.970	61.50	0.20	0.20
Phenol	13.816	1.51	0.02	0.03	3.497	1.51	0.02	0.03
TPH Criteria Working Group								
Aliphatics >C5-C6	330.563	0.92	0.03	0.04	83.664	0.92	0.03	0.04
Aliphatics >C6-C8	1626.370	3.90	0.04	0.08	411.626	3.90	0.04	0.08
Aliphatics >C8-C10	12860.726	74.20	0.20	0.16	3254.980	74.20	0.20	0.16
Aliphatics >C10-C12	102089.217	987.00	2.06	0.48	25838.230	987.00	2.06	0.48
Aliphatics >C12-C16	2036742.733	1330.00	7.41	19.40	515488.601	1330.00	7.41	19.40
Aliphatics >C16-C21	256407138.283	3530.00	26.15	74.28	64895263.78	3530.00	26.15	74.28
Aliphatics >C21-C35	256407138.283	3580.00	73.42	212.40	64895263.78	3580.00	73.42	212.40
Aliphatics >C35-C44	256407138.283	1380.00	23.71	81.28	64895263.78	1380.00	23.71	81.28
Aromatics >EC5-EC7	38.530	5.26	0.04	0.04	9.752	5.26	0.04	0.04
Aromatics >EC7-EC8	801.639	20.30	0.05	0.04	202.890	20.30	0.05	0.04
Aromatics >EC8-EC10	650.327	49.50	0.15	0.14	164.594	49.50	0.15	0.14
Aromatics >EC10-EC12	1027.020	658.00	1.38	0.32	259.933	658.00	1.38	0.32
Aromatics >EC12-EC16	2042.955	5280.00	11.68	20.96	517.061	5280.00	11.68	20.96
Aromatics >EC16-EC21	6446.891	9800.00	46.85	127.80	1631.673	9800.00	46.85	127.80
Aromatics >EC21-EC35	51166.143	9010.00	113.20	400.80	12949.875	9010.00	113.20	400.80

Determinand	Commercial Area				Residential Area			
	Re-use Criteria C_{mg} (mg/kg)	Maximum Soil Sample Value* (mg/kg)	Average Soil Sample Value* (mg/kg)	95th Percentile	Re-use Criteria (mg/kg)	Maximum Soil Sample Value (mg/kg)	Average Soil Sample Value* (mg/kg)	95th Percentile
Aromatics >EC35-EC44	51166.143	1580.00	39.47	145.40	12949.875	1580.00	39.47	145.40
Aromatics >EC40-EC44	51166.143	724.00	14.62	51.92	12949.875	724.00	14.62	51.92
Polyaromatic Hydrocarbons								
Acenaphthylene	75.733	2100.00	2.35	1.96	19.168	2100.00	2.35	1.96
Acenaphthene	134.627	193.00	0.37	0.31	34.073	193.00	0.37	0.31
Anthracene	154.563	1860.00	2.78	4.00	39.119	1860.00	2.78	4.00
Benz(a)anthracene	2747.512	1150.00	3.62	8.63	695.380	1150.00	3.62	8.63
Benzo(a)pyrene	156.023	714.00	2.92	7.93	39.489	714.00	2.92	7.93
Benzo(b)fluoranthene	15.466	1110.00	4.15	11.18	3.914	1110.00	4.15	11.18
Benzo(k)fluoranthene	22.876	373.00	1.63	4.18	5.790	373.00	1.63	4.18
Benzo(g,h,i)perylene	60.170	333.00	1.98	5.62	15.229	333.00	1.98	5.62
Chrysene	2811.508	1090.00	3.31	8.46	711.578	1090.00	3.31	8.46
Dibenzo(a,h)anthracene	3792.598	177.00	0.58	1.40	959.886	177.00	0.58	1.40
Indeno(1,2,3-cd)pyrene	114.651	374.00	2.04	5.46	29.018	374.00	2.04	5.46
Fluoranthene	30.083	2940.00	8.97	20.50	7.614	2940.00	8.97	20.50
Fluorene	122.786	1890.00	2.17	1.75	31.077	1890.00	2.17	1.75
Naphthalene	124.264	4680.00	8.42	4.14	31.450	4680.00	8.42	4.14
Phenanthrene	122.786	3810.00	7.57	11.48	31.077	3810.00	7.57	11.48
Pyrene	345.946	1.95	0.01	0.02	87.557	1.95	0.01	0.02

Recommendations

The updated CWDQRA concluded that the compaction and validation testing of the re-engineered Made Ground assists in verifying that the earthworks have a remediation/ stabilising benefit, by creating a low permeability material. The low permeability re-engineered material inhibits the downward migration of infiltrated rainwater. Lowering the permeability of this material also greatly increases time taken by the perched water to travel within the material. The falling head tests undertaken, that failed, provide another line of site based testing indicating the material has a low permeability.

The Atkins CWDQRA assumed 100% of rainfall would infiltrate the Made Ground, allowing leachable contaminants to mobilise and impact surface wates therefore very conservative reuse criteria were proposed. Taking into account more realistic conditions, the RLE CWDQRA proposed a scenario based on 40% infiltration for a residential and commercial end use.

It is proposed that a conservative 40% infiltration is assumed to derive the Site Acceptance Criteria for this Remediation Strategy.

Total Cyanide

Exceedances for total cyanide in soils were noted in the calculated re-use criteria for both residential and commercial re-use scenarios. However, the results of Level 3 Groundwater P20 modelling using the porewater leachate equivalent of the 95th percentile cyanide concentration in site soils has indicated the relatively rapid attenuation of cyanide concentrations within the re-engineered Made Ground, with these results suggesting that placement of such material within a 20m distance of the receiving water reens is unlikely to cause discernible impact. This finding is

generally consistent with the site sampling findings, where approximately 3.4% of on-site surface waters were found to contain cyanide concentrations in excess of the proposed WQS. However, it has been noted that there appears to a slight increase in cyanide concentrations within the reen system, possibly as leached contributions are made from deposited materials associated with the former coking works located within the northern central section of the site.

Ammoniacal Nitrogen

Exceedances for ammoniacal nitrogen in soils were noted in the calculated re-use criteria for both residential and commercial re-use scenarios. The results of Level 3 Groundwater P20 modelling using the porewater leachate equivalent of the 95th percentile ammoniacal nitrogen concentration in site soils has indicated a slight exceedance of the EQS at a distance of 20m from the receiving water reens. However, if this material is placed at a minimum distance of approximately 30m from receiving water reens, then these soils are unlikely to cause discernible impact.

The remedial works in the area of the site previously occupied by the coking works should have a positive impact on the reduction of ammoniacal and cyanide leachates, which appear to be currently entering the surface water reen drainage system from this source area.

5.0 Conceptual Site Model

5.1. Potential Pollutant Linkages

This section provides a qualitative assessment of the risk posed from potential on-Site contamination sources identified from the information presented in the previous sections. The CSM considers the findings of the ground investigations that have been undertaken at the Site and the Site's history.

The CSM below has been developed based on the commonly adopted source-pathway-receptor model as recommended within the Land Contamination Risk Management (LCRM) guidance from the Environment Agency[4].

A visual interpretation of the CSM is included in **Appendix C**.

5.2. Sources

The Site has comprised a steelworks from the 1960s through to 2004 when the majority of the infrastructure was demolished. Historically, ancillaries within the confines of the Site included, but were not limited to, mineral stockyards, blast furnaces, offices, railway sidings and a 'Bitmac' plant, a benzole refinery.

Additionally, Made Ground, including slag, concrete, brick and burnt shale, was imported from sources around south Wales, including other steelworks, to raise levels across the Site.

Following a review of the Site history and ground investigation information, the following sources have been identified:

- Made Ground known to include imported waste products (slag, concrete, brick, burnt shale) from sources around south Wales, including other steelworks in addition to natural deposits.
- Chemical compounds which have the potential to contaminate the ground associated with metal production industry:
    - Metals and metalloids, inorganic compounds, acids and alkalis.
- Chemical compounds which have the potential to contaminate the ground associated with the coke and 'benzole' production industry:
    - PAHs, cyanides, ammoniacal liquors, sulphur and sulphates, BTEX VOCs and petroleum-based fuels and oils

5.3. Potential Receptors

The following receptors (current and proposed) have been identified at the Site:

<u>Humans:</u>

- Construction workers and maintenance workers;

[4] https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

- Commercial unit employees and visitors on and off-Site (current and proposed); and
- Residents on and off-Site (current and proposed).

Controlled Waters:

- Monks' Ditch (into which surface water from the development site is to be pumped); and
- Mercia Mudstone Secondary B Aquifer.

Property:

- Existing and proposed buildings and services on and immediately surrounding the Site; and
- Proposed infrastructure on the Site.

5.4. Potential Pathways

Human Health

There is potential for exposure of Site users (future and proposed) to contaminants in soils via the following pathways, for a residential end use.

- Direct soil and dust ingestion;
- Consumption of home grown produce;
- Consumption of soil adhering to home grown produce;
- Dermal contact with soil and indoor dust; and
- Inhalation of indoor and outdoor dust, gases and vapours.

The potential presence of contamination within the Site presents a potential risk to construction workers within the Site boundary, as such appropriate risk assessments and safety measures (use of PPE / hygiene rules) will need to be enforced in order to provide adequate protection.

Given the potential for vapours from hydrocarbons in soils, possible hydrocarbon contamination in groundwater and radon associated with the regional geology in some areas of the Site, subject to further risk assessment on a phase by phase basis, appropriate protective membranes may be required.

Controlled Waters

The main controlled water receptors at the Site are Monk's Ditch, a main river channel, and the Secondary B Aquifer associated with the underlying Mercia Mudstone Group.

With regard to controlled waters, the following pathways are considered applicable:

- Lateral migration through soils and bedrock towards the nearest surface water feature.
- Lateral migration through existing infrastructure e.g. drainage, reens.

5.5. Conceptual Site Model and Risk Assessment

Based on the information currently available, plausible pollutant linkages have been identified and a risk assessment has been undertaken for the Site. The estimation of the potential significance of each linkage is based on the proposed Site redevelopment, the mobility and the predicted magnitude of potential contaminants, and the nature of the identified migration/exposure pathways.

Summary of Pre-Remediation and Post Remediation Conceptual Site Model (CSM)										
Sources	**Key Contaminants**	**Receptor**	**Pathway**	**Pre-Remediation**			**Post-Remediation**			
				Probability	**Consequence**	**Risk Level**	**Mitigation**	**Probability**	**Consequence**	**Risk Level**
Made Ground Contaminants within soil and generation of gases.	Inorganic substances (heavy metals/ asbestos) Organic substances (ammoniacal nitrogen, petroleum hydrocarbons, PAHs, VOCs, SVOCs)	Human Health: Construction Workers End Users (on and off site)	Direct Contact – dermal contact, absorption through skin, ingestion. Inhalation of vapours (VOCs) from soil derived gas via Made Ground. Inhalation of contaminants in soils/dust/fibres.	Moderate likelihood	Medium	Moderate	During construction, appropriate PPE should be worn when coming into contact with arisings. With the installation of a clean cover system the pathway of contaminants within the underlying soil to reach human health receptors is essentially severed. Additional post-remedial ground gas / vapour assessment is required.	Low likelihood	Medium	Low
		Property: Future on Site Buildings Future on Site Infrastructure	Direct contact – contaminants in soils, soil derived dust, perched water and groundwater. Concrete in contact with aggressive ground.	Moderate likelihood	Medium	Moderate	Additional post-remedial ground gas / vapour assessment is required. Design of concrete in accordance with BRE Special Digest 1. Dependent upon finished levels, its likely that chemical resistant barrier pipes will be required.	Low likelihood	Medium	Low
			Potential migration and build-up of methane from soil derived gas via Made Ground (risk of explosion). Potential migration and build-up of carbon dioxide from soils derived gas via Made Ground (risk of asphyxiation).	Moderate likelihood	Medium	Moderate	Additional post-remedial ground gas / vapour assessment is required to further assess the Site.	Low likelihood	Medium	Moderate
		Controlled Waters: Secondary B Aquifer Monk's Ditch	Potential migration of leachable contaminants through shallow groundwater.	Moderate likelihood	Medium	Moderate	Analysis of the groundwater data and the production of a Controlled Waters Risk Assessment has shown the leachable effect of the Made Ground on the controlled waters receptors is acceptable. The proposed remediation and onward redevelopment will reduce infiltration in an overall betterment of the Site.	Low likelihood	Medium	Moderate
		Flora and Fauna	Uptake through roots of contaminants in soils.	Unlikely	Medium	Low	Importation of suitable topsoil material for use within garden areas and landscaped areas.	Unlikely	Medium	Low
Residual contaminants in groundwater	Inorganic substances (heavy metals) Organic substances (ammoniacal nitrogen, petroleum hydrocarbons, PAHs, VOCs, SVOCs)	Human health: Construction Workers End Users	Direct contact – dermal contact, absorption through skin, ingestion. Inhalation of vapours (VOCs) from soil derived gas via Made Ground.	Moderate Likelihood	Medium	Moderate	Appropriate PPE should be worn when coming into contact with perched water. Should potentially contaminated perched water be encountered during site works, it should be contained and disposed of off-site at a suitably permitted facility. Due to the depth of the groundwater and with the installation of clean cover, it is unlikely that residential end users will come into contact with it, therefore no viable pathway is present.	Low likelihood	Medium	Moderate / Low

Summary of Pre-Remediation and Post Remediation Conceptual Site Model (CSM)										
Sources	Key Contaminants	Receptor	Pathway	Pre-Remediation			Post-Remediation			
				Probability	Consequence	Risk Level	Mitigation	Probability	Consequence	Risk Level
							Vapour resistant membranes may be required following a detailed site investigation and risk assessment.			
		Property: Future on Site Buildings Future on Site Infrastructure	Potential migration and build-up of soil/water-derived vapours via Made Ground.	Low Likelihood	Medium	Moderate	Additional post-remedial ground gas / vapour assessment is required to further assess and zone the Site.	Unlikely	Medium	Low
		Controlled Waters: Secondary B Aquifer Spital Brook	Potential migration of contaminants through shallow groundwater.	Low Likelihood	Severe	Moderate	Remedial works to remove free product / grossly contaminated soils and treatment of soils / dissolved phase will significantly reduce the sources onsite reducing the risk to receptors. Low permiability of Tidal Flat Deposits means a viable pathway for downward migration is unlikely.	Low Likelihood	Medium	Moderate

6.0 Remediation Strategy

6.1. Remediation Approach

Based on the results of the previous ground investigations and CWDQRA (**Appendix B**), the key driver for the remediation of the Site is considered to be the removal of significant sources of contamination, below ground obstructions and re-engineering of near-surface Made Ground to reduce infiltration for the protection of surface waters and installation of a clean cover system for the protection of human health.

The risks to controlled waters have been assessed in an updated CWDQRA report included as **Appendix B**.

For the purpose of the remediation, the Site has been divided into two strategies, herein referred to as the 'Full Turnover Specification' and the 'Commercial Specification'. It is proposed that some areas which are to be redeveloped for a commercial end use will be subject to the Residential Strategy. Plans showing the proposed remedial areas (Drawing 18669-RLL-21-XX-DR-O-0165), the remediation strategy boundary (Drawing 18669-RLL-22-XX-DR-O-0262), the steelworks layout with remediation strategy boundary (Drawing 18669-RLL-22-XX-DR-O-0266) and the site aerial view with remediation strategy boundary (Drawing 18669-RLL-22-XX-DR-O-0265) are presented in **Appendix A**.

6.2. Full Turnover Specification

<u>Proposed Sequence of Deliverables</u>

The sequence of deliverables listed below is proposed:

- Materials Management Plan to enable the movement and re-use of excavated and stockpiled materials in accordance with the limitations set out in this document.
- Removal of vegetation.
- Undertaking turnover of Made Ground to natural clay and removal of unsuitable material and buried obstructions.
- Treatment or offsite disposal of impacted soils (where required).
- Chemical and geotechnical validation of the placement of material following turnover.
- Post remediation ground gas and vapour assessment.
- Preparation of a Remediation Validation Report.
- Regulator liaison and submission pursuant to the discharge of relevant planning conditions; and
- Onward housebuilder obligations to include.
    a. Placement and validation of a clean cover system (where required).

b. Provision and validation of appropriate gas / vapour membranes in buildings (where required).
c. Designing of appropriate concrete for aggressive ground.
d. Installation of appropriate chemical resistant water pipes.

Removal of Obstructions

A Materials Management Plan (MMP) will be prepared to allow the on-site reuse of materials in accordance with the CL:AIRE Definition of Waste, Development Industry Code of Practice. The recommended approach involves excavation of Made Ground to a depth where the natural underlying Tidal Flat Deposits are exposed. Obstructions, where they are unsuitable for retention, shall be removed leaving only the supporting piles. Supporting piles shall be cropped at the level of the underlying natural geology.

The recyclable materials generated (i.e. concrete removed from floor slabs, foundations and buried structures) are to be moved to a material processing area where they will be screened, crushed and validated for re-use within the onward development, in accordance with the MMP. Appropriate revisions will be made to the approved MMP as required.

Asbestos has previously been encountered as free fibres in the Made Ground. Concrete shall therefore be assessed prior to crushing in order to limit the risk of asbestos contamination of crushed concrete stockpiles and care shall be taken to ensure it is not cross-contaminated with Made Ground.

Protection of Human Health

The remedial criteria adopted for the clean cover system at the Site are based on S4ULs (suitable for use levels) and C4SLs (category 4 screening levels) for a residential end use with plant uptake.

It is likely that human exposure to contaminants during the operational phase of the development will be restricted to inhalation of dust and dermal contact/ ingestion of contaminants within gardens, public open spaces and soil adhering to home grown produce. Risks to human health may be mitigated through either excavation of the contaminants, provision of clean cover, or construction of hardstanding (or a combination of these); this is intended to prevent exposure to these contaminants and thus break the pollutant linkages.

The overall philosophy for remediation of the Site with regards to protection of human health is therefore severance of linkage pathways, by means of the removal of significant sources of contamination from the sub-surface and installation of a clean cover system or hardstanding in order to provide a safe development platform. This includes a turnover strategy as part of the earthworks. Additional measures, such as the provision of clean cover, soil-gas protection, water pipe protection etc, are then to be provided by the future housebuilder.

Protection of Controlled Waters

Following completion of the CWDQRA, it has been concluded that the Site in its present state is at the highest risk to controlled waters whereby potentially 100% of rainfall infiltrates through the Made Ground before entering reens leading to Monk's Ditch. Therefore, remediation is required to mitigate the risks. The CWDQRA has set remediation criteria for soils which are included within **Appendix B** and in **Tables 4** and **5** at the rear of this document.

The CWDQRA has assessed that once remediation has been undertaken and the removal of any free product and highly contaminated soils has been completed in accordance with the remedial targets set out in the CWDQRA and summarised in **Tables 4** and **5**, the Site is unlikely to pose a risk to controlled waters.

6.3. One Meter Turnover Specification

Proposed Sequence of Deliverables

The sequence of deliverables listed below is proposed:

- Materials Management Plan to enable the movement and re-use of excavated and stockpiled materials in accordance with the limitations set out in this document.
- Removal of vegetation.
- Excavation to 5.3mAOD in areas where the existing ground level is greater than 5.3mAOD.
- Removal of obstructions not suitable for retention
- Validation pits to assess depth to underlying clay and verify absence of gross contamination or underlying obstructions.
- Upfilling of site to 5.3mAOD where existing ground levels are below 5.3mAOD
- Placement of approximately 2m of suitable site won reengineered material to achieve the proposed formation 7.25mAOD.
- Treatment or offsite disposal of impacted soils (where required).
- Chemical and geotechnical validation of the excavation and filling works.
- Post remediation ground gas and vapour assessment.
- Preparation of a Remediation Validation Report.
- Regulator liaison and submission pursuant to the discharge of relevant planning conditions; and
- Onward developer actions to include.
    a. Placement and validation of a clean cover system (where required).
    b. Provision and validation of appropriate gas / vapour membranes in buildings (where required).
    c. Designing of appropriate concrete for aggressive ground.
    d. Installation of appropriate chemical resistant water pipes.

Removal of Obstructions

A Materials Management Plan (MMP) will be prepared to allow the on-site reuse of materials in accordance with the CL:AIRE Definition of Waste, Development Industry Code of Practice.

The areas of Site proposed for the One Meter Turnover Specification currently sit topographically lower than the areas proposed for the Full Turnover Specification. Surplus material from the residential areas is to be used to raise levels within the commercial areas.

The recommended approach involves a trim and chase process excavating material to a depth minimum of 5.3mAOD. Practical measures to identify, remove and validate the absence of gross contamination and known and potential obstructions extending below 5.3mAOD shall be undertaken.

The recyclable materials generated (i.e. concrete removed from floor slabs, foundations and buried structures) are to be moved to a material processing area where they will be screened, crushed and validated for re-use within the onward development, in accordance with the MMP. Appropriate revisions will be made to the approved MMP as required.

Asbestos has previously been encountered as free fibres in the Made Ground. Concrete shall therefore be assessed prior to crushing in order to limit the risk of asbestos contamination of crushed concrete stockpiles and care shall be taken to ensure it is not cross-contaminated with Made Ground.

Protection of Human Health

The remedial criteria adopted for the clean cover system at the Site are based on S4ULs (suitable for use levels) and C4SLs (category 4 screening levels) for a commercial end use.

It is likely that human exposure to contaminants during the operational phase of the development will be restricted to inhalation of dust and dermal contact/ ingestion of contaminants within gardens, public open spaces and soil adhering to home grown produce. Risks to human health may be mitigated through either excavation of the contaminants, provision of clean cover, or construction of hardstanding (or a combination of these); this is intended to prevent exposure to these contaminants and thus break the pollutant linkages.

The overall philosophy for remediation of the Site with regards to protection of human health is therefore severance of linkage pathways, by means of the removal of significant sources of contamination from the sub-surface and installation of a clean cover system or hardstanding in order to provide a safe development platform. This includes an excavation strategy as part of the earthworks. Additional measures, such as the provision of clean cover, soil-gas protection, water pipe protection etc, are then to be provided by the future developer.

Protection of Controlled Waters

Following completion of the CWDQRA, it has been concluded that the Site in its present state is at the highest risk to controlled waters whereby 100% of rainfall infiltrates through the Made Ground before entering reens leading to Monk's Ditch. Therefore, remediation is required to mitigate the risks. The CWDQRA has set remediation criteria for soils which are included within **Appendix B** and in **Tables 4 and 5** at the rear of this document.

The CWRA has demonstrated that once remediation has been undertaken, in accordance with the remedial targets set out in the CWDQRA and summarised in **Table 4 and 5**, and redeveloped with 95% impermeable surfaces the Site is unlikely to pose a risk to controlled waters.

6.4. Re-Use of Arisings

Several phases of trial pitting have been undertaken across the Site to assess and characterise the Made Ground for suitability for reuse. Trial pitting in the area proposed for a commercial end use was undertaken between May and July 2018 and trial pitting in the areas proposed for a residential end use was undertaken between December 2020 and February 2021.

Commercial Material Characterisation

A total of 415 samples were collected from 139 trial pits which were excavated within the commercial phase of the development. The results were compared to the proposed commercial Site acceptance criteria (SAC) detailed in **Tables 4** and **5**. The following table presents the exceedances, full screening against residential and commercial criteria is presented in **Appendix D**.

Summary of Exceedances of Commercial SACs.			
Determinant	**Commercial Criteria (mg/kg)**	**Locations Exceeding (depth in m)**	**Max Concentration (mg/kg)**
Benzo(b)fluoranthene	15	40ATP09	27

Residential Material Characterisation

Trial pitting was undertaken on a 25m X 25m grid with samples taken at every location across the residential phase of the development. The results were compared to the proposed Residential SAC detailed in **Tables 4** and **5**. The following table below presents the exceedances, full screening against residential and commercial criteria is presented in **Appendix D**.

Summary of Exceedances of Residential SACs.			
Determinant	**Residential Criteria (mg/kg)**	**Locations Exceeding Residential Criteria**	**Max Concentration (mg/kg)**
Cyanide, Total	2.313	2BSE-1, 2BSE-5, 2BSE-17, 2BSE-38, AT6-1, AU7-1, AV7-1, AW7-1, AW7-2, SPFO-4, SPFO-6, SPFO-7, SPFO-10, SPFO-12, Q37-2, R36-3, M37-1, AR2-1, AR4-1, AS3-1, AS7-2, AT4-1, AT4-2, AS11-1, AS11-2, AT11-1,	273

Summary of Exceedances of Residential SACs.			
Determinant	**Residential Criteria (mg/kg)**	**Locations Exceeding Residential Criteria**	**Max Concentration (mg/kg)**
		AT11-2, AU10-1, AV10-1, AV10-2, AW10-1, AW10-2, AN12-2, AV11-1, AV11-2, AW11-1, AW11-2, AN13-2, AM15-2, AO20-1, AO20-2, AO15-2, AP21-2, AQ21-1, AR21-2, AS20-1, AT22-2, AW20-1, AW21-1, AW21-2, AG10-2, AG11-1, AG11-2, AG11-3, AG11-4, AG12-2, AG13-2, AH14-3, W166-1, W166-2, W166-5, W166-6, AG15-2, AG19-1, AG19-2, AI14-1, AI15-2, AG15-2, AG19-1, AG19-2, AI14-1, AI15-2, AG8-2, AH6-1, AH6-2, AI8-2, AJ10-1, AF2-2, AF5-2, AG2-1, AG6-2, AH2-1, AM5-2, P17-1, Q17-1, V4-1, V5-2, V1-1, V2-1, Z2-2, P14-2, Q14-1, AK21-2, AK22-1, L21-1, V12-2, AS5-2, AT5-2, AU5-2A, U5-3, AU6-2, AV6-1, AV6-2, AV6-3, SPIA-1, SPIA-2, U16-1, SPJB-3, W127-1, W127-2, W127-3, W127-4, W127-5, W127-6, W204-3, W204-4, W204-17, AI-I-2, SPHR-1, SPHR-2, SPHU-1, SPHU-2, T9-2, V6-1, V7-1, V8-1, V10-2, AG15-2, AG19-1, AG19-2, AI14-1, AI15-2, SPDL-1, SPDL-2, SPDL-3, SPDL-4, W156-2, W156-5, W156-7, W156-9, W209-1, W209-2, W209-3, W209-4, W209-5, W209-6, W209B-2, W209B-3,W209B-4, W209C-2, W214-1, W-199-2, W-199-2, R117-1, R193-1, SPIS-1, R102-3, R102-4, R102-6, R102-7, T9-2, V6-1, V7-1, V8-1, V10-2, R105-1, R105-2, R105-3, R105-4, R105-5, R105-6, R105-7, R105-8, R123-5, R123-6, R104-1, R104-2, R104-3, R107-1-2, R107-2-1, AC31-2, AD31-1, AD34-1, AD31-2, AD36-2	
Exchangeable Ammonia as N	176.983	AS10-2, AO20-2	1,260
Copper	516.883	AK17-1, W35-4	560
Iron	349,148.010	N33-2, P37-2, AP21-2, AT20-1, AO27-2, AQ24-2, W166-2, AH30-2, Q32-2, AV6-2, AV6-3, W127-2, W156-2, R105-2, R105-4, R104-2	170,000
Manganese	38,175.690	M33-2, AT6-2, O34-2, AS6-2, AT4-3, AT9-2, AT9-3, AU9-2, AV10-2, AV10-3, AO15-1, AT22-2, AM33-1, AQ25-2, P16-1, T5-2, AH29-2, AL28-1, AL28-2, AL29-1, R32-1, SPJB-1, TP9-1, TP9-2, W156-1, W156-6, 3C-6, R102-6, R138-3, T9-1, T9-2	27,700
Vanadium	1,840.198	AS6-2, AQ25-2	2,050
Aromatics > EC10-EC12	259.933	AH14-3, AG15-2, AG19-2, AH15-3, AG15-2, AG19-2, AH15-3, AG15-2, AG19-2, AH15-3, W172B-2	6,920
Aromatics > EC12-EC16	517.061	AH14-3, AG15-2, AH15-3, AI11-3, AG15-2, AH15-3, AI11-3, AG15-2, AH15-3, AI11-3	5,300
Aromatics > EC16-EC21	1,631.673	SPFO-4, SPFO-7, AH14-3, AG15-2, AH15-3, AG15-2, AH15-3, AG15-2, AH15-3	13,600
Naphthalene	31.450	AH14-3, AG15-2, AG19-2, AH15-3, AG15-2, AG19-2, AH15-3, AH7-2, AG15-2, AG19-2, AH15-3	4,480
Acenaphthylene	19.168	AH14-3, AG15-2, AH15-3, AG15-2, AH15-3, AG15-2, AH15-3, W172B-1	616
Acenaphthene	34.073	AH14-3, AG15-2, AH15-3, AG15-2, AH15-3, AG15-2, AH15-3, W172B-2	1,130
Fluorene	31.077	2BN2-7, SPFO-9, AH14-3, AG15-2, AH15-3, AG15-2, AH15-3, AH7-2, W204-18, AG15-2, AH15-3, W172B-1, W172B-2	751
Phenanthrene	31.077	2BSE-13, 2BSE-35, 2BN2-7, 2BN2-19, SPFO-1, SPFO-2, SPFO-3, SPFO-4, SPFO-7, SPFO-8, SPFO-9, SPFO-10, 4A Comp -28, AM15-1, AM15-2, AG11-2, AH14-3, AG15-2, AH15-3, AG15-2, AH15-3, AH7-2, AG2-1, Q17-2, V1-1, Y1-1, T4-1, T4-2, S19-2, W204-17, W204-18, SPHR-1, SPHR-2, T10-1, AG15-2, AH15-3, W156-5, W209-4, W209B-3, W172B-1, W172B-2, R117-1, T10-1	3,100

Summary of Exceedances of Residential SACs.			
Determinant	**Residential Criteria (mg/kg)**	**Locations Exceeding Residential Criteria**	**Max Concentration (mg/kg)**
Anthracene	39.119	2BN2-7, SPFO-8, SPFO-9, AH14-3, AG15-2, AH15-3, AG15-2, AH15-3, W204-17, W204-18, SPHR-1, SPHR-2, AG15-2, AH15-3, W156-5, W172B-1, W172B-2	577
Fluoranthene	7.614	2BSE-1, 2BSE-5, 2BSE-7, 2BSE-8, 2BSE-9, 2BSE-10, 2BSE-12, 2BSE-13, 2BSE-22, 2BSE-25, 2BSE-26, 2BSE-28, 2BSE-30, 2BSE-31, 2BSE-32, 2BSE-35, 2BN-1, 2BN-4, 2BN-7, 2BN-9, 2BN2-1, 2BN2-2, 2BN2-4, 2BN2-5, 2BN2-6, 2BN2-7, 2BN2-12, 2BN2-15, 2BN2-16, 2BN2-19, 2BN2-20, 2BN2-21, 2BN2-22, 2BN2-23, 2BN2-24, 2BN2-25, 2BN2-26, 2BN2-21, 2BN2-22, 2BN2-23, 2BN2-24, 2BN2-25, 2BN2-26, 2BN2-28, 2BSE-15, 2BSE-16, 2BSE-18, 2BSE-37, 2BSE-38, 2BSE-39, SPFO-1, SPFO-2, SPFO-3, SPFO-4, SPFO-7, SPFO-8, SPFO-9, SPFO-10, P37-1, AP1-2, 4A Comp -1, 4A Comp -5, 4A Comp -11, 4A Comp -13, 4A Comp -15, 4A Comp -16, 4A Comp -17, 4A Comp -21, 4A Comp -24, 4A Comp -26, 4A Comp -28, 4A Comp -30, 4A Comp -31, 4A Comp -33, 4A Comp -35, 4A Comp -36, 4A Comp -37, 2BN2-8, 2BN2-10, 2BN2-29, 2BN2-29, 2BN2-31, 2BN2-33, 2BN2-34, AN12-3, AN14-1, AN14-2, AN16-1, AN17-2, AO18-2, AL12-2, AL12-3, AM15-1, AM15-2, A012-1, AM11-2, AO15-1, AO15-2, AO16-1, AP15-1, AR19-2, AQ25-1, AQ25-2, AQ26-1, W168-1, W168-2, W168-3, W168-4, W168-5, W168-6, W168-7, W168-8, W168-9, W168-10, W168-11, AG11-1, AG11-1, AG11-2, AG11-3, AG11-4, AH14-1, AH14-3, AG15-2, AH15-3, AI14-1, AI14-2, AI14-3, AI19-2, AG15-2, AH15-3, AI14-1, AI14-2, AI14-3, AI19-2, AH7-2, AH8-2, AH8-3, AH8-4, AJ18-1, AG2-1, AL15-2, P17-1, Q17-2, Q18-2, AQ7-1, V1-1, V1-2, Y1-1, Z1-1, P15-2, Q14-1, R15-2, T4-1, T4-2, AK31-1, AK32-1, P21-1, S19-1, S19-2, S21-1, SPLP-2, W213-2, W213-3, SPJB-3, W177-1, W177-2, SPLF-2, W204-1, W204-2, W204-6, W204-7, W204-8, W204-10, W204-11, W204-14, W204-17, W204-18, SPHR-1, SPHR-2, T8-1, T10-1, T10-3, V9-2, V10-1, AG15-2, AH15-3, AI14-1, AI14-2, AI14-3, AI19-2, W156-4, W156-5, W156-10, W209-1, W209-4, W209B-3, W209C-1, W202-2, W205-2, W205-6, W214-5, W172B-1, W172B-2, 3C-1, 3C-4, 3C-6, R117-1, R-135-2, R106-1, W-208-4-3, W-89-1, W-186-1, W-186-2, W-186-3, R139-1, W182-1, T8-1, T10-1, T10-3, V9-2, V10-1, R123-5, R123-6	2,360
Pyrene	87.557	2BN2-7, SPFO-4, SPFO-8, SPFO-9, AH14-3, AG15-2, AH15-3, AI14-1, AG15-2, AH15-3, AI14-1, AH7-2, W204-18, SPHR-1, SPHR-2, AG15-2, AH15-3, AI14-1, W156-5, W172B-1, W172B-2	1,540
Benzo(b)-fluoranthene	3.914	2BSE-1, 2BSE-5, 2BSE-7, 2BSE-8, 2BSE-9, 2BSE-10, 2BSE-12, 2BSE-13, 2BSE-14, 2BSE-22, 2BSE-25, 2BSE-26, 2BSE-28, 2BSE-30, 2BSE-31, 2BSE-32, 2BSE-33, 2BSE-35, 2BN-1, 2BN-2, 2BN-4, 2BN-6, 2BN-7, 2BN-9, 2BN2-1, 2BN2-2, 2BN2-4, 2BN2-5, 2BN2-6, 2BN2-7, 2BN2-12, 2BN2-13, 2BN2-15, 2BN2-19, 2BN2-20, 2BN2-21, 2BN2-22, 2BN2-23, 2BN2-24, 2BN2-25, 2BN2-26, 2BN2-21, 2BN2-22, 2BN2-23, 2BN2-24, 2BN2-25, 2BN2-26, 2BN2-27, 2BN2-28, 2BSE-15, 2BSE-16, 2BSE-17, 2BSE-18, 2BSE-21, 2BSE-36, 2BSE-37, 2BSE-38, 2BSE-39, SPFO-1, SPFO-2, SPFO-3, SPFO-4, SPFO-7, SPFO-8, SPFO-9, SPFO-10, P37-1, M36-2, AP1-2, 4A Comp -5, 4A Comp -11, 4A Comp -13, 4A Comp -15, 4A Comp -16, 4A Comp -17, 4A Comp -21, 4A Comp -26, 4A Comp -28, 4A Comp -30, 4A Comp -31, 4A Comp -33, 4A Comp -35, 4A Comp -36, 4A Comp -37, 2BN2-8, 2BN2-10, 2BN2-29, 2BN2-29, 2BN2-31, 2BN2-33, 2BN2-34, 2BN2-35, AN12-2, AN12-3, AN14-1, AN14-2, AN16-1, AN17-2, AO18-2, AL12-2, AL12-3, AM15-1, AM15-2, A012-1, AM11-2, AO15-1, AO15-2, AO16-1, AP15-1, AR19-2, AW21-2, AO27-1, AQ25-1, AQ25-2, AQ26-1, W168-1, W168-2, W168-3, W168-4, W168-5, W168-6, W168-7, W168-8, W168-9, W168-10, W168-11, AG10-2, AG11-1, AG11-2, AG11-3, AG11-4, AG12-2, AH14-1, AH14-3, AG15-2, AH15-3, AH19-1, AI14-1, AI14-2, AI14-3, AI18-1, AI19-1, AI19-2, AG15-2, AH15-3, AH19-1, AI14-1, AI14-2, AI14-3, AI18-1, AI19-1, AI19-2, AH7-2, AH8-1, AH8-2, AH8-3, AH8-4, AJ18-1, AF5-1, AG2-1, P17-1, Q17-2, Q18-2, AQ7-1, V1-1, X2-1, Y1-1, Y2-2, Z1-1, Z2-2, P15-2, Q14-1, R15-2, T4-1, T4-2, AK32-1, P21-1, S19-1, S19-2, SPLP-2, W213-2, W213-3, W213-3, SPDL-1, SPDL-2, SPJB-1, SPJB-3, W177-1, W177-2, SPLF-2, W125-2, W204-1, W204-2, W204-7, W204-8, W204-10, W204-11, W204-14, W204-17, W204-18, SPHR-1, SPHR-2, T8-1, T9-1, T10-1, T10-2, V9-2, V10-1, AG15-2, AH15-3, AH19-1, AI14-1, AI14-2, AI14-3, AI18-1, AI19-1, AI19-2, SPDL-2, SPDL-3, SPDL-4, W35-4, W156-4, W156-5, W156-10, W209-1, W209-4, W209B-3, W209C-1, W202-2, W203-4, W207515-6, W214-5, W172B-1, W172B-2, 3C-1, 3C-31004, 3C-6, R117-1, SPIS-1, R-135-2, R106-1, W577-208-4-3, W-89-1, W-186-2, W-186-3, R139-12360, W182-1, T8-1, T9-1, T10-1, T10-2, V9-2, 1540V10-1, R123-5, R123-6772	772

Summary of Exceedances of Residential SACs.			
Determinant	**Residential Criteria (mg/kg)**	**Locations Exceeding Residential Criteria**	**Max Concentration (mg/kg)**
Benzo(k)-fluoranthene	5.790	2BSE-13, 2BSE-35, 2BN2-5, 2BN2-7, 2BN2-19, 2BN2-20, SPFO-1, SPFO-2, SPFO-4, SPFO-7, SPFO-8, SPFO-9, SPFO-10, AP1-2, 4A Comp -28, AM15-1, AM15-2, AH14-3, AG15-2, AH15-3, AI14-1, AG15-2, AH15-3, AI14-1, AG8-1, AH7-2, AG2-1, Q17-2, V1-1, Y1-1, Q14-1, T4-2, W204-17, W204-18, SPHR-1, SPHR-2, AG15-2, AH15-3, AI14-1, W156-5, W209B-3, W172B-1, W172B-2, 3C-1, R117-1, W-89-1, W-186-1, W182-1, R123-6	265
Benzo(a)pyrene	39.489	2BN2-7, SPFO-4, SPFO-9, AM15-1, AH14-3, AG15-2, AH15-3, AH15-3, AI14-1, AG15-2, AH15-3, AI14-1, AH7-2, W204-18, SPHR-1, SPHR-2, AG15-2, AH15-3, AI14-1, W209B-3	555
Indeno(1,2,3-cd)pyrene	29.018	2BN2-7, SPFO-4, SPFO-9, AM15-1, AH14-3, AG15-2, AH15-3, AI14-1, AG15-2, AH15-3, AI14-1, AH7-2, W204-18, SPHR-1, SPHR-2, AG15-2, AI14-1, W156-5, W209B-3	429
Benzo(g,h,i)-perylene	15.229	2BN2-5, 2BN2-7, SPFO-1, SPFO-2, SPFO-4, SPFO-8, SPFO-9, AP1-2, AM15-1, AM15-2, AH14-3, AG15-2, AH15-3, AI14-1, AG15-2, AH15-3, AI14-1, AH7-2, V1-1, Y1-1, T4-2, W204-18, SPHR-1, SPHR-2, AG15-2, AH15-3, AI14-1, W156-5, W209B-3, W172B-1, W172B-2, R117-1, R123-6	370.000
Benzene	4.358	AH14-3, SPHR-2	6.060

Material present within the proposed residential area that exceeds residential SAC shall be transferred and re-used in the commercial phase of the development, in accordance with an approved Materials Management Plan prepared in accordance with the CL:AIRE Definition of Waste, Development Industry Code of Practice.

Where material is not suitable for either a residential or commercial end use, or during remediation, if any material exhibits previously unencountered significant evidence of contamination (i.e. free product or grossly impacted soils) the contractor should inform the Client's Engineer on and propose a method for its treatment that will allow re-use (at the supervising engineers discretion) or, options for off-site disposal.

The re-use of treated materials will be subject to regulatory approval and an approved Materials Management Plan prepared in accordance with the CL:AIRE Definition of Waste, Development Industry Code of Practice. On-site treatment and processing will be undertaken where possible to reduce contaminant concentrations so the arisings will be either:

- Suitable for shallow residential garden use (part of the clean cover layer);
- Suitable for re-use at depth (e.g. below the clean cover or within POS landscaped areas).

If treatment is required, then testing shall be undertaken at a frequency of 1 sample per 100m^3 and compared against the re-use screening criteria for the various potential end-uses detailed in **Table 1**, **Table 2, Table 3**, **Table 4** and **Table 5** included to the rear of this report.

6.5. Clean Cover System

To reasonably prevent contact between Site end users and contaminants within the Made Ground, a clean cover system shall be placed in gardens and areas of public open space. Following completion of the reclamation works, the Site shall be left 750mm below from Finished Floor Levels (FFL). This is to incorporate drainage arisings (150mm) and facilitate the installation of the clean cover system for residential gardens, which will comprise a minimum of 600mm of suitable material (or 300mm in areas of public open space). Material is considered suitable after being assessed against the criteria detailed in **Table 1, 2 and 3**. Material proposed for reuse within residential gardens is to be assessed in accordance with **Table 1**. Material to be reused within public open space within a residential area is to be assessed in accordance with **Table 2**. Material to be reused within public open space in a commercial area is to be assessed in accordance with **Table 3**.

The cover system will comprise suitable subsoil and topsoil and is to be placed by the onward developer. A Validation Report is required for the cover system and this shall be submitted to the regulators to satisfy planning conditions. It is advised that the onward developer also share details of the clean cover system with their chosen housing insurer (NHBC, LABC or equivalent) for approval in accordance with their guidance. The clean cover requirements for areas of public open space are anticipated to be 300mm of suitable material in accordance with **Tables 2** and **3**.

6.6. Ground Gas Protection Measures

The assessment of ground gas protection measures is to be updated following the remedial works. The classification of the Site will depend on the competency of the upper clay of the Tidal Flat Deposits. A site-specific ground gas assessment is recommended following the earthworks. In accordance with BS8485:2015+A1:2019.

A gas assessment was undertaken on a nearby phase in accordance with BS8485:2015+A1:2019. Based on the continuous gas monitoring undertaken in borehole 3CWS109, the nearby site was classified with a Characteristic Situation of CS1. The gas monitoring dataset obtained from the installation within the Made Ground suggests that the methane monitored within the deeper Tidal Flat Deposits was not migrating into the overlying Made Ground.

Risks from vapours has not been assessed as part of the 2020 site investigation and will be assessed as part of the post remediation ground gas and vapour assessment detailed within this Remediation Strategy.

6.7. Risks to Construction Workers

Site workers are advised to follow normal health and safety procedures, including the use of suitable PPE (e.g. gloves and overalls) and following hygiene rules, particularly when handling the Made Ground. Contamination is present within the Made Ground (including asbestos), therefore specific contractor RAMS (with

reference to guidelines presented in Control of Asbestos Regulations 2012) may need to be produced to mitigate the risks.

A watching brief should be maintained during excavation works as part of the development to check for the presence of previously unexpected contamination.

6.8. Onward Developer Actions

The following actions are deferred to the onward developer:

- Placement of a clean cover system in residential gardens and areas of public open space as part of the overall development;
- Validation of the thickness and chemical composition of soils placed in gardens (as part of the clean cover system) in accordance with NHBC (or equivalent housing insurer) recommendations;
- Provision of appropriate gas / vapour membranes in buildings and validation in accordance with BS: 8485:2015+A1:2019 and CIRIA C735, if necessary;
- Designing concrete in accordance with BRE Special Digest 1 will prevent significant risks from concrete degrading if in contact with aggressive ground; and
- Installation of appropriate chemical resistant water pipes (if required).

6.9. Environmental Monitoring

The Construction Management Plan (Atkins, April 2014) should be read in conjunction with this section for the environmental monitoring requirements.

6.9.1. Surface Water Monitoring

During the remediation works, surface water monitoring shall be undertaken from the on site reen system and from Monks Ditch at numerous appropriate locations across the site, shown on Drawing 18669-RLL-21-DR-O-O-18669-RLL-21-XX-DR-O-0167 (**Appendix A**). Visual monitoring of the watercourse will be undertaken on a daily basis and chemical samples will be taken on a fortnightly basis.

The results of chemical analysis shall be compared against the EQS determinands detailed in **Table 4**. If exceedances are identified, then additional monitoring and assessment will be required and liaison with the appropriate regulators.

6.9.2. Dust and Air Quality

Dust monitoring is required throughout the works as residential and commercial receptors are located near to the Site boundary on all sides. Monitoring locations are detailed in the Construction Environmental Management Plan (CEMP); however the locations shall be reviewed and adapted based on working areas and actual conditions encountered on Site.

6.9.3. Noise and Vibration

The Contractor will ensure that operations are undertaken in a manner considerate to sensitive receptors, including adjacent residential properties. This includes limiting noise and vibration as far as is reasonably practicable. Details of required monitoring are included in the CEMP.

7.0 Contingency for Unexpected Contaminated Soil

Should the Contractor or Employer's Environmental Engineer identify suspected areas of gross contamination, the suspected contaminated soils shall be excavated and stockpiled separately on polythene sheeting with appropriate bunding and suitably identified.

Contaminated soils shall be defined as soils exhibiting visual evidence of contamination (e.g. soils with hydrocarbon content above the saturation limit) or olfactory indications of contamination (e.g. organic odour indicative of hydrocarbons). Initial vapour screening of the impacted Made Ground / natural deposits may be undertaken using a photoionization detector (PID), where visual or olfactory evidence of organic contamination is recorded.

Representative samples of affected soils shall be tested for the suspected contaminants of concern. The minimum number of samples will be five i.e. one from each side and one from the base. As a minimum, and dependent on contamination type, one sample shall be taken for every 10m along the side per contaminated horizon and one sample per 100m^2 base area. If the thickness of the contaminated zone is greater than 1.0m, one sample shall be taken per 1.5m of vertical face. Results shall be compared against the criteria detailed in the tables at the rear if this document, which will determine a suitable end-use and the material will be re-used accordingly (in accordance with the MMP). Should samples exceed the criteria, soils will be deemed unsuitable for re-use without liaison with the regulator and further risk assessment and/or treatment. Any material deemed unsuitable following further risk assessment shall require treatment or disposal from the Site.

Should soils require disposal from the Site, the soil's chemical results shall be used to begin the assessment of the material as non-hazardous or hazardous waste. Waste Acceptance Criteria (WAC) testing may be required prior to off-site disposal. Material sent to landfill must be hauled by a registered waste carrier in accordance with the Waste Duty of Care: Code of Practice. The Contractor shall be responsible for keeping all records including waste transfer notes.

Validation testing of the sides and base of the resultant excavation shall be carried out by the appropriate monitoring Engineer, in accordance with Section 9 this document. The contaminated soils will be deemed to have been successfully removed once the validation samples of the sides and base meet the respective criteria for re-use.

The extent and location of contaminated soils removed shall be surveyed and recorded by the Contractor.

8.0 Re-use of Site Won Material

8.1. Re-use of Site Generated Materials

In the interest of sustainability and in order to avoid the unnecessary transport of material from the Site to landfill, it is proposed to re-use the Made Ground and any recycled aggregates generated as part of the works. Re-use of material will be in accordance with the CL:AIRE Definition of Waste, Development Industry Code of Practice. A compliant Materials Management Plan has previously been prepared for the site.

Material movements shall be tracked by the Contractor on daily or weekly material tracking sheets, to include:

- Survey plans of material sources and destinations.
- Summaries of volumes and composition of materials moved.
- Associated chemical testing to demonstrate suitability.
- Locations and ongoing volumes of temporary stockpiles.

Material movement records shall be maintained by the Contractor on Site for inclusion in the Validation Report.

8.2. Soil for Formation of Clean Cover

The placement of clean cover will be the responsibility of the onward developer.

Subsoil and topsoil proposed for formation of capping layers shall be tested prior to import and/ or placement and compared to screening criteria in **Tables 1, 2** and **3** included at the rear of this document. Soils shall be tested at a frequency of one sample per 250m^3 and a minimum of three samples per source.

8.3. General Site Fill Beneath Clean Cover

Site won materials and existing stockpiles may be used as general fill below formation level (i.e. below the clean cover), providing they are chemically suitable when compared with the criteria in **Tables 4 and 5**. Soils that are impacted with free product or grossly contaminated will not be acceptable for re-use without further treatment/assessment. Screened materials will be tested at a frequency of 1 sample per 500m^3 and compared against the screening criteria detailed at the rear of this document.

If asbestos is identified, dependent upon the concentration, it shall be re-used in accordance with the depths detailed in the Institute of Occupational Medicine (**Appendix E**): Llanwern, Assessment of Asbestos Contamination at Former Llanwern Steelworks Site. The report concludes that a minimum of 600mm of clean soil (the clean cover system) will be placed across the Site. Beneath the clean soils, Made ground may be used in residential areas if asbestos contamination is less

than 0.02% (200ppm) and used in commercial areas if asbestos contamination is less than 0.03% (300ppm).

Should material be found to contain contaminants above the re-use criteria, then the upper 95th percentile value (US^{95}) may be used to assess the material for suitability for re-use subject to agreement with the Local Authority.

8.4. Offsite Disposal

Material sent to landfill must be hauled by a registered waster carrier in accordance with the Waste Duty of Care: Code of Practice. The Contractor shall be responsible for surveying the source areas of all off site material, recording volumes, relevant compliance and classification testing results and the keeping of records including waste transfer notes, consignment notes and material tracking sheets for inclusion in the Validation Report.

9.0 Validation

9.1. General

The remediation and/ or earthworks activities described in this strategy will be supervised full-time by the suitably qualified Monitoring Engineer. As an addendum to the remediation strategy, following consultation with Newport City Council and Natural Resources Wales, technical notes have been prepared to capture additional relevant phase specific information as part of the validation exercise. The technical notes prepared as an addendum to the remediation strategy are presented in Appendix F. Technical Note 192 (Appendix F) presents additional information relating to the remediation strategy and the setting out the process to collect additional validation information to assess the contamination status of the formation surface. Technical Note 260 (Appendix F) presents a validation plan to assess the hydraulic conductivity of the reengineered made ground and to assess the sampled perched water samples against the pore water concentrations assumed within the CWDQRA.

Remediation shall be confirmed using the methodology presented in the Validation of Remediation of Land Contamination - Science Report SC030114/R1 (Environment Agency, 2010).

A Validation Report shall be prepared on completion of the works. The Validation Report will be submitted to the Local Planning Authority pursuant to the discharge of relevant planning conditions.

Post-remediation ground gas/ vapour monitoring will be required to further zone the Site with regard to the required gas/ vapour protection measures.

9.2. Validation of Turnover

Turnover works will be undertaken under a full-time watching brief by the Monitoring Engineer. Material exhibiting visual or olfactory evidence of contamination will be segregated and further assessed. Records of wider material movements will also be kept and detailed within the MMP.

Non-targeted grid validation sampling shall be undertaken at a frequency of 1 sample per 500m^3 of placed material. Formation level is to be left up to 600mm below final floor level (FFL) to account for the placement of clean cover (300mm in areas of POS). Soil samples shall be compared to the following criteria.

- Made Ground used within residential gardens as part of the clean cover system (i.e. above formation level) shall be compared with the criteria detailed in **Table 1**.
- Made Ground used within public open space as part of the clean cover system (i.e. above formation level) within a residential area shall be compared with the criteria detailed in **Table 2**

- Made Ground used within public open space as part of the clean cover system (i.e. above formation level) within a commercial area shall be compared with the criteria detailed in **Table 3**
- Made Ground used as general fill beneath the formation level (i.e. below clean cover) within a residential area shall be compared with the criteria in **Table 4** and will be visually validated at the Client's Environmental Engineers discretion based on definitions of free product impacted and grossly impacted soils used in the previous sections.
- Made Ground used as general fill beneath the formation level (i.e. below clean cover) within a residential area shall be compared with the criteria in **Table 5** and will be visually validated at the Client's Environmental Engineers discretion based on definitions of free product impacted and grossly impacted soils used in the previous sections.
- A 600mm clean cover system will be placed across the Site. Beneath the clean soils, Made Ground may be used in residential areas if asbestos contamination is less than 0.02% (200ppm) and used in commercial areas if asbestos contamination is less than 0.03% (300ppm).

Validation will generally comprise the following procedure:

I. Delineation of Unexpected Contamination (if encountered)

Material exhibiting evidence of visual or olfactory gross contamination will be removed. A photo ionization detector (PID) should be used on-site to determine the extent of the contamination. Soil sampling and testing shall be undertaken until the results meet the respective re-use criteria detailed in **Tables 4** and **5** and the material is not grossly impacted or impacted with free product, at which point the extent of the potential hot-spot will be regarded as having been delineated.

II. Excavation of Contaminated Material

Material which does not meet the re-use criteria detailed in the tables at the rear of this document or is visually impacted with free product/ grossly impacted will be removed by the Contractor and stockpiled on-site for further assessment/treatment; if necessary the material will be removed from Site. The extent of the excavation may be increased should it be deemed necessary, for example, if further visual or olfactory evidence of significant contamination is present.

III. Hot-Spot Validation Sampling

Soil samples will be obtained for validation testing on the sides and base of the hot-spot excavation following soil removal. Samples will be tested for the contaminants that did not meet the respective criteria at that particular hot-spot location.

The minimum number of samples will be five i.e. one from each side and one from the base. As a minimum, and dependent on contamination type, one sample shall be taken for every 10m along the side per contaminated horizon and one sample per 100m^2 base area. If the thickness of the contaminated zone is greater than 1m, one sample shall be taken per 1.5m of vertical face.

If validation samples do not meet the criteria, further soil will be excavated horizontally and vertically and additional validation samples taken. The procedure will be repeated until samples meet the remedial targets. Any deviation from the above methods will require liaison and approval from the regulator.

IV. Survey

The extent of the excavation will be surveyed to Ordnance Datum (co-ordinates and levels) and a plan produced showing the location of relevant samples taken. Obstructions left in-situ will also be recorded on the survey.

An as dug survey will also be completed for the whole area of the earthworks across the Site showing depth of excavation / turnover per 5m grid and increased survey points array for any deeper excavations.

V. Sampling, Sample Transfer and Analytical Laboratories

Soils for chemical testing shall be sampled in accordance with the following British and Eurocode Standards, BS 10175:2011+A2 2017 – 'Investigation of potentially contaminated Sites – Code of practice', Eurocode 7, and the BS 5930:2015 – 'Code of Practice for Site investigations – Incorporating Amendment No.2' for contamination testing and for geotechnical testing.

Sample containers required for soils shall include vials for volatile organic compound (VOC) testing, amber jars for hydrocarbon testing and a 1kg sized plastic containers for testing of metals and asbestos screening.

Soil, groundwater and surface water samples are to be stored in a cool box, maintained at a temperature between 2°C and 4°C in darkness and shall be transported under these conditions to the accredited laboratory.

Internal and external laboratories shall be UKAS/MCERTS (or equivalent) accredited or it shall be demonstrated that appropriate quality systems have been implemented in lieu of accreditation for non-accredited tests.

9.3. Validation of Free Product Removal

Validation of the free product removal shall be undertaken by the Monitoring Engineer. Soil material exhibiting visual or olfactory evidence of contamination will be segregated and further assessed. Groundwater monitoring shall be undertaken

to confirm removal of free product from the boreholes or open excavations. Free product shall be removed as much as reasonably practical to a maximum residual thickness of 2mm. Upon completion, details of the product removal and monitoring will be included within the overall Validation Report.

9.4. Validation of Clean Cover

It is proposed that clean cover in residential areas shall be placed as part of the construction of each plot. The clean cover shall be 600mm thickness and comprise suitable construction materials, subsoil and topsoil. Clean cover will also be required in areas of public open space within the residential and commercial development of 300mm thickness.

Placement and validation of the clean cover layer, either construction materials or soils in residential gardens, shall be undertaken by the housebuilder in accordance with requirements of the regulators and NHBC.

9.5. Geotechnical Validation

Excavated material will be placed, compacted and tested for compliance with a phase specific Earthworks Specifications. Areas of deeper Made Ground, fill and remnant structures will be surveyed and recorded on a drawing.

10.0 Supervision and Reporting

The post-demolition and remediation works described in this report shall be supervised by the suitably qualified Monitoring Engineer.

Survey plans and test results shall be presented within the Validation Report.

The Contractor shall be responsible for obtaining the necessary licences, permits and consents for the works (correspondence shall be forwarded to the Employer' Environmental Engineer) with the exception of the Materials Management Plan and associated Declaration to CL:AIRE, which shall be updated by the Employer's Environmental Engineer upon regulatory approval of this Remediation Strategy.

The Contractor shall maintain records of:

- Survey plans and material tracking of the movements of material from source to final destination.
- Base of excavation and obstruction survey.
- Type and volumes of any materials removed from the Site for disposal, together with the Duty of Care documentation / waste transfer notes.
- Geochemical and geotechnical sampling locations,
- Records of the works including Daily Records Sheets.
- Health and Safety documentation.
- Noise and dust monitoring carried out.
- Records of the complaints received regarding noise and dust.

The Contractor's Environmental Engineer will prepare a Validation Report for the remedial works undertaken under their supervision. The Validation Report shall be compliant with the Environment Agency's Land Contamination Risk Management (LCRM) guidance and 'Verification of remediation of land contamination (SC030114/R1)', providing the following:

- Details of the earthworks and material movements completed.
- Details of hot-spots/ contaminated material removal (if required),
- Details of the free product plume removal/remediation,
- Details of the validation and verification analytical testing.

The Validation Report shall be submitted to the regulatory authorities to satisfy the requirements of the planning permission with respect to contamination issues. The report will also contain all earthworks testing data, proof of compliance with the targets and all survey data.

Tables

Table 1: Assessment Criteria for Clean Cover in Residential Gardens (600mm): Residential End Use with Homegrown Produce

Category	Determinand	Criteria mg/kg			Source
	Arsenic	37			a
	Boron	290			b
	Cadmium	26			a
	Chromium VI	6			b
	Chromium III	910			b
	Lead	200			a
	Elemental Mercury	1.2			b
	Inorganic Mercury	40			b
	Methyl Mercury	11			b
	Nickel	130			b
	Selenium	250			b
	Beryllium	1.7			b
	Copper	2400			b
	Vanadium	410			b
	Zinc	3700			b
Soil Organic Matter Content (SOM) dependent		**SOM 1%**	**SOM 2.5%**	**SOM 6%**	
Phenols	Phenol	120	200	380	b
Petroleum Hydrocarbons	Aliphatic EC 5-6	42	78	160	b
	Aliphatic EC>6-8	100	230	530	b
	Aliphatic EC>8-10	27	65	150	b
	Aliphatic EC>10-12	130 (48)[vap]	330 (118)[vap]	760 (283)[vap]	b
	Aliphatic EC>12-16	1100 (24)[sol]	2400 (59)[sol]	4300 (142)[sol]	b
	Aliphatic EC>16-35	65000 (8.48)[sol]	92000 (21)[sol]	110000	b
	Aliphatic EC>35-44	65000 (8.48) [sol]	92000 (21) [sol]	110000	b
	Aromatic EC 5-7 (Benzene)	70	140	300	b
	Aromatic EC>7-8 (Toluene)	130	290	660	b
	Aromatic EC>8-10	34	83	190	b
	Aromatic EC>10-12	74	180	380	b
	Aromatic EC>12-16	140	330	660	b
	Aromatic EC>16-21	260	540	930	b
	Aromatic EC>21-35	1100	1500	1700	b
	Aromatic EC>35-44	1100	1500	1700	b
	Aliphatic + Aromatic EC>44-70	1600	1800	1900	b
Polycyclic Aromatic Hydrocarbons	Acenaphthene	210	510	1100	b
	Acenaphthylene	170	420	920	b
	Anthracene	2400	5400	11000	b
	Benz(a)anthracene	7.2	11	13	b
	Benzo(a)pyrene	2.2	2.7	3.0	b
	Benzo(b)fluoranthene	2.6	3.3	3.7	b
	Benzo(ghi)perylene	320	340	350	b
	Benzo(k)fluoranthene	77	93	100	b
	Chrysene	15	22	27	b

Category	Determinand	Criteria mg/kg			Source
	Dibenzo(a,h) anthracene	0.24	0.28	0.3	b
	Fluoranthene	280	560	890	b
	Fluorene	170	400	860	b
	Indeno(1,2,3cd) pyrene	27	36	41	b
	Naphthalene	2.3	5.6	13	b
	Phenanthrene	95	220	440	b
	Pyrene	620	1200	2000	b
Chloroalkanes & alkenes	1,2-Dichloroethane	0.0071	0.011	0.019	b
	1,1,1-trichloroethane	8.8	18	39	b
	1,1,2,2 Tetrachloroethanes (PCA)	1.6	3.4	7.5	b
	1,1,1,2 Tetrachloroethanes (PCA)	1.2	2.8	6.4	b
	Tetrachloroethene (PCE)	0.18	0.39	0.90	b
	Tetrachloromethane (Carbon Tetrachloride)	0.026	0.056	0.13	b
	Trichloroethene (TCE)	0.016	0.034	0.075	b
	Vinyl Chloride (chloroethene)	0.00064	0.00087	0.0014	b
BTEX	o-xylene	60	140	330	b
	m-xylene	59	140	320	b
	p-xylene	56	130	310	b
	Toluene	130	290	660	b
	Ethylbenzene	47	110	260	b
	Benzene	0.087	0.17	0.37	b
	Asbestos	Zero fibres			

Source of Criteria

Category 4 Screening Level (C4SL)
LQM/CIEH Suitable for Use Level (S4UL)

Notes

Organic matter content does not affect assessment criteria for metals
Arsenic S4UL is based on a comparison of oral and dermal soil exposure with oral Index Dose.
Cadmium C4SL is based on lifetime exposure
Beryllium S4UL is based on comparison of inhalation exposure with inhalation TDI
Chromium VI S4UL are based on localised effects comparing inhalation exposure with inhalation ID only
Values for total xylene should be compared with the most protective S4UL for xylene
Methyl mercury is not a routine contaminant but a S4UL has been generated for Sites where this may be present due to past industrial use. Unless methyl and elemental mercury is suspected to be present, a total mercury concentration can be compared with the GAC for inorganic mercury.
[vap] S4UL presented exceeds the vapour saturation limit, which is presented in brackets.
[sol] S4UL presented exceeds the solubility limit, which is presented in brackets.
All assessment criteria assume no free phase contamination is present.

Table 2: Assessment Criteria for Clean Cover in POS Near Residential Houses (300mm): Residential End Use without Homegrown Produce

Category	Determinand	Criteria mg/kg			Source
Metals*	Arsenic	79			a
	Boron	21000			b
	Cadmium	220			a
	Chromium VI	7.7			b
	Chromium III	1500			b
	Lead	630			a
	Inorganic Mercury	120			b
	Nickel	230			b
	Selenium	1100			b
	Beryllium	2.2			b
	Copper	12000			b
	Vanadium	2000			b
	Zinc	81000			b
Soil Organic Matter Content (SOM) dependent		**SOM 1%**	**SOM 2.5%**	**SOM 6%**	
Phenols	Phenol	440dir (10000)	690dir (10000)	1300dir (10000)	b
Petroleum Hydrocarbons	Aliphatic EC 5-6	570000 (304) sol	590000	600000	b
	Aliphatic EC>6-8	600000	610000	620000	b
	Aliphatic EC>8-10	13000	13000	13000	b
	Aliphatic EC>10-12	13000	13000	13000	b
	Aliphatic EC>12-16	13000	13000	13000	b
	Aliphatic EC>16-35	250000	250000	250000	b
	Aliphatic EC>35-44	250000	250000	250000	b
	Aromatic EC 5-7 (Benzene)	56000	56000	56000	b
	Aromatic EC>7-8 (Toluene)	56000	56000	56000	b
	Aromatic EC>8-10	5000	5000	5000	b
	Aromatic EC>10-12	5000	5000	5000	b
	Aromatic EC>12-16	5100	5100	5000	b
	Aromatic EC>16-21	3800	3800	3800	b
	Aromatic EC>21-35	3800	3800	3800	b
	Aromatic EC>35-44	3800	3800	3800	b
	Aliphatic + Aromatic EC>44-70	3800	3800	3800	b
Polycyclic Aromatic Hydrocarbons	Acenaphthene	15000	15000	15000	b
	Acenaphthylene	15000	15000	15000	b
	Anthracene	74000	74000	74000	b
	Benz(a)anthracene	29	29	29	b
	Benzo(a)pyrene	5.7	5.7	5.7	b
	Benzo(b)fluoranthene	7.1	7.2	7.2	b
	Benzo(ghi)perylene	640	640	640	b
Polycyclic Aromatic Hydrocarbons	Benzo(k)fluoranthene	190	190	190	b
	Chrysene	57	57	57	b
	Dibenzo(a,h) anthracene	0.57	0.57	0.58	b
	Fluoranthene	3100	3100	3100	b

Category	Determinand	Criteria mg/kg			Source
	Fluorene	9900	9900	9900	b
	Indeno(1,2,3cd)pyrene	82	82	82	b
	Naphthalene	4900	4900	4900	b
	Phenanthrene	3100	3100	3100	b
	Pyrene	7400	7400	7400	b
Chloroalkanes & alkenes	1,2-Dichloroethane	29	29	29	b
	Trichloroethene (TCE)	120	120	120	b
	Vinyl Chloride (chloroethene)	3.5	3.5	3.5	b
BTEX	o-xylene	41000	42000	43000	b
	m-xylene	41000	42000	43000	b
	p-xylene	41000	42000	43000	b
	Toluene	56000	56000	56000	b
	Ethylbenzene	24000	24000	25000	b
	Benzene	72	72	73	b

Source of Criteria

a Category 4 Screening Level (C4SL)

b LQM/CIEH Suitable for Use Level (S4UL)

Notes

- Organic matter content does not affect assessment criteria for metals
- Arsenic S4UL is based on a comparison of oral and dermal soil exposure with oral Index Dose.
- Cadmium C4SL is based on lifetime exposure
- Beryllium S4UL is based on comparison of inhalation exposure with inhalation TDI
- Chromium VI S4UL are based on localised effects comparing inhalation exposure with inhalation ID only
- Values for total xylene should be compared with the most protective S4UL for xylene
- Methyl mercury is not a routine contaminant but a S4UL has been generated for Sites where this may be present due to past industrial use. Unless methyl and elemental mercury is suspected to be present, a total mercury concentration can be compared with the GAC for inorganic mercury.
- ^{vap} S4UL presented exceeds the vapour saturation limit, which is presented in brackets.
- ^{sol} S4UL presented exceeds the solubility limit, which is presented in brackets.
- All assessment criteria assume no free phase contamination is present.

Table 3: Assessment Criteria for Clean Cover in POS Near Commercial Properties (300mm): Commercial End Use

Category	Determinand	Criteria mg/kg			Source
Metals*	Arsenic	640			a
	Boron	240000			b
	Cadmium	410			a
	Chromium VI	33			b
	Chromium III	8600			b
	Lead	2330			a
	Inorganic Mercury	1100			b
	Nickel	980			b
	Selenium	12000			b
	Beryllium	12			b
	Copper	68000			b
	Vanadium	9000			b
	Zinc	730000			b
Soil Organic Matter Content (SOM) dependent		**SOM 1%**	**SOM 2.5%**	**SOM 6%**	
Phenols	Phenol	31000	35000	37000	b
Petroleum Hydrocarbons	Aliphatic EC 5-6	3200	5900	12000	b
	Aliphatic EC>6-8	7800	17000	40000	b
	Aliphatic EC>8-10	2000	4800	11000	b
	Aliphatic EC>10-12	9700	23000	47000	b
	Aliphatic EC>12-16	59000	82000	90000	b
	Aliphatic EC>16-35	1600000	1700000	1800000	b
	Aliphatic EC>35-44	1600000	1700000	1800000	b
	Aromatic EC 5-7 (Benzene)	26000	46000	86000	b
	Aromatic EC>7-8 (Toluene)	56000	110000	180000	b
	Aromatic EC>8-10	3500	8100	17000	b
	Aromatic EC>10-12	16000	28000	34000	b
	Aromatic EC>12-16	36000	37000	38000	b
	Aromatic EC>16-21	28000	28000	28000	b
	Aromatic EC>21-35	28000	28000	28000	b
	Aromatic EC>35-44	28000	28000	28000	b
	Aliphatic + Aromatic EC>44-70	28000	28000	28000	b
Polycyclic Aromatic Hydrocarbons	Acenaphthene	84000	97000	100000	b
	Acenaphthylene	83000	97000	100000	b
	Anthracene	520000	540000	540000	b
	Benz(a)anthracene	170	170	180	b
	Benzo(a)pyrene	35	35	36	b
	Benzo(b)fluoranthene	44	44	45	b
	Benzo(ghi)perylene	3900	4000	4000	b
Polycyclic Aromatic Hydrocarbons	Benzo(k)fluoranthene	1200	1200	1200	b
	Chrysene	350	350	350	b
	Dibenzo(a,h) anthracene	3.5	3.6	3.6	b
	Fluoranthene	23000	23000	23000	b
	Fluorene	63000	68000	71000	b
	Indeno(1,2,3cd)pyrene	500	510	510	b

Category	Determinand	Criteria mg/kg			Source
	Naphthalene	190	460	1100	b
	Phenanthrene	22000	22000	23000	b
	Pyrene	54000	54000	54000	b
Chloroalkanes & alkenes	1,2-Dichloroethane	0.67	0.97	1.7	b
	Trichloroethene (TCE)	1.2	2.6	5.7	b
	Vinyl Chloride (chloroethene)	0.059	0.077	0.12	b
BTEX	o-xylene	6600sol (478)	15000sol (1120)	33000sol (2620)	b
	m-xylene	6200vap (625)	1400vap (1470)	31000vap (3460)	b
	p-xylene	5900sol (576)	1400sol (1350)	30000sol (3170)	b
	Toluene	56000vap (869)	110000vap (1920)	180000vap (4360)	b
	Ethylbenzene	5700vap (518)	13000vap (1220)	27000vap (2840)	b
	Benzene	27	47	90	b

Source of Criteria

a Category 4 Screening Level (C4SL)

b LQM/CIEH Suitable for Use Level (S4UL)

Notes

- Organic matter content does not affect assessment criteria for metals
- Arsenic S4UL is based on a comparison of oral and dermal soil exposure with oral Index Dose.
- Cadmium C4SL is based on lifetime exposure
- Beryllium S4UL is based on comparison of inhalation exposure with inhalation TDI
- Chromium VI S4UL are based on localised effects comparing inhalation exposure with inhalation ID only
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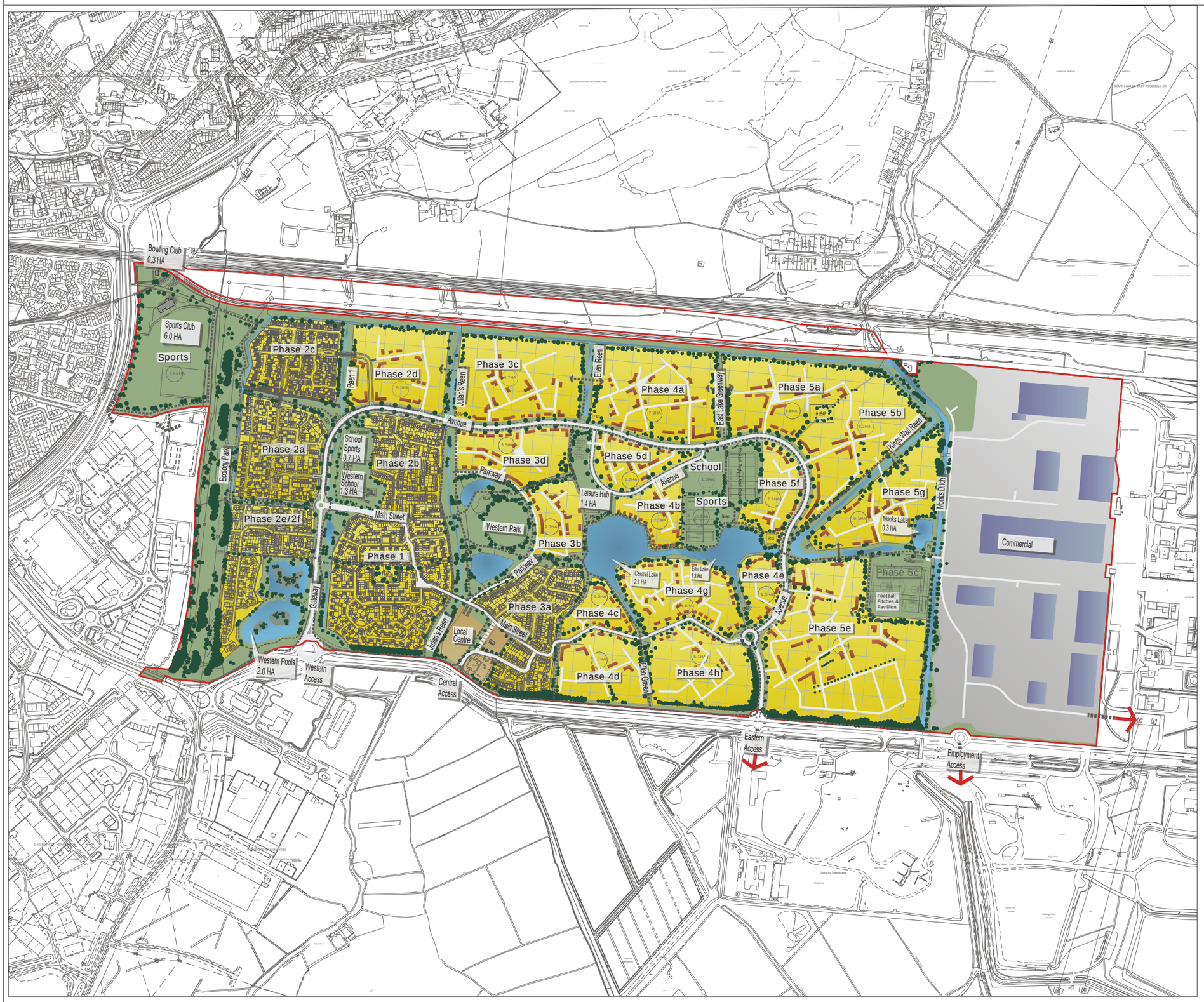
- Methyl mercury is not a routine contaminant but a S4UL has been generated for Sites where this may be present due to past industrial use. Unless methyl and elemental mercury is suspected to be present, a total mercury concentration can be compared with the GAC for inorganic mercury.
- ^{vap} S4UL presented exceeds the vapour saturation limit, which is presented in brackets.
- ^{sol} S4UL presented exceeds the solubility limit, which is presented in brackets.
- All assessment criteria assume no free phase contamination is present.

Appendices

Appendix A – Drawings

Glan Llyn -ESAMP Indicative Masterplan



Glan Llyn Residential Numbers (based on existing masterplan)					
Phase/Plot	Outlet	Area (HA)	Area (Acres)	Density (HA)	Total Units
1	Persimmon	**9.77**	**24.15**	31.4	307
2/a	Bellway	5.20	12.84	35	182
2/b	SMH	4.06	10.02	35	142
2/c	Bellway	4.30	10.62	35.3	152
2/d	Persimmon	4.98	12.30	35	174
2/e&f	SMH	5.10	12.61	29.8	152
1 and 2/Total		**33.40**	**82.54**		**1109**
3a		5.86	14.49	35	205
3b		2.32	5.74	35	81
3c		6.72	16.60	38.1	256
3d		3.45	8.53	35	121
3 Total		18.36	45.36		663
4a		7.19	17.78	34.8	250
4b		2.04	5.04	35	71
4c		1.53	3.78	35	54
4d		3.65	9.03	35	128
4e		1.49	3.68	35	52
4f		-	-	-	-
4g		4.64	11.46	35	162
4h		5.15	12.73	35	180
5a		5.65	13.95	35	198
5b		6.23	15.41	35	218
5c	Sports	2.67	6.60	35	93
5d		2.24	5.53	35	78
5e		13.72	33.90	35	480
5f		2.49	6.15	35	87
5g		5.06	12.50	35	177
4 and 5/Total		**63.75**	**157.53**		**2230**
1,2,3,4,5 Total		**115.51**	**285.44**		**4002**

NOTE: Areas and housing numbers assume that plot 5c sports is moved to CBP and converted to resi

SGP
Architects + Masterplanners

Waterfront House,
2a Smith Way, Grove Park,
Enderby, Leicester,
LE19 1SX
t: +44 (0)116 247 0557
www.stephengeorge.co.uk

SGP File Ref: 8111-08-A011
Project No: 8111-08
Drawn By: NV
Date: 10/04/2019

Drawing No: 8111-08-A011
Rev: Rev P09
Scale: 1:5000 @A1

Notes:
Residential areas quoted are approximate gross site areas and include Leaps, Laps and on plot road infrastructure

Notes:
Residential areas quoted are approximate gross site areas and include Leaps, Laps and on plot road infrastructlayture

0 50 100 200 250 300 400 500
Metres at scale 1:5000

ST.MODWEN

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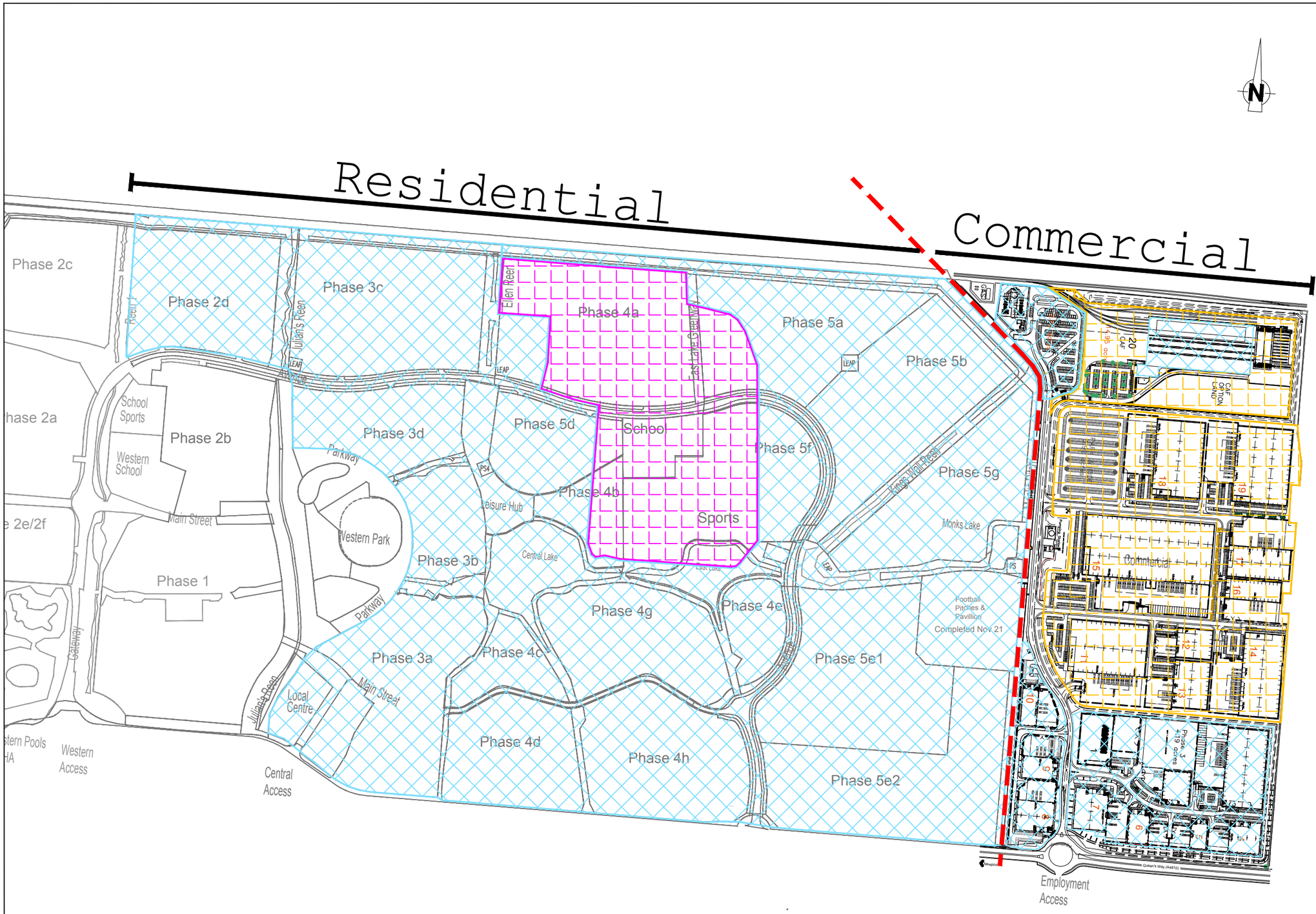

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KEY:

- Full turnover Specification
- 1m Turnover Specification
- Coking works area treated separately
- Residential/Commercial boundary

Rev	Date	Amendments	By	Chk

Client

St Modwen Developments

Project

P18-669 Llanwern Reclemation

Drawing Title

Remediation phasing plan

INFORMATION

	Drawn	Checked	Date
NTS	ET	CW	07.10.21

Drawing No. Rev.

18669-RLL-21-XX-DR-O-0165

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N

Ellens Reen
NR-C
MD-U
KW-C
D3-N
D5-C
ML-N
ML-S
EWD-E
Discharge
D2-S
D3-S
MD-D

Google Earth

SCALE BAR

0m 50m 100m 200m 400m

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KEY:

- **Monks Ditch**
- **Clean discharge to Drain 2**
- **Monks Lake connection**
- **Site discharge through Celtic treatment works**
- KW-C **Sampling Location**
- **Blocked off drain**

Rev	Date	Amendments	By	Chk

Client
St Modwen Developments

Project
P18-669 Llanwern Reclemation

Drawing Title
Site Surface Water Plan

INFORMATION

	Drawn	Checked	Date
NTS	SR	CW	12.10.21

Drawing No. Rev.

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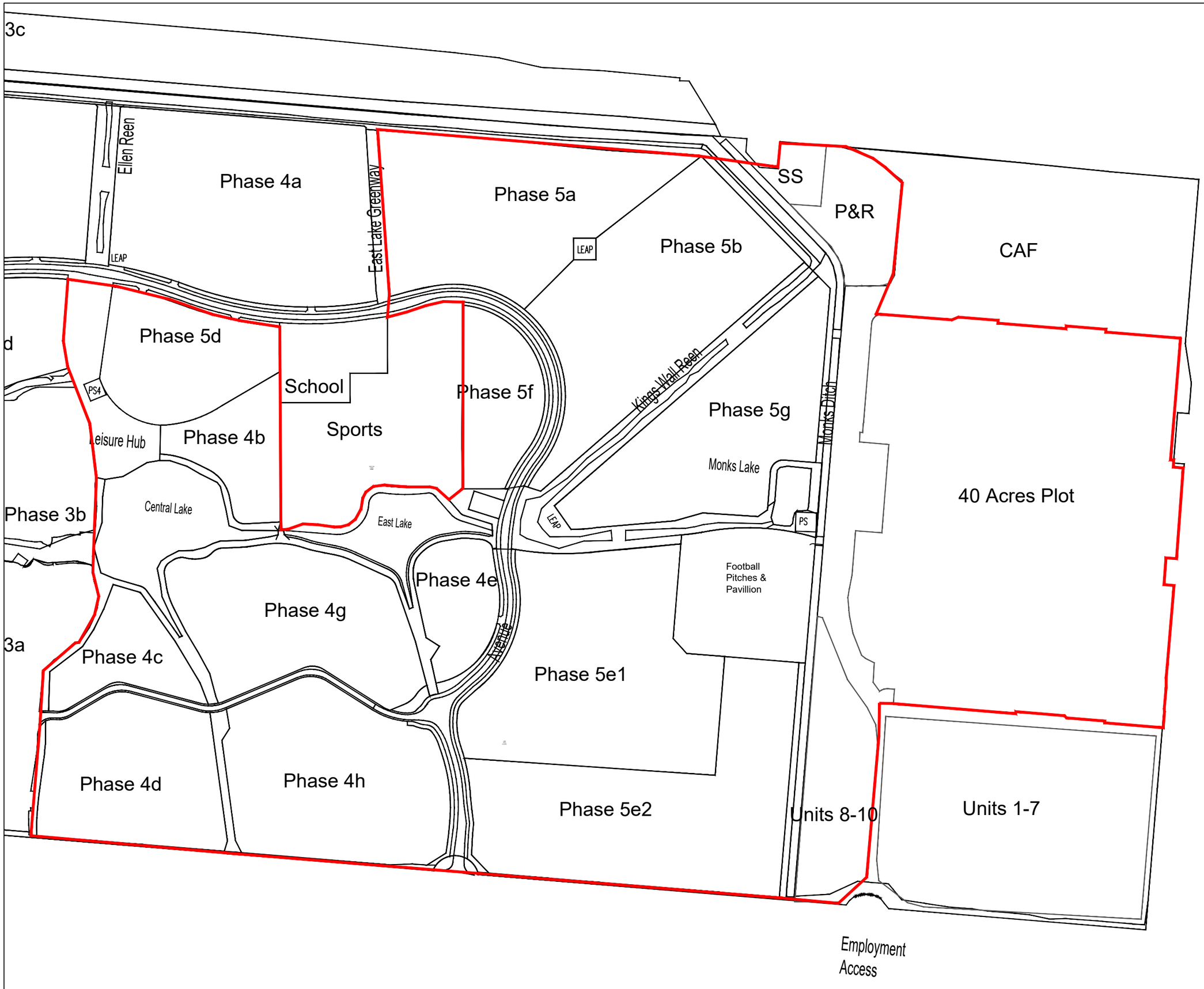

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KEY:

- REMEDIATION STRATEGY BOUNDARY
- PHASE BOUNDARIES

Rev	Date	Amendments	By	Chk
A	03:05:22	Updated Boundary	SR	CW

Client

St Modwen Developments

Project

P18-669 Llanwern Reclamation

Drawing Title

Remediation Strategy Boundary Plan

INFORMATION

	Drawn	Checked	Date
NTS	SR	CW	27.04.22

Drawing No. — Rev.

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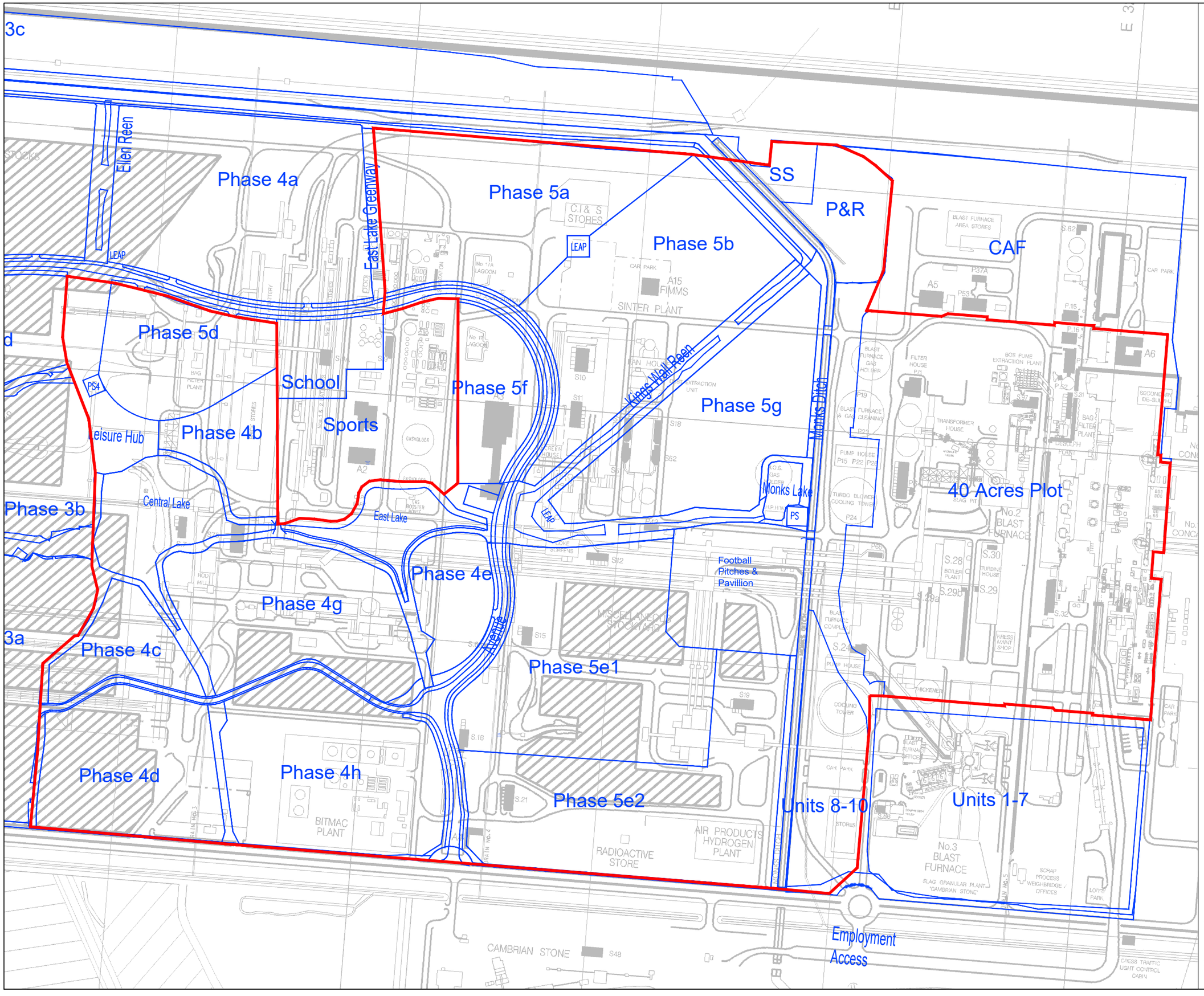

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KEY:

- **REMEDIATION STRATEGY BOUNDARY**
- **PHASE BOUNDARIES**

Rev	Date	Amendments	By	Chk
A	03:05:22	Boundary Update	SR	CW

Client

St Modwen Developments

Project

P18-669 Llanwern Reclamation

Drawing Title

Steelworks Layout with Remediation Strategy Boundary

INFORMATION

	Drawn	Checked	Date
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Drawing No. — Rev.

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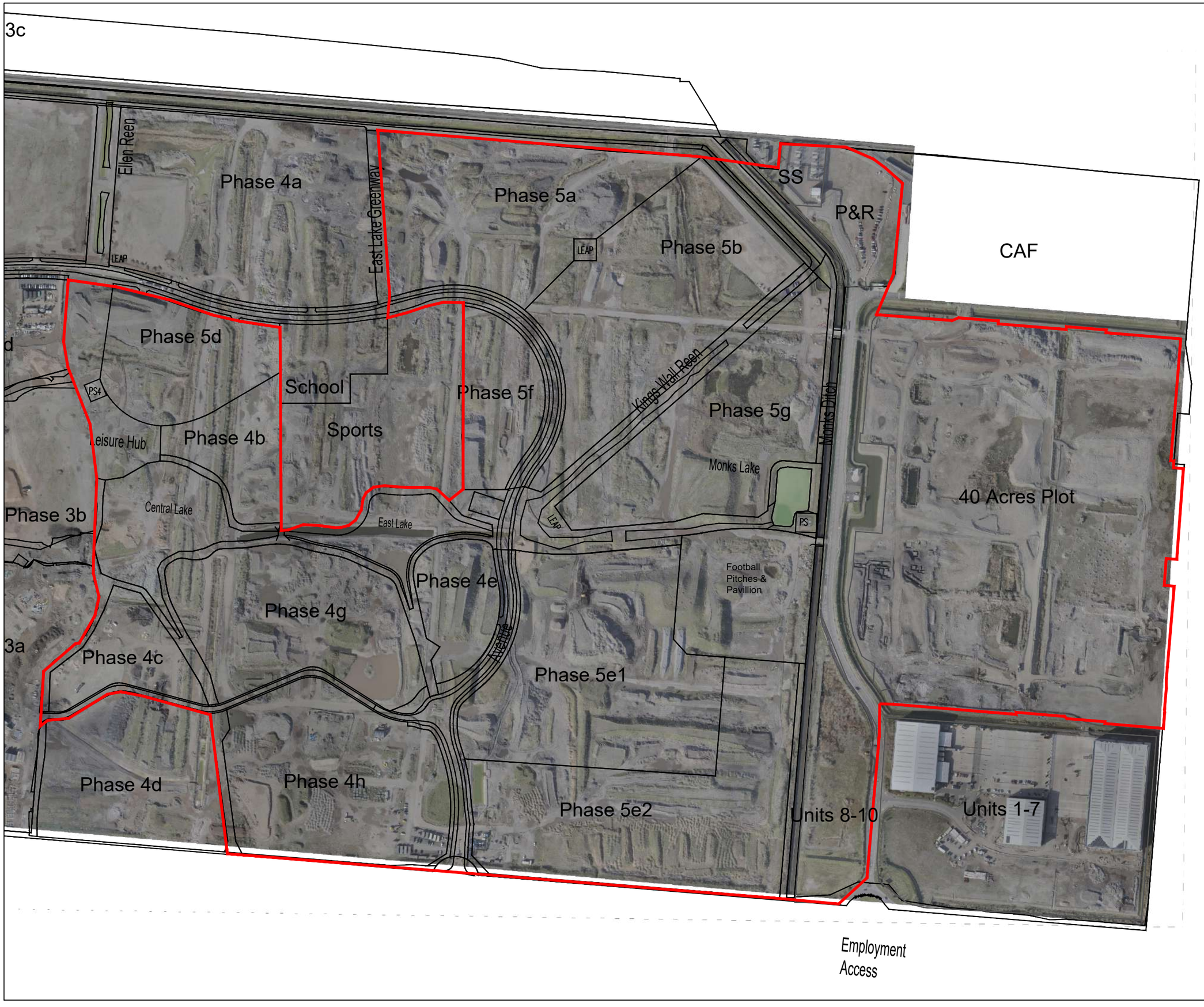

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KEY:

- REMEDIATION STRATEGY BOUNDARY
- PHASE BOUNDARIES

Rev	Date	Amendments	By	Chk

Client

St Modwen Developments

Project

P18-669 Llanwern Reclamation

Drawing Title

2021 Aerial Survey Overlay with Remediation Strategy Boundary

INFORMATION

	Drawn	Checked	Date
NTS	SR	CW	29.04.22

Drawing No. Rev.

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Appendix B – RLE CWDQRA

Glan Llyn Llanwern

Controlled Water DQRA 2019

Controlled Waters Detailed Quantitative Risk

Assessment

Glan Llyn Llanwern (Sitewide)

2019 Update

For

St. Modwen Developments

DATE: August 2019

REV: A

18669-RLE-19-RP-O-0006

Document Reference & Control

Project Name:	**Glan Llyn Llanwern Sitewide**
Project Reference:	**P18-669**
Report Title:	**Controlled Waters DQRA 2019 Update**
Client:	**St. Modwen Developments**
Document Reference:	**18669-RLE-19-RP-O-0006**
Report Status:	**Final**

Approval Status	Name & Position
Prepared by:	Ross Cameron BSc, MSc, MRSC, MCIWM, CEnv Environmental Geochemist
Reviewed by:	Howel Morris BSc MSc CGeol Principal Consultant

Revision Status	Date	Summary of Revision	Revision by:
Final	April 2022	Regulator Comments	RC/ HM
Final	June 2022	Regulator Comments	RC/ HM

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Appendices

Appendix A: RLEs Reclamation Performance Specification

Appendix B: Atkins Permeability Technical Note

Appendix C: Groundwater Levels Monitoring

Appendix D: Glan Llyn Diagrammatic CSM

Appendix E: Soils Analysis

Appendix F: Sampling Location Plans

Appendix G: Soil Leachate Analysis

Appendix H: Surface Waters Analysis

Appendix I: Chemical Input Parameters and Justifications

Appendix J: Table 5-4 CWDQRA Reuse Criteria - 40% Infiltration

Appendix K: Level 3 Groundwater Excel Worksheets

Appendix L: Dilution Calculations Excel Worksheets

Appendix M: Sensitivity Analyses Outputs

Drawings

Drawing 186669-RLE-19-XX-DR-O-0004 – Site Location Plan

Drawing 8111-008-A011 – Showing Proposed Site Redevelopment

Drawing 5111373-LLA-DWG-EG-0295 – CWRA Borehole Location Plan

Drawing 186669-RLE-22-XX-DR-O-0254 – CWRA Assessment Soil Samples Location Plan

Drawing 5111373-LLA-DWG-EG-0408 - Current Surface Water Drainage and Sampling Locations

Drawing D12-084-512 – Post-development Surface Water Drainage Plan

1.0 Introduction

Rodgers Leask Environmental Ltd (RLE) has been commissioned by St Modwen Developments Ltd (St Modwen) to update and further develop a Controlled Waters Detailed Quantitative Risk Assessment (CWDQRA) of the potential risk to Controlled Waters for the Glan Llyn development at Llanwern, Newport (herein referred to as the site). Atkins Limited (Atkins), also prepared a CWDQRA for this site, the latest version of which was identified as: Document Reference: 5111373-LLA-OUT-0257, Version: 3 and dated February 2017. Although the current RLE CWDQRA is designed to be read as a standalone document, it is recommended that reference be made to the aforementioned Atkins Report, in order to obtain greater detail on the known/documented Reporting background to this site

The principal objectives of the current exercise is to provide, as practicably possible, future surface water flow contributions from the site are compliant upon entry in to the Monks' Ditch, surface water course, which bisects the site, following the redevelopment of the Glan Llyn site for mixed residential and commercial redevelopment and further limiting the amount of material which require off-site removal by virtue of its contaminative potential towards local Controlled Waters.

These introductory comments provide a narrative and rationale for the assumptions made within this updated model, and also provide considerations relating to the temporary management of the water whilst redevelopment is being undertaken, and sustainability of the brownfield project.

As alluded above, an interim state will exist where the site has been reclaimed, but full residential and commercial development is under construction. The reclamation, in terms of surface water quality, will be at its most effective when it is fully developed. The underlying natural clay currently provides a barrier to downward migration of water and the reens (surface water ditches) which are cut into the natural clay and/or peat, drain the water within the Made Ground.

1.1. Atkins Controlled Waters Detailed Quantitative Risk Assessment of 2016

The earlier DQCWRA prepared by Atkins (Version: 3 and dated February 2017), was issued with the intention that, as site specific information was collected, the assessment would be reviewed and updated. It was described as the starting point and that the criteria were understood to be conservative. The CWDQRA modelled two site conditions for the mixed use development comprising; residential and commercial end usage.

The residential end use was assumed to have a rainwater interception/ infiltration ratio of 60:40. The commercial end use was assumed to have a rainwater interception/ infiltration ratio of 95:5. The interception is where roofs, roads and hard paving take the rain water and transfer it directly into the surface water reens. The infiltration is where rainwater lands

on grassed or landscaped areas and is able to percolate into the construction material (soils, piling mat, sub base etc) and underlying post-development Made Ground. The current evapotranspiration rate for grassed areas is estimated as 600mm/a against an annual rainfall rate of 953mm/a. The earlier Atkins value utilised, (applicable to permeable areas) was; 416mm/annually. Assumptions and estimations used in these calculations within the current RLE Report have been largely reproduced from the aforementioned Atkins 2017 Report, some details of which are provided in Appendix I of the current Report.

The Atkins CWDQRA, that generated the initial criteria, assumed that 100% of the infiltrated rainwater (12.85mm per year or 1.3% of total rainfall) mm/a) percolated through the construction material and in to the Made Ground.

Upon derivation of their soil re-use criteria (calculated to be expressed as mg/kg for direct comparison against actual soil analytical data obtained), it was previously noted by Atkins in their 2017 CWDQRA Report and demonstrated in their associated Table 5.5, that the maximum and average soil sample concentrations exhibit some exceedances for inorganic compounds, copper and vanadium. It was also noted that there were exceedances in surface water analyses for iron, manganese, cyanide, and ammoniacal nitrogen. Although these had not been previously analysed by Atkins in soil samples, subsequent analyses has now included these determinands.

Exceedances were also noted in soil samples analysed for organic compounds, especially C_{12}-C_{35} species aromatic TPH (total petroleum hydrocarbons), and a number of PAH (polynuclear aromatic hydrocarbon) species as compared to the derived soil re-use criteria. Concentrations of PAHs present in actual soil analytical data obtained were, in some cases, over one order of magnitude in excess of the calculated re-use criteria, suggesting that attenuation, particularly of heavy fraction TPH and PAHs may potentially be an issue on this site requiring further consideration as part of the proposed remedial and redevelopment works. Although previous analyses of soil samples undertaken by Atkins did not include phenols, recent analyses has also now included this determined.

1.2. Rationale for Updated Model

The principal rationales for reviewing and revising the Atkins model that generated the initial criteria have been:

1. The amount of additional field, site specific, data collected since preparation of the earlier Atkins CWDQRA;

2. The remedial benefits of the currently proposed pre-development turnover and reengineering process were not included in the earlier Atkins CWDQRA. Further details of this proposed Made Ground re-engineering strategy to be employed are provided by Rodgers Leask Environmental Ltd in their Reclamation Performance Specification A – Turnover – Technical Note, dated 14/12/18, Ref: 17480-RLE-18-XX-

RP-O-1016). A copy of this Technical Note is provided in **Appendix A** to the current Report.

The large and increasing amount of site specific field data for soils and surface waters has provided further confirmation that the criteria, which is based on theoretical values, is conservative. This is indicated where chemical results for soil placed do not appear to deliver the modelled concentrations to the surface water. The undeveloped site is currently at a worst case scenario where rainfall is free to percolate through material that has not been reengineered. Reengineering and redevelopment will only reduce infiltration and mobilisation serving to improve the currently monitored conditions.

In 2016, geotechnical information relating to the permeability of the Made Ground was assessed (Atkins Ltd Permeability Infiltration Technical Note Ref: 5111373-LLA-OUT-0256, dated 15th December 2016), but this was not used in the model for the Atkins 2017 CWDQRA. A copy of this Technical Note is provided in **Appendix B** of the current Report. The Atkins Ltd Technical Note presented information on the characteristics of the reengineered ground. The earthworks specification for the placement of material (following the turnover to natural clay), requires particle size distribution (PSD) tests, density tests, compaction tests and air void tests on each layer to validate the material has been compacted sufficiently. The particle size distribution within the Made Ground is known to be well graded and when compacted, the permeability is assessed as having a low permeability/poor drainage potential. A number of falling head tests were undertaken within a reengineered plot, which returned failed test results. The reengineering therefore has a remediation/stabilising benefit, by creating a low permeability material and this can be validated by the geotechnical information already collected.

In contrast to the reengineered ground, the construction materials (6F2 piling mat & clean soils) placed above the Made Ground are likely to be of good drainage potential (if they are not, then they will only serve to further limit the downward migration of rainwater). The permeability of the construction materials/ piling mat will be assessed as part validation of the clean cover in accordance with the Technical Note 260 (Remediation Strategy - Appendix F, 18669-RLL-22-XX-RP-0260, CWDQRA Validation Plan June 2022).

The low permeability reengineered material inhibits the downward migration of infiltrated rainwater as the pore water in the construction material does not readily flow into the material with much reduced pore spaces (air voids <10%). Lowering the permeability of this material also greatly increases time taken by the perched water to travel within the material.

The engineered characteristics have two distinct remedial benefits as follows:

1. The volume of infiltrated water entering the body of reengineered Made Ground is reduced, therefore the volume of water exposed to mobile contaminants is also reduced;

2. The time taken for migration of the perched water within the reengineered ground is greatly increased and therefore, the volume of perched water reaching the surface water via this route is reduced, increasing the ratio of clean rainwater in the surface water reens. Where this passage is also through areas of cleaner reengineered Made Ground, there are likely to be benefits associated with increased contamination attenuation prior to reen discharge. These are the areas of the site where some retardation (degradation and/or sorption) of contaminants within the Made Ground is considered possible. On this basis it is proposed to place 'cleaner' Made Ground closer to the reens which are known to be the surface water receptors for the perched waters.

The Atkins CWDQRA, that generated the initial criteria, assumed that in areas of soft landscaping, 100% of the infiltrated rainwater (12.85mm per year or 1.3% of total rainfall) percolated through the construction material (imported top soils), and in to the Made Ground. This value takes account of estimated surface-water run-off (55% of total rainfall) and evapotranspiration (43.7% of total rainfall). It is considered likely that the lowest achievable, permeability of the post-development Made Ground is like to be in the region of ($1x10^{-7}$ m/s).

It was also apparent in the Atkins CWDQRA and Conceptual Site Model that although lateral drainage within the capping layer was anticipated, this wasn't accounted for in the earlier Atkins CWDQRA calculations, where it assumed that essentially all (1.3% of the total rainwater), passed into the underlying post-development Made Ground. It is therefore reasonable to assume that a reduction in infiltration into post-development Made Ground will be enabled by the placement of higher permeability ground surface construction materials (imported soils) and any possible introduced gradient within this layer which will encourage an element of lateral flow.

In order to gauge potential impacts on the existing calculated soil reuse criteria, a process of sensitivity analyses was therefore proposed using possible scenarios where 40% of the 12.85mm per year (5.14mm/year) or 5% (0.64mm/year) penetrates into the underlying post-development Made Ground. The 40% infiltration value has been adopted as it is still considered to represent a conservative value, but does reflect the increased compaction and reduction in air voids. This 40% value was developed through discussion with civil and geotechnical engineers on which might be reasonably achievable with these types of soils. This value is conservative and supported by Figure 4.2 (Appendix TN 272) of CIRIA 609 Sustainable Drainage Systems, Hydraulic, Structural and Water Quality Advice, London 2004. which shows 15% deep infiltration in a non engineered site. It has been assumed that the hydraulic gradient would favour flow through construction materials (at approximate rate of 1xE-3 m/s), particularly with a fall across the formation level. It has also been reasonably assumed that the silting of the pathways within the construction materials, over the course of time, would further reduce the ability of the infiltrated water to reach the re-engineered Made Ground.

It is recognised that this modelling is of a further potential reduction in what is already, apparently, a low rate of rainwater infiltration (1.3% of total rainfall). Reuse criteria would then be derived for the range of determinands as previously selected for the site (which are considered to remain reasonable), but it was proposed that these criteria additionally include; iron, manganese, cyanide, ammoniacal nitrogen and phenol, which would be modelled in the current RLE Report.

It was considered that the very low 5% (0.64mm/year) infiltration rate may not necessarily be achievable and is not taken further within the assessment, but was assessed as a mechanism to reflect distance from the surface water receptors (existing reens), and effectively represent a greater travel of infiltrated water. It was proposed that the findings should be superseded by modelled travel time parameters. A P20 assessment was undertaken as an additional line of evidence to model the distance at which point soil concentration source become incidental/ less significant in their contribution to the body of perched receiving surface water. The P20 has been used as a check in assessing what would be considered to be, realistic, achievable, soil reuse criteria.

1.3 Natural Attenuation from Site Features

It is also considered that there is a potential for natural attenuation benefits from further improving and expanding the existing surface water features on the site, which mainly comprise reens and ponds/small lakes. This is anticipated particularly through:

1. Further establishing the vegetation within the reens which will help reduce the concentrations of organic contaminants and particularly nutrients such as ammoniacal nitrogen. The reens are known to vegetate rapidly and require regular maintenance to remove surplus growth;

2. Undertaking organic matter enrichment of soils along margins of the reens and ponds/lakes into which water penetrating the Made Ground are likely to discharge. This could be undertaken by placement of locally excavated peat (obtained from Alluvial and underlying Tidal Flat Deposits) and other soils containing high concentrations of organic matter. This should enable a further stripping out of low concentrations of PAHs and TPH within these discharge waters. Amendment of these soils with other materials will also be considered, taking into consideration further knowledge of the residual contaminant profile, in order to provide a passive sustainable solution to the long-term remediation of this site.

1.4 Works to date

The preparation of the updated RLE DQCWRA was followed by a sitewide sampling exercise, of the insitu soils on a 25m grid and sampling of the stockpiles at a frequency 1 per 500m3. The sampling was undertaken, in early 2021, in accordance with the sitewide remediation strategy (Ref. 18669-RLL-21-XX-RP-O-015) prepared by RLL. The sitewide sampling exercise has allowed, using updated soil criteria, the assessment of whether the made ground is suitable for reuse on site, treatment or disposal. The works to date have comprised the excavation of approximately 300,000m3 of made ground unsuitable for reuse in the

residential area. The material, suitable for reuse in the commercial area, has been relocated for placement in the business park. The works have been undertaken in accordance with the On Site Reuse Material Management Plan.

The works to date have assisted in reducing source concentrations in the residential site and it is intended to collect information as part of the validation works to verify the improvement in site conditions.

A validation plan (Remediation Strategy - Appendix F, Technical Note 0260 CWDQRA Validation Plan) has been prepared to specify the monitoring information, relevant to the CWDQRA, to be collected for each phase. The post earthworks monitoring information is to comprise permeability testing (falling/rising head tests), and pore water concentration testing (sampling of the perched water) to compare field data with assumptions made in the CWDQRA assessment.

2.0 Site History and Environmental Setting

2.1 Site Setting

The Glan Llyn development site is located south of Llanwern, immediately east of Newport at National Grid Reference (NGR) ST 36101 86848. The site covers an area of approximately 243 ha which comprises previously developed land (Section 2.2). The site is bound to the north by a railway line and to the south by Queen's Way (A4810). The operational Tata steelworks is located adjacent to the eastern boundary and a north-south drainage ditch borders the western boundary, beyond which lies Newport Retail Park. A plan showing the site's location is presented on Drawing 18669-RLE-19-XX-DR-O-0004. The site is proposed to be redeveloped as a mixed residential and commercial development (Drawing8111-008-A0111). Residential development is proposed for the majority of the site, whilst commercial development is limited to the Celtic Business Park area in the east of the site (Drawing 8111-008-A0111). A copy of this Drawing is provided to the rear of this Report.

2.2 Site History

Details of the documented site history are provided in the above-noted Atkins CWDQRA Report dated February 2017. However, in summary, the site was extensively developed as a steelworks by Richard Thomas and Baldwins Ltd in the 1960s. Prior to construction, marshland and arable farmland within the site boundary was subject to significant land raise and engineering to bring ground level to current levels. Within the confines of the development site, steelworks ancillaries included but were not limited to; mineral stockyards, blast furnaces, offices, railway sidings, a 'Bit Mac' plant and coking works. Steel making operations ceased in the western half of the steelworks site in 2001, with the majority of infrastructure demolished in 2004, following land transfer to St. Modwen Developments Ltd.

It is much of the material used as part of this pre-development land raise, together with demolished former steelworks buildings and structures that comprise the existing Made Ground across the site, which will be subject to the proposed reengineering and compaction works associated with this redevelopment.

Approximately 20% of the development has been completed up to August 2019, including near completion of two residential phases (Phase 1 & Phase 2), the construction of two commercial units (Amazon & CAF), the park and a pub within the Western Sub Area.

2.3 Geology

2.3.1. Published Geology

The BGS GeoIndex (BGS, 2016a) indicates that Superficial Tidal Flat Deposits comprising clays and silts underlie the areas of interest. The BGS Lexicon of Named Rock Units (BGS, 2016b)

describes these deposits as: *'normally a consolidated soft silty clay, with layers of sand, gravel and peat. Characteristically low relief; from the tidal zone'* Bedrock geology underlying the areas of interest comprises mudstones of the Mercia Mudstone Group (BGS, 2016a); the BGS Lexicon of Named Rock Units (BGS, 2016b) describes the Mercia Mudstone as: *'dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite* [are] *widespread, sandstones are also present.'* Given the history of development within the areas of interest, it is anticipated that a layer of Made Ground will be present across the proposed developments.

2.3.2. Local Geology

The Glan Llyn development site benefits from several phases of GI and the ground model for the site is well constrained. For ease of discussion and brevity, a summary of local geology underlying the site is presented in Atkins Table 2-1 below (reproduced from their February 2017 Report). However, a full discussion of local geology within each development phase is presented in the respective "Ground Investigation and Ground Conditions" section of the geo environmental reports (Atkins; 2015b, 2015c, 2015d). Boreholes drilled as part of the 2016 CWRA Ground Investigation (IFA, 2016) confirm the presence of Made Ground, Tidal Flat Deposits and Bedrock across the site, as outlined in Table2-1 below.

Table 2-1 Summary of Local Geology (Atkins, 2015 a)

Geological Unit		Indicative Geological Composition	Approximate Thickness
Topsoil		Soft brown slightly sandy clay.	Nominal thickness, only locally
Made Ground	Made Ground 1	Grey occasionally clayey, sandy gravel of and angular to sub-angular fine to coarse slag with occasional tarmac, concrete, brick, limestone and ceramic / fused slag.	0.02 2.6 m
	Made Ground 2	Red brown / brown clayey sandy gravel (locally gravelly sand) with cobbles and boulders	
	Made Ground 3	Red brown / brown soft to firm sandy gravelly clay with cobbles and boulders. Gravel includes sub-rounded to angular fine to coarse burnt shale, brick, slag, sandstone, mudstone, shale and occasional coal.	
Tidal Flat Deposits	Upper Tidal Clay	Generally very soft to firm blue grey slightly gravelly silty clay with rare localised pockets of peat.	7 – 10 m (IFA, 2016)
	Upper Peat	Generally a spongy dark brown occasionally clayey pseudo-fibrous to fibrous peat.	
	Lower Peat	Generally a spongy to plastic dark brown occasionally clayey occasionally sandy pseudo-fibrous to amorphous peat.	
	Lower Tidal Clay	Generally described as a soft to firm bluish grey slightly sandy slightly gravelly clay gravel is of angular to sub-angular fine to medium sandstone.	
	Red Clay	Generally described as a firm to stiff red brown mottled grey slight gravelly clay, gravel is angular to sub-angular fine to coarse mudstone.	
	Basal Sand	Generally a medium dense light brown slightly silty slightly gravelly fine grained sand the gravel is of sub-rounded to sub-angular fine siltstone and quartzite.	
Bedrock	Mercia Mudstone Group	Weathered Mercia Mudstone being described as stiff to very stiff reddish brown slightly gravelly clay and extremely weak to weak occasionally laminated red brown mudstone.	Encountered, thickness not proven

2.3.3 Post-development Ground Conditions

The post-development ground conditions on site are as detailed in Table 2-2 below. Existing Made Ground is to be excavated and re-compacted to comply with the Atkins geotechnical specification for the development (Atkins, 2016b). In addition, it was proposed that a 1 in 100 gradient (0.01) be applied to the surface of the Made Ground to prevent ponding and promote lateral drainage within the construction materials.

Potential further mitigation to promote lateral flow that may be considered is the provision of a drainage blanket to cap the reengineered material and increasing the fall from the centre of a plot to periphery.

Table 2-2 Post-Development Ground Conditions

Unit	Approximate Thickness	Description
Impermeable Construction Materials/ Housing Sub-base/Permeable Topsoil	0.6 m	Imported clean topsoil/construction materials
Piling Mat*	0.5 m	Imported 6F2 (*may be included within 600mm of construction materials)
Made Ground	1.5 – 2.0 m	Excavated and re-compacted Made Ground
Tidal Flat Deposits	7.0 – 10.0 m	No change from current conditions
Bedrock (Mercia Mudstone Group)	>1,350m	No change from current conditions

2.4 Hydrogeology

The following details are based upon information presented in the Atkins 2017 Report, and reviewed again prior to preparation of the current update.

2.4.1. Published Hydrogeology

Groundwater maps previously available on the Environment Agency website (Atkins, 2015a) show that the Mercia Mudstone bedrock deposits below the proposed developments are classified as a Secondary B Aquifer. The Environment Agency define a Secondary B Aquifer as being: *'predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.'*

The Tidal Flat Deposits are classified as non-productive strata which are defined by the Environment Agency as being: *'deposits with low permeability that have negligible significance for water supply or river base flow'.*

It is understood from investigations carried out by Atkins that the Environment Agency website indicated that there were no groundwater abstractions within 1 km of the proposed developments. Information presented on the GroundSure Enviro Data Viewer website (http://groundsure.io/), accessed August 2019, indicates that the Site is not located within a Groundwater Source Protection Zone (SPZ).

2.4.2. Local Hydrogeology

A site-wide programme of monthly groundwater level monitoring was undertaken from May to November 2016 in the shallow and deep wells installed during the CWRA GI (Drawing 5111373-LLA-DWG-EG-0295) to inform the hydrogeological conceptual site model. A copy of this Drawing is provided in the Appendices to the current Report.

This monthly monitoring was subsequently continued until 2017.

A summary of groundwater levels recorded in the deep and shallow wells were presented in Appendix A of the Atkins 2017 CWDQRA Report and are reproduced in the current Report (**Appendix C**). It is indicated that groundwater level monitoring and water strike data recorded during the Ground Investigations (GI) of each site development phase, were presented in the "Ground Investigation and Ground Conditions" section of the relevant geo-environmental Report (Atkins; 2015b, 2015c, 2015d); and are summarised in the CWRA Position Statement (Atkins, 2015a).

It was considered that groundwater levels recorded during the CWRA GI and subsequent monitoring suggested that the groundwater is present beneath the proposed development as follows (Atkins, 2015a):

- Shallow / perched groundwater within the Made Ground (shallow boreholes); and
- Groundwater within the Tidal Flat Deposits (confined to the basal sand layers) and Mercia Mudstone (deep boreholes).

Groundwater monitored within the deep boreholes was considered to be primarily derived from the bedrock geology, and hydraulic continuity between the upper perched shallow groundwater and 'regional' groundwater was considered likely to be limited. Post-development, the excavation and re-compaction of the Made Ground was recognised as likely to reduce its permeability, lowering still further, the hydraulic continuity.

The permeability of the reengineered material based on the compaction necessary to attain the requirements of the specification is likely to consistently achieve low permeability or poor drainage characteristics. This is likely to be a permeability of 10^{-7} m/s.

Downward percolation of water through the Tidal Flat Deposits was considered to be limited due to the low permeability of the clay-rich strata. This is likely to cause water to accumulate within the overlying Made Ground. Regional groundwater within the Basal Sands of the Tidal Flat Deposits and Mercia Mudstone bedrock is confined by the overlying clay within the Tidal Flat Deposits and is under sub-artesian pressure (Atkins, 2015a). These conditions are further confirmed by the presence of water strikes consistent with the top of the Mudstone/Basal Sands which rose several metres within a short time period (IFA, 2016).

Where the piezometric level in the regional aquifer is higher than shallow perched water then the shallow perched water system is likely to be hydraulically contained with limited downward leakage permitted. However, it is unknown how groundwater conditions will change throughout the hydraulic year within the post-development site. As outlined by Atkins (2015a), during hydraulic conditions where the piezometric level is below the level of the shallow perched water, slow downward migration of this water through the Tidal Flat

Deposits is to be expected. Table 2-4 of the Atkins 2017 CWDQRA Report, below (reproduced from their February 2017 Report), presents deep – shallow groundwater levels (mAOD) for the available groundwater level data across the site. It was indicated by Atkins that based on a review of the water levels in the deep and shallow borehole pairs, there are examples of both conditions being present at the proposed development site during all 2016 monitoring rounds. It was indicated that the majority of differences between piezometric levels are less than half a metre across the site, with only four occurrences where shallow piezometric levels are at or greater than 1.00m than deep levels (BH05 03/11/16, BH06 03/11/16, BH21 05/10/16 and 07/07/16, BH30 05/10/16).

Table 2-4 Deep and Shallow Groundwater Level Comparison

Deep Borehole	Shallow Borehole	Deep Groundwater Level (mAOD) – Shallow Groundwater Level (mAOD)*						
		10/05/2016	06/06/2016	07/07/2016	02/08/2016	01/09/2016	05/10/2016	03/11/2016
CWCP-03	CWWS-03	0.195	0.005	-0.145	0.035	-0.025	n/a	-0.305
CWCP-04	CWWS-04	-0.264	-0.764	-0.664	-0.584	-0.544	n/a	-0.774
CWCP-05	CWWS-05	0.181	-0.819	n/a	-0.429	-0.659	-0.769	-1.069
CWCP-06	CWWS-06	n/a	n/a	n/a	-0.336	n/a	n/a	-1.186
CWCP-07	CWWS-07	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CWCP-08	CWWS-08	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CWCP-09	CWWS-09	0.018	-0.682	-0.982	0.068	-0.162	-0.122	-0.432
CWCP-10	CWWS-10	-0.089	n/a	n/a	-0.279	-0.389	-0.399	-0.419
CWCP-11	CWWS-11	0.048	0.018	-0.012	-0.092	0.018	-0.032	-0.012
CWCP-12	CWWS-12	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CWCP-13	CWWS-13	-0.904	-0.834	-0.984	-0.844	-0.894	-0.774	-0.864
CWCP-14	CWWS-14	0.008	0.078	-0.022	-0.112	-0.002	-0.212	-0.132
CWCP-15	CWWS-15	0.078	0.118	0.668	-0.032	0.178	-0.242	0.108
CWCP-18	CWWS-18	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CWCP-19	CWWS-19	-0.112	-0.072	-0.232	-0.082	-0.182	-0.252	-0.112
CWCP-20	CWWS-20	n/a	n/a	n/a	n/a	n/a	n/a	n/a
CWCP-21	CWWS-21	-0.93	-0.77	-1.06	0.34	-0.82	-1.18	n/a
CWCP-22	CWWS-22	-0.818	0.152	0.002	0.682	0.232	-0.088	-0.048
CWCP-23	CWWS-23	0.526	0.596	0.856	0.146	0.036	0.036	0.026
CWCP-24	CWWS-24	0.607	0.127	0.117	-0.013	0.127	n/a	-0.253
CWCP-25	CWWS-25	-0.617	-0.257	-0.247	-0.397	-0.337	0.553	-0.637
CWCP-26-e	CWWS-26-e	-0.006	0.014	-0.196	-0.116	-0.156	-1.196	-0.206
CWCP-26-w	CWWS-26-w	0.525	0.365	0.345	0.325	0.155	0.675	-0.305
CWCP-27	CWWS-27	n/a	-0.09	-0.1	-0.17	-0.15	-0.31	-0.36
CWCP-28	CWWS-28	0.189	0.069	0.039	-0.021	0.179	0.069	0.219
CWCP-29	CWWS-29	-0.193	-0.363	-0.413	-0.263	-0.383	0.487	-0.553
CWCP-30	CWWS-30	0.38	0.17	0.15	0.2	-1	0	0.13
CWCP-31	CWWS-31	-0.298	-0.328	-0.398	*n/a*	-1.088	-0.388	-0.508
CWCP-32	CWWS-32	-0.562	-0.452	-0.552	-0.702	-0.702	-0.562	-0.552
CWCP-34	CWWS-34	n/a	n/a	n/a	n/a	n/a	-5.468	n/a
CWCP-35	CWWS-35	-0.27	-0.47	-0.47	-0.36	0.6	-0.51	-0.44
CWCP-36	CWWS-36	n/a	-0.165	-0.295	n/a	-0.385	n/a	n/a

*n/a indicates no two corresponding samples available for comparison (i.e. dry borehole/no data), where value is negative deep groundwater levels are lower than shallow, positive values indicate deep groundwater levels above shallow.

Further analysis of regional groundwater data (13/10/2015) from the boreholes installed into the bedrock geology was undertaken in the CWRA Position Statement (Atkins, 2015a). Deep groundwater contours produced suggest a regional groundwater flow direction towards the south and south east towards the estuary of the River Severn, which is broadly expected. This is confirmed by analysis of recent groundwater level monitoring data.

Review of the shallow perched water system indicates that it is likely to be extremely complex with no discernible single flow direction (Atkins, 2015a). The Made Ground is known to be highly heterogeneous (Table 2-1), resultant flow of perched water is likely to be discontinuous and tortuous through permeable and connected pathways only. In addition, flow within the Made Ground is fragmented across the site by the extensive network of surface water drainage ditches (reens) across the site (Section 2.5.1); it is anticipated that flow converges towards these surface water features where permeable pathways exist within the Made Ground. As a result of natural clay lining of the reens around the periphery of the site (Section 2.5.1), no lateral hydraulic connection exists between the Made Ground onsite and surrounding superficial deposits.

2.4.2.1. Hydrogeological Properties

Capping Drainage Layer

The gravels of the capping drainage layer are expected to have a permeability of approximately 1x10-3 m/s (Freeze and Cherry, 1979), assuming the material to have good drainage characteristics consistent with a clean gravel/sand (Atkins, 2016b).

Made Ground

It was indicated by Atkins, that soakaway tests undertaken within the re-engineered Made Ground onsite (in accordance with BRE 365 (BRE, 2007)) produced very little seepage and therefore analysis of results was not possible. It was noted that composition of the Made Ground as indicated by Particle Size Distribution (PSD) laboratory tests approximate the hydraulic conductivity of the post-development Made Ground at 1x10-7 m/s (Atkins, 2016b). It was therefore indicated that the assigned hydraulic conductivity of the re-engineered Made Ground be based on the values included within Barnes (2010) for a material with poor drainage characteristics as indicated by the soakaway tests. It was noted that this value is consistent with previous analysis undertaken by Atkins. The results of these tests are presented in Table 2-5, as reproduced below.

Table 2.5: Properties of the Re-engineered Made Ground

Made Ground	PSD No./ Average	BRE Soakaway Test Result	Adopted Permeability(*k*)
Test 1	102 No./ 11% fines, 22% sand, 62% gravel, 5% cobbles	Fell 4mm in 3hrs	1 x 10^{-7} m/s
Test 2		Fell 20mm in 2hrs	1 x 10^{-7} m/s

2.5. Hydrology

2.5.1. Surface Water Features

It was previously indicated by Atkins that, the surface water drainage onsite comprises several man-made surface water drainage ditches (reens) cut into the natural clay which divide the site north to south, receiving water from the land to the north in addition to onsite drainage and baseflow. A maximum channel flow of 10.64 l/s was previously recorded at sampling location D5N. The reens are connected to east-west drains which run the length of the site along the A4810 (Queen's Way Road) within 50m from the southern boundary and the northern carrier drain within the site adjacent to the northern boundary(Drawing 5111373-LLA-DWG-EG-0408); ultimately discharging to the water treatment works at the operational Tata steelworks to the east. Drawing 5111373-LLA-DWG-EG-0408 depicts the current surface water drainage onsite and indicates sampling locations.

Monks' Ditch, a main river (Waterbody ID GB109056026850) crosses the site flowing north to south. The river flows across the site in a fully contained deep piled concrete channel approximately 7 m wide and 3 m deep (Rodgers Leask, 2016) before crossing the Gwent Levels to the south as a natural channel (Section 2.5.3) and discharging to the Severn Estuary via a tidal exclusion gate. A number of reens and watercourses controlled and maintained by Cyfoeth Naturiol Cymru / Natural Resources Wales (CNC/NRW) surround the site and are described in the surface water drainage strategy (Rodgers Leask, 2016).

A comprehensive surface water drainage strategy for the site has been developed by Rodgers Leask (2016), considering areas already developed (Western Sub Area and parts of the Celtic Business Park) and those yet to be developed. The strategy outlines the sustainable surface water management planned for the finished development. Approximately 399,000 m3 of storage is planned within the site, taking the form of an extensive network of blueways/reens, lakes and Sustainable Drainage Systems (SuDS), receiving all surface water runoff from the site. A post-development surface water drainage plan is presented in Drawing D12- 084-512 and summarised below:

- Blueways (Reen 1, Reen 2, Julian's Reen, Ellen Reen, East Lake Reen, King's Wall Reen and Celtic Business Park Reens) – primary surface water channels comprising existing and newly created reens which will be engineered to flow south to north across the site, culminating in a west-east channel adjacent to the northern boundary of the site, from which water will be discharged to Monk's Ditch. Reens within the site boundary will be unlined (other than being cut into the underlying clay to achieve the required invert level therefore the base and deeper parts of banks will be formed in the natural clay);
- Greenways – high level dry, shallow ditches intended to channel overland surface water from the development plots into the blueways;
- Lakes – a number of lakes and ponds are anticipated to be connected to the blueway system to provide amenity with some additional storage for surface water runoff; and
- Monks' Ditch – surface water from the site is proposed to be pumped to the Main River at a maximum flow rate of 750 l/s as specified by CNC/NRW.

The strategy as submitted (Rodgers Leask, 2016), states that discharges to Monks' Ditch will be allowed once the specified quality criteria and quality control systems have been

established and are met, until that point discharges to the Tata system will continue from the development site.

2.5.2. Rainfall

In the absence of an onsite rain gauge, rainfall data used within the Atkins 2017 CWDQRA assessment was taken from MAFF (1976) for the area surrounding Newport. Literature values for annual total rainfall, (953 mm, MAFF, 1976) are comparable to available data from nearby CNC/NRW rain gauge at Newport for the year 2015 (945 mm).

2.5.3. Designated Areas

Gwent Levels (Nash and Gold Cliff) Site of Special Scientific Interest (SSSI) encompasses the area between the southern site boundary and the Severn Estuary and comprises a large area of ancient grazing marshes, farmed wetland, and reens. The area is part of a series of adjoining SSSI designated for their wildlife and archaeology; specifically water beetles and dragonflies found in the reens, farmland birds, and brown hare, otter and water vole.

3.0 Conceptual Site Model

3.1 Introduction

A Conceptual Site Model (CSM) was previously prepared for the Glan Llyn site, as a whole. It was indicated that the CSM, which was considered to be representative of the site in an un-remediated, undeveloped scenario, considered all available geological and hydrogeological information relating to the proposed development to produce a CSM upon which a detailed assessment of the risk to Controlled Waters could be assessed. Risks to Human health via inhalation, direct ingestion or dermal contact of soils did not form part of the CSM. Again, it is recommended that the relevant chapter of the Atkins Report is read in conjunction with this section of the current Report. However, much of the earlier CSM is presented again below for convenience.

3.2 Potential Sources of Contamination

The following potential sources of contamination were identified with respect to Controlled Waters considering the available historical and recent data for the site:

The Made Ground, which was historically used to build up the level of the site was known to include imported waste products (slag, concrete, brick, burnt shale) from other steelworks in addition to natural deposits (Table 2-1).

Chemical compounds which have the potential to contaminate the ground outlined by the Department of Environment (DoE, 1995) as being associated with metal production industry are: metals and metalloids, inorganic compounds, acids and alkalis. Contaminants, particularly related to coke-making include; PAHs, cyanides, ammoniacal liquors, sulphur and sulphates, BTEX VOCs and also include petroleum-based fuels and oils. Contaminants of Concern (CoC) are presented in Section 5.1.1.

It was noted by Atkins that groundwater within the bedrock has previously been impacted by contaminants associated with the former steel producing industry formerly located on this site. However, given the direction of the groundwater flow and the location of elevated concentrations a link between the steelworks as a source and regional groundwater could not be confirmed.

3.3 Potential Receptors

Receptors relating to Controlled Waters are identified to comprise:

- Monks' Ditch (into which surface water from the development site is pumped);
- Engineered surface water reens onsite;
- Perched groundwater within the Made Ground;
- Groundwater within the Tidal Flat Deposits Unproductive Strata; and
- Mercia Mudstone Secondary B Aquifer.

It was indicated that the Made Ground and Tidal Flat Deposits (unproductive strata) are not considered to be a Controlled Waters receptor in the context of the assessment due to their anticipated low resource potential. The post-development surface water reens within the site were not considered to be Controlled Waters given the artificial nature of their origin and the fact that discharge from this system will always be entirely managed by on site pumping stations. The reens are therefore treated as part of the engineered water management system in the same way that SuDS features are on many developments.

Monks' Ditch, as a Main River, was considered to the principal receptor for any Controlled Waters impact at the site.

3.4 Potential Pathways

Potential Controlled Waters pathways were identified as follows:

Leaching of soil-borne contamination in Made Ground and subsequent lateral migration through permeable pathways in Made Ground to Monks' Ditch via onsite reens.

No effective pathway was identified between the shallow groundwater in the Made Ground and the deep groundwater within the Mercia Mudstone Secondary B Aquifer, due to the low permeability of the clay-rich Tidal Flat Deposits.

3.5 Potential Pollutant Linkages

It was assessed that contamination present within the Made Ground onsite is anticipated to directly leach into the underlying perched shallow groundwater via infiltration and diffusion. The degree of leaching from the source materials present within the Made Ground is a function of portioning to the soil matrix and volatilisation potential to the gaseous phase. Little dilution was anticipated to occur within the Made Ground as the site was considered to be hydraulically isolated from the surrounding superficial deposits by reens formed in the natural clay, preventing inflow of uncontaminated groundwater. The base of the reens are also known to be excavated into the clay-rich Tidal Flat Deposits.

The prevailing flow of perched groundwater was anticipated to be separated along the central north-south divide of each sub-area, flowing laterally to the adjacent reen following the slope of the Made Ground (Section 2.3.3). Groundwater flow was considered to be able to move laterally within the Made Ground without impedance. However, it is recognised that areas of low hydraulic conductivity are likely to exist in the Made Ground (i.e. due to the presence of silts and clays), which will baffle flow locally and prevent bulk advection of contaminants.

It was assumed that no dilution occurs within the shallow groundwater in the Made Ground and that concentrations of contaminants reach equilibrium. Substantial dilution will occur within the reens as groundwater mixes with surface water runoff from the site.

Water in the reens is proposed to be physically pumped into the Controlled Waters receptor, Monks' Ditch; details of which are outlined in the Surface Water Drainage Strategy (Rodgers

Leask, 2016). Currently it is understood that the surface water discharge from site flows into the Tata surface water system and is controlled and discharged as part of their industrial discharge consent.

As previously outlined, due to the low resource potential and low permeability nature of the Made Ground, Tidal Flat Deposits and Mercia Mudstone, in addition to the restricted pathway between shallow and deep groundwater, no credible groundwater receptors were realised. A diagrammatic CSM was prepared, which has been reproduced by RLE (dated 05/07/19) and is provided in **Appendix D**.

4.0 Contamination Data Assessment

4.1. Water Quality Standards

The CSM identified Monks' Ditch as a Controlled Waters receptor for the site. Therefore, the annual average Inland Surface Waters EQS applicable under the Water Framework Directive was adopted as the primary WQS (DEFRA/Welsh Ministers, 2015). Where a value was not available for a particular element or compound, then the following standards were used in order of preference:

- EU Statutory EQS (Protection of Surface Water Quality) (Council Directive 2000/60/EC);
- UK Statutory EQS (Protection of Aquatic Life) (Council Directive 76/464/EEC);
- UK Non-statutory EQSs (Protection of Aquatic Life) (Council Directive 76/464/EEC) and;
- UK Drinking Water Standard (DWS) (Water Supply (Water Quality) Regulations, 2000).

There are no current UK WQS for TPH; however, a concentration of 0.01 mg/l was used, which is based on the UK DWS in the former 1989 regulations (Water Supply (Water Quality) Regulations, 1989).

It is considered upon further review that the EQS Values for Controlled Water as applied in the earlier Atkins 2017 CWDQRA, still remain appropriate for this site, and therefore have remained unchanged in the current Revision.

4.2 Soil Quality Assessment Methodology

To determine the potential impacts through leachability of the existing insitu Made Ground, derivation of Screening Values (expressed as mg/kg) was undertaken for a range of determinands using the Environment Agency calculation provided in their Remedial Target Worksheet (Level 1 Soils), using, where possible, site specific data. These Screening Values have been utilised in the current RLE assessment. Details as to the methodology utilised are provided in Section 4.2 and Equation 1 of the calculations presented in **Appendix L**. It is recommended that this methodology employed be read in conjunction with the current Report.

4.3 Atkins Earlier Findings from July 2015 to September 2016

A review of the earlier findings obtained by Atkins was carried out as part of the current RLE CWDQRA. For greater detail of these findings, reference should be made here to the earlier Atkins 2017 CWDQRA Report. However, in summary:

4.3.1 Soils

From analyses of 243 (No.) samples of Made Ground recovered from unremediated stockpiles across the site, it was noted, upon comparison, that total concentrations of determinands (which included metals, petroleum hydrocarbons and PAHs), were found in

many of these samples, to exceed their respective calculated Level 1 Soils Screening Values, based upon application of the proposed site specific EQS Values for Controlled Waters. The full results are presented in Appendix B of the earlier Atkins 2017 CWDQRA Report.

4.3.2 Soil Leachates

114 (No.) soil leachates were also generated from samples of Made Ground recovered. It was noted that upon analyses for an appropriate suite of inorganic determinands (mainly metals), and upon comparison with the proposed site specific EQS values, that a number of these (particularly chromium, copper and vanadium), were also found in many of these samples to exceed the respective EQS values. The full results are presented in Appendix B of the earlier Atkins 2017 CWDQRA Report.

4.3.3 Groundwater Samples

Concentrations of a range of metal determinands, consistent with the former usage of the site in the metal production industry, were also analysed in shallow and deep groundwater samples recovered from boreholes installed across the site. The full results are presented in Appendix C of the earlier Atkins 2017 CWSQRA Report. In view of the relative degree of hydraulic isolation of the shallow and deep groundwater horizons present across the site, these findings were considered separately.

4.3.3.1 Shallow Groundwater Horizon Samples

These samples were considered to be representative of groundwater in contact with existing Made Ground present on the site.

A total of 68 (No.) samples were recovered from the shallow groundwater within the Made Ground across 24 locations during May, June and July 2016 based upon a specification presented in an earlier monitoring strategy (Atkins, 2016a). The WQS standards adopted for groundwater quality screening are as outlined in Section 4.1 of the Atkins 2017 CWDQRA Report, and a summary of exceedances is presented in Table 4-3 of the same Report as it was determined that the LoD (limit of detection) was greater than or equal to the WQS for many of the determinands, for screening purposes exceedances were only considered for samples where analytical results were found to be above the LoD.

It was noted that, as expected, the determinands in exceedance of the WQS in the soil samples (consistent with those associated with the metal production industry (DOE, 1995)) are also reflected in the results of analyses of the shallow groundwater samples.

A review and discussion of the results of analyses of shallow groundwater samples is presented below, together with consideration of the results of more recent (post 2017) monitoring and analyses.

4.3.3.2 Deep Groundwater Horizon Samples

A total of 138 (No.) samples were recovered from the deep groundwater within the Tidal Flat Deposits and underlying Mudstone across 47 locations during May, June and July 2016 based upon a specification presented in an earlier monitoring strategy (Atkins, 2016a). Again, as the LoD was greater than or equal to the WQS for many of the determinands, for screening purposes exceedances were only considered for samples above the LoD. A summary of WQS exceedances is presented in Table 4-4 of the Atkins 2017 CWDQRA Report.

4.3.4 Surface Water Quality

It was indicated that surface water quality data was collected monthly from the reens and ponds onsite based upon a specification presented in an earlier monitoring strategy (Atkins, 2016a). A total of 104 (no.) samples were collected from June to November 2016 and were screened as outlined in Section 4.1 of the Atkins 2017 CWDQRA Report. Again, as the LoD was greater than or equal to the WQS for many of the determinands, for screening purposes exceedances were only considered for samples above the LoD.

4.3.4.1 Onsite Surface Water Quality

Of the 104 (No.) samples, 94 (No.) were from onsite. The determinands detected above the WQS within the onsite surface water samples were considered to be broadly consistent with those identified within the soil samples (Table 4-1 of the Atkins 2017 CWDQRA Report). Cyanide, iron, manganese, SVOC and VOCs were in exceedance of the WQS in the surface water, however they were not tested for in the soil samples, so a comparison may not be made.

Upon further review of the results obtained, it may be noted that:

67% exceeded the ammoniacal nitrogen WQS;
6% exceeded the total cyanide WQS;
4.3% samples exceeded the copper WQS, where bioavailable copper is considered only;
5.4% exceeded the vanadium WQS;
6.5% exceeded the nickel WQS.

4.3.4.2. Monks' Ditch Surface Water Quality

Of the 104 (No.) samples recovered, 10 (No.) were from the Monks' Ditch monitoring locations (MD-N and MD-S). The exceedances of the WQS present within Monks' Ditch were presented in Table 4-6 of the Atkins 2017 CWDQRA Report. It was indicated that the exceedances reported were spread across all samples and collection dates. As the Monks' Ditch is understood to be hydraulically isolated as it flows through the Glan Llyn Llanwern Site, then assuming that this is the case, then it may be inferred that where elevated concentrations of contaminant determinands are recorded, then these are likely to have originated from an offsite up-gradient/up-flow source.

4.4 Assessment of Data from 2017 Onwards

4.4.1 Soils

Subsequent soils analyses (post 2017) have been undertaken on samples recovered from across the site, over a period from 01/05/17 to 03/04/19, with a total number of 1806 (No.) samples being analysed. The results of analyses screened against the 40% infiltration value for residential and commercial are provided in **Appendix E**. The locations of the samples are shown on drawing 186669-RLE-22-XX-DR-O-0254 (CWRA Assessment Soil Samples Location Plan) in **Appendix F**. From analyses of 1806 (No.) samples of Made Ground recovered from unremediated ground across the site, it may be noted again, upon comparison, that total concentrations of determinands (which included metals, petroleum hydrocarbons and PAHs), may be found in many of these samples, to exceed their respective calculated Level 1 Soils Screening Values, based upon application of the proposed site specific WQS Values for Controlled Waters.

4.4.2 Soil Leachates

Subsequent soil leachate analyses have been undertaken on samples recovered from across the site, over a period from 01/06/18 to 11/04/19, with a total number of 1121 (No.) samples being analysed for metals. The results of analyses are provided in **Appendix G** of the current Report. Details of specific areas of the site where these samples have been recovered are presented in **Appendix F.** It was noted that upon comparison of metals results with the proposed site specific WQS values, that a number of these, again, particularly; arsenic, chromium, copper, vanadium and to a lesser extent; lead and zinc, were also found in a significant number of these samples to exceed their respective WQS values. It should be recognised, however, that the laboratory preparation of leachate samples produces results which will tend to be conservative and of limited relevance where shallow surface water quality results are available (as in the case of this site), for comparison purposes.

However, it is noted that of the samples analysed:

- 83% exceeded the arsenic WQS;
- 54% exceeded the chromium WQS;
- 86% exceeded the copper WQS;
- 66% exceeded the nickel WQS;
- 76% exceeded the selenium WQS;
- 92% exceeded the vanadium WQS;
- 42% exceeded the lead WQS;
- 66% exceeded the zinc WQS;
- A low to very low number of exceedances for BTEX VOCs were recorded;
- No samples exceeded the respective WQS values for PAHs;
- No samples exceeded the respective WQS values for TPHs.

4.4.3 Groundwater

No additional groundwater monitoring samples have been recovered.

4.4.4 Surface Water Quality

4.4.4.1 Onsite Surface Water Quality

A further significant volume of additional data has been obtained from monitoring of the quality of surface waters across the site, with a total number of 998 samples being recovered over a period from 06/03/2018 to 30/04/19. The results of analyses are provided in **Appendix H** of the current Report. It is noted that of the samples analysed:

- 63% exceeded the ammoniacal nitrogen WQS;
- 3.4% exceed the free cyanide WQS;
- No samples exceeded the copper WQS where bioavailable copper is considered only;
- 25.5% exceeded the vanadium WQS
- No samples exceeded the nickel WQS where bioavailable nickel is considered only;
- 4.3% of samples exceeded the TPH WQS;
- 90% of samples exceeded their WQS for a range of PAHs.

4.4.4.2 Monks' Ditch Surface Water Quality

Of the 104 (No.) samples taken, 48 (No.) were from the Monks' Ditch monitoring locations (MD-N and MD-S). The flow direction is from MD-N to MD-S, in a southerly direction.

It may be noted that for the MD-N location:

- 16% exceeded the ammoniacal nitrogen WQS;
- 4% exceeded the aliphatic TPH (C_{21}-C_{35} aliphatic carbon chain) WQS;
- 88% of samples exceeded their WQS for a range of PAHs;
- Exceedances were noted for a range of metals in unfiltered samples, but did not exceed their respective WQS in filtered samples and corrected for bioavailability;
- pH values recorded ranged between 7.80 and 8.24 and were within the proposed WQS range.

It may be noted that for the MD-S location:

- 39% exceeded the ammoniacal nitrogen WQS;
- 83% of samples exceeded their WQS for a range of PAHs;
- Exceedances were noted for a range of metals in unfiltered samples, but did not exceed their respective WQS in filtered samples and corrected for bioavailability;
- 22% of samples exceeded the proposed WQS range for pH. Values recorded ranged between 7.54 and 9.68.

4.5. Discussion of Results

4.5.1 Surface Waters

4.5.1.1 Inorganics

Compared to earlier data, there appears to be a significant increase in the number of surface water samples analysed which exceed the vanadium WQS concentration. It is known that

vanadium becomes concentrated (between 2-3% mass) in BOF- (basic oxygen furnace slag). This is considered likely to be the vanadium source (particularly vanadium dicalcium silicate phases), with vanadium leaching out into surface waters, as the slag weathers. Vanadium concentrations were noted to be particularly elevated in surface water samples recovered from position R4C, and to extent in R1C. Vanadium concentrations appear to become more diluted/attenuated as surface water drains towards Surface Water Pumping Station No. 2. However, it appears that the vanadium precipitates out, as pH values tend to lower (become more neutral) and some incorporation with iron oxyhydroxides (particularly goethite) which are another slag weathering by-product takes place.

There appears to be no obvious increase or decrease in recorded concentrations of metal determinands within upstream reens and positions downstream within the Kings Wall Reen. However, cyanide concentrations appear to increase downstream within the reen system, possibly as leached contributions are made from deposited wastes associated with the former coking works located within the northern central section of the site. However, there is evidence for decrease again in cyanide concentrations, further downstream, potentially due to complexation with metals such as iron and nickel, particularly in the higher pH conditions which are likely to prevail. There is also noted to be evidence of a possible contribution here from ammoniacal liquors associated with the former coking works.

When iron concentrations are compared, it may be noted that in post 2017 samples analysed, only 0.5% of the samples exceeded WQS values for filtered samples whilst 22% exceeded the WQS in unfiltered samples. This suggests that iron is flocculating/precipitating out as the leached solution becomes more oxygenated. Within the reens, this iron precipitation as an oxi-hydroxide is likely to take place contemporaneously with the dissolved vanadium.

When compared with earlier results obtained by Atkins prior to 2017, the number of WQS exceedance for concentrations of ammoniacal nitrogen remain largely unchanged (63% exceeding WQS) in post-2017 data, although some concentration values were found to be more elevated in recently obtained surface water samples.

The number of WQS exceedances for cyanide in post-2017 data appear comparable to those obtained by Atkins pre-2017.

4.5.1.2 Organics

Although there are a slightly higher proportion of surface water samples recovered from across the site, more generally, that exceed the WQS for PAH concentration (over 90.58% exceed the WQS for fluoranthene), it is also noted that for water samples recovered from the Monks' Ditch, which is understood to be hydraulically isolated from the Glan Llyn Llanwern site, PAH (again; fluoranthene) exceedance of the WQS in up to 88.0% of the samples (Monks' Ditch North MD-N) and 82.6% of samples (Monks' Ditch South MD-S) was noted. The source of these slightly elevated PAH concentrations determined in the Monks' Ditch is unclear, although again, it suggests the presence of an upstream off-site contributing source.

There appears to be no discernible reduction in PAH concentrations generally when comparing the earlier and post-2017 surface water analytical results.

TPH concentrations were exceeded in 4.3% of surface water samples recovered from across the site. These findings are considered to be consistent with TPH impact from isolated hotspots within the Made Ground.

4.5.2 Groundwaters

4.5.2.1 Inorganics

The following discussion is largely an update of previous work, as considered appropriate. Consistent with soil leachate samples, elevations of pH are greatest in the shallow groundwater, with an average of 9.6, and 49% of samples greater than the WQS range of 6-9. In comparison pH values in the deep groundwater are lower; the reported average is 8, and less than 9% of samples are in exceedance. The elevated pH in shallow groundwater samples as compared to deep groundwater samples is likely to be attributable to impacts from weathering of BOF slag, whilst the pH of deeper groundwater samples can be influenced by oxidation of sulphidic minerals which will lower the pH of groundwater in contact with these minerals. However, in this case where an average pH of 8 is reported, the findings would suggest an absence of evidence for impact from weathering BOF slag or significant impact from sulphide oxidation.

Copper, lead, nickel and selenium are present at higher concentrations and produce more exceedances of the WQS within the shallow groundwater. Concentrations of vanadium are also found to be much greater in shallow groundwater; the maximum shallow groundwater value is 485 mg/l (WQS exceedance in 28% of samples) in comparison to the deep groundwater maximum of 157 mg/l (WQS exceedance in 7% of samples). Again, the elevated vanadium concentrations are likely to be attributable to weathering of the BOF slag, which may also be impacting on concentrations of copper, lead, nickel and selenium in shallow groundwater, as compared to the deeper groundwater samples recovered where slag weathering by-products are less likely to impact.

Concentrations of ammoniacal nitrogen are reduced by half in the shallow groundwater in comparison to the deep. Atkins (2015a) suggested that the lower ammoniacal nitrogen concentrations present in the shallow groundwater are the result of upward leakage and that the direction of the groundwater flow from the north west indicates that the elevated concentrations of ammoniacal nitrogen are more likely to be from an off-site diffuse source, such as from infiltrated runoff from agricultural activities.

Maximum and average concentrations of dissolved arsenic are considerably higher in the deep groundwater (220 µg/l and 32.1 µg/l respectively) than in the shallow (40.5 µg/l and 9.2 µg/l respectively). Similarly for total arsenic, 13% of the deep samples but only 3% of shallow samples are in exceedance of the WQS (50 µg/l). Concentrations of iron, cadmium, chromium, manganese are also elevated within the deep groundwater in comparison to the

shallow. The lower concentrations of these metals determined in surface water samples as compared to deeper samples may be due in part to greater dilution of the surface groundwaters, as the results of soil leachate analyses suggests that Made Ground across the site are likely to contain significant leachable concentrations of these metals.

4.5.2.2 Organics

The majority of TPH samples in both shallow and deep groundwater are reported below the LoD, however a few boreholes are proven to be hot spots for TPH contamination. Maximum concentrations of TPH are up to two orders of magnitude greater in shallow groundwater in comparison to deep groundwater. In shallow groundwater, TPH in exceedance of the WQS are limited to less than 15% of the total sample population for each exceeding contaminant. The samples reported in exceedance during the May 2016 sampling round are distributed across nine locations, however samples in the June and July rounds exceeding for three or more contaminants are limited to locations CWWS-04, CWWS-19 and CWWS-11.

In deep groundwater, TPH in exceedance of the WQS are limited to less than 5% of the total sample population for each exceeding contaminant with the exception of aromatic >EC21-EC35 (16.7%). Sample locations with exceedances of two or more TPH in a single sample are locations CBBH04, CBBH05, CWCP- 04, CWCP-19 and CWCP-11.

PAHs are present in both the shallow and deep groundwater; concentrations of contaminants and frequency of exceedances are greater in the shallow groundwater. As for TPH, maximum concentrations within the shallow groundwater are up to two orders of magnitude larger than in the deep. Exceedances are widespread within the shallow groundwater, with a percentage of samples exceeding up to 69%; within deep groundwater exceedances are limited to 14%, with the exception of fluoranthene (29%) and benzo(a)pyrene (28%).

Exceedances of SVOCs and VOCs above the LoD are limited, and remain below 9% of the shallow groundwater and 2.2% of the deep groundwater total sample population for each contaminant.

A wide range of contaminants are found to exceed the WQS in both the shallow and deep groundwater. However, the chemical signatures of each aquifer unit are distinct, and the greatest concentrations and percentages of exceedances are not simply attributed to the shallow groundwater. It is possible that due to the fluctuating upwards and downwards gradients across the site as presented in Section 2.4.2 (Table 2-4) groundwater from either unit may be influencing the other. For example, where deep groundwater levels are lower than shallow, downward migration of water into the Tidal Flat Deposits is possible. Atkins (2015a) calculated that the un-retarded breakthrough of shallow groundwater through the Tidal Flat Deposits is likely to be 9 years. Taking into account conservative partition coefficients for naphthalene (a mobile PAH) and cadmium, the retarded breakthrough of naphthalene and cadmium is likely to be 644 and 1,435 years, respectively. Considering this,

it is unlikely that the contamination identified within the deep groundwater originated within the made ground.

5.0 Detailed Quantitative Risk Assessment and Re-use Assessment

5.1. Overview

The purpose of this assessment was to define, for a set of potential contaminants, the maximum concentration in the soil that does not pose a risk to the Controlled Waters receptor (re-use criteria). Where site soil concentrations, for one or more contaminants are greater than the re-use criteria, then in the absence of soil remediation or water treatment prior to discharge, a risk to Controlled Waters may exist.

5.1.1. Contaminants of Concern

Based on the site contamination status and known contaminants associated with steelworks (DoE, 1995), calculation of re-use criteria are to be undertaken for the Contaminants of Concern (CoCs) outlined in below. The current contamination status of the site is outlined above in Section 4; the assessment highlighted several metals, TPH and PAH that exceed the appropriate criteria. This essentially remains unchanged for the RLE CWDQRA assessment.

Table 5-1: Contaminents of Concern (COCs)

Compound Type	Compounds
Heavy Metals/Metalloids	Arsenic, cadmium, chromium, copper, iron, lead, vanadium, manganese, mercury, nickel, selenium, zinc.
Other Inorganics	Ammoniacal nitrogen, cyanide.
Organics	Ethylbenzene, xylene, PCB, phenol.
TPH Bands	TPH aliphatic >C5-C6, TPH aliphatic >C6-C8, TPH aliphatic >C8-C10, TPH aliphatic >C10-C12, TPH aliphatic >C12-C16, TPH aliphatic >C16-C21, TPH aliphatic >C21-C35, TPH aliphatic >C35-C44, TPH aromatic >C5-C7 (Benzene), TPH aromatic >C7-C8 (Toluene), TPH aromatic >C8-C10, TPH aromatic >C10-C12, TPH aromatic >C12-C16, TPH aromatic >C16-C21, TPH aromatic >C21-C35, TPH aromatic >C35-C44, TPH Aromatic >C40-C44.
PAHs	Acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, di-benz(a,h)anthracene, indeno(1,2,3-cd)pyrene, fluoranthene, fluorene, naphthalene, phenanthrene, pyrene.

5.1.2. Compliance Point

In order to be protective of the Controlled Waters receptor outlined in Section 4.5, determination of the site specific compliance point has been undertaken in general accordance with the RTM (Environment Agency, 2006). The compliance point has been assigned to the point of discharge into the receptor (Monks' Ditch). Consistent with the contamination data assessment (Section 4), the WQS (Water Quality Standards) have been

set at the EQS in order to be protective of the principal Controlled Waters receptor (Section 4.1).

5.2. Pore Water Concentration Calculation

5.2.1. Rationale

It was previously indicated that in order to maintain discharge of EQS compliant waters into the Controlled Waters receptor (Monks' Ditch), concentrations within the reens must be retained at or below the EQS. Due to the anthropogenic controls on discharges of water from the on-site reens to Monks' Ditch, in order to calculate the maximum concentration allowable for each contaminant within the excavated and re-compacted Made Ground (re-use criteria) the average annual water balance for the entire site is applied. This is considered appropriate given that EQS values are in relation to the annual average concentration.

Shallow groundwater is known to originate from infiltrating precipitation only, as the Made Ground of the site is hydraulically contained (Section 2.4.2). The remainder of the precipitation is either lost to evapotranspiration/evaporation or constitutes surface water runoff, and is diverted directly to the onsite drainage reens by SuDS (Section 2.5.1). Therefore, contaminant concentrations present in the shallow groundwater within the Made Ground are subject to dilution within the reens by clean SuDS drainage. As outlined in Section 2.3.3, the proportion of proposed impermeable to permeable surface area differs between the residential area and the Celtic Business Park commercial area. Resultantly, individual re-use criteria values were previously produced for each contaminant within each development area due to the differing volumes of water available for dilution.

As indicated in the introduction the intention was, as further site specific information was collected, to update the initial CWDQRA assessment. It was described as the starting point and that the re-use criteria generated were understood to be conservative. An assumption was also made that 100% of the infiltrated rainwater percolated through the construction material and in to the Made Ground.

Since preparation of the initial CWDQRA Report, further consideration has been given (Rodgers Leask Environmental Ltd - Reclamation Performance Specification A – Turnover – Technical Note, dated 14/12/18, Ref: 17480-RLE-18-XX-RP-O-1016), to the pre-construction reclamation methodology to be employed across the site. The particle size distribution of the Made Ground is known to be well graded, and when compacted, the permeability is assessed as having poor drainage potential, with when appropriately placed, expected values in the region of 10^{-7}m/s.

Consideration has also been given to the application of differing standards of compaction of the Made Ground, and as a result, alteration of the rates of incident water infiltration. In order to consider the impacts of reducing infiltration rates into the Made Ground (impacts of which are likely to be greatest in areas of the site proposed for residential reusage where greater areas of soft landscaping will be present), two modelling scenarios have been considered in comparison with the previously assumed 100% infiltration into the underlying Made Ground. These models assume a greater proportion of incident rainwater being directed laterally within the clean surface soils and 6F2 granular blanket, towards the reens. On this basis, the assumption is made that these redirected waters remain uncontaminated

and provide further dilution of the waters passing through the Made Ground and ultimately discharging into the reens. In order to provide values which are likely to be 'typical' , (details of which are outlined in Section 1.2 above, a 40% infiltration rate scenario into the underlying Made Ground has been proposed, which should be easily achievable.

5.2.2. Methodology

The methodology employed in the current RLE CWDQRA is that utilised previously in the initial CWDQRA, which it has been considered currently and remains reasonable and appropriate. The maximum (annual average) contaminant concentration possible within the perched groundwater in the Made Ground is calculated using dilution within the reens onsite as per Equations 3 to 7 below, whilst retaining concentrations at the EQS. Again, no allowance has been made for dilution of discharged water within Monks' Ditch as part of this calculation, as this being the receptor, it is proposed that the WSQ in this Controlled Water be maintained (as far as possible) at EQS values.

A summary of the methodology is provided below:

$$EQS = (Cgw + Qgw)/Qr \quad \text{Equation 3}$$

$$Cgw = (EQS\ x\ Qr)/Qgw \quad \text{Equation 4}$$

- Where:
  - EQS (mg/l) = Environmental Quality Standard
  - C_{gw} (mg/l) = annual average groundwater contaminant concentration
  - Q_{gw} (m^3/a) = groundwater flow
  - Q_r (m^3/a) = reen flow

$$Qr = Qgw + Qol + (RO\ x\ permeable\ surface\ area) \quad \text{Equation 5}$$

$$Qgw = (R - ET - RO)\ x\ permeable\ surface\ area \quad \text{Equation 6}$$

$$Qol = (R - E)\ x\ impermeable\ surface\ area \quad \text{Equation 7}$$

- Where:
  - R (mm/a) = total annual rainfall
  - E (mm/a) = evaporation
  - RO (mm/a) = runoff

The calculated annual average groundwater contaminant concentration Cgw (mg/l) values have been converted to Made Ground solid Cmg (mg/kg) values using Equation 8.

$$Cmg = Cgw\ x\ ((Kd + (\theta w + \theta a\ x\ H))/Pc) \quad \text{Equation 8}$$

- Where:
  - C_{mg} (mg/kg) = annual average Made Ground (solid) concentration
  - Kd (l/kg) = contaminant partition coefficient
  - Θw (-) = water filled porosity
  - Θa (-) = air filled porosity
  - H (-) = Henry's law constant
  - Pc (g/cm^3) = soil bulk density

5.2.3. Parameterisation

A summary of key input parameters is presented in Table 5-2 and Table 5-3 below. The full chemical input parameters and justifications are included in **Appendix I** of the current Report.

Parameter	Unit	Value	Comment/Justification/Source
Average Annual Rainfall	mm/a	953	MAFF, 1976
Evapotranspiration	mm/a	416	MAFF, 1976. Applicable to permeable areas
Evaporation	%	10	Grimmond & Oke, 1999. Evaporation from impermeable surface area as a percentage of total rainfall.
Runoff coefficient	%	55	National Coal Board, 1982 (See Figure E-1)
Residential Permeable Area	m^2	676,000	Rodgers Leask, 2016
Residential Impermeable Area	m^2	1,014,000	Rodgers Leask, 2016
Commercial Permeable Area	m^2	45,000	Rodgers Leask, 2016
Commercial Impermeable Area	m^2	405,000	Rodgers Leask, 2016

Table 5-3 Chemical Parameters

Parameter	Abbreviation	Unit	Value	Comment/Justification/Source
Fraction of Organic Carbon	foc	fraction	0.024	Site specific value - average foc from 243 samples of Made Ground
Air Filled Porosity	θa	fraction	0.0037	Site specific value – average θa from 3 samples of Made Ground
Water Filled Porosity	θw	fraction	0.5	Site specific value – average θw from 3 samples of Made Ground
Dry Bulk Density	Pc	g/cm^3	1.36	Site specific value – average Pc from 3 samples of Made Ground

Table 5-2: Physical Parameters

The specific calculations for 40% infiltration (Residential Area with 60% hardstanding/built areas) and 5% infiltration (Commercial Area with 95% hardstanding/built areas), have been undertaken using the Excel spreadsheets previously produced, where it was assumed that all of the water that was incident upon areas of soft landscaping (permeable areas) that was not lost to runoff and evapotranspiration penetrated into the underlying Made Ground. For the RLE DQRA, this value was reduced to 40% of this infiltration figure for both the residential and commercial assessment based upon the premise of reduced infiltration through the re-engineered Made Ground. The relevant Excel sheets with these working calculations can be supplied, but a PDF (for identification purposes) is appended to the CWDQRA in Appendix L of the current RLE Report. The derived values have been inserted into Table 5.4 (Appendix J).

Values are provided for proposed Residential and Commercial areas, where it is proposed that 5% of incident water is available in the Commercial area (ie 95% hardstanding/impermeable surfaces) and Residential area where 40% of incident water is available to infiltrate, and accounts for the reduced volume of water that could potentially infiltrate into the Made Ground. For modelling purposes, the reduced infiltration is treated as additional runoff volume.

5.2.4. Assumptions and Limitations

The following assumptions and limitations are inherent within the modelling undertaken:

- Dilution calculations produce maximum and likely average concentrations of contaminants (re-use criteria) within the Made Ground;
- Dilution methodology does not account for any dilution within Monks' Ditch at the point of discharge;
- Incident infiltrating rainwater is considered to flow laterally through the capping drainage layer, with varying proportions entering the underlying Made Ground. A 40% infiltration rate into the underlying Made Ground have been modelled;
- No infiltration is assumed to occur within the impermeable area;
- Limited retardation (degradation and/or sorption) of contaminants within the Made Ground is considered given the extensive area of potential source materials across the site:
- Dilution calculations assume simultaneous discharge of the annual volume of surface water runoff and infiltrated water, providing a worst case volume of potentially contaminated shallow groundwater;
- No allowance has been made for additional dilution as a result of inflows to the reen system from the land to the north, as it is understood that these flows are minimal;
- The site geology and hydrogeology are assumed to be homogeneous, and parameter values and contaminant concentrations used are based on site-specific data, where available;
- Where no site-specific data are available, literature sources have been used to develop suitable parameters considered likely to reflect site conditions;
- Made Ground geology by its very nature is likely to be both laterally and vertically variable following finalisation of site development;
- Data presented by third parties has been incorporated into this report. These data have been assumed to be correct for the purposes of this assessment; and
- This assessment has been made considerate of the proposed post-development ground conditions and cover. Should this change, then the site may require re-assessment.
- It should be noted that the assessment undertaken herein and re-use criteria is for protection of Controlled Waters only. The re-use criteria derived are not necessarily protective of risk to Human Health. Re-used materials must also be geotechnically suitable, however this has not been considered as part of this assessment.

5.2.5. Material Re-use Criteria

The calculated maximum concentration of each PCOC (Re-use Criteria) in Made Ground (mg/kg) based upon the scenario of a 40% infiltration rate into underlying Made Ground is presented in Table 5.4 (**Appendix J**) of the current Report.

The calculated re-use criteria specified are intended to be protective of the Controlled Waters receptor with regard to the post-development site, and will, compared to earlier derived values, facilitate the greater re-use of existing on-site Made Ground in general accordance with a Remediation Strategy (Section 6.2). As previously indicated, it should be noted that re-use criteria do not apply where there is evidence of contamination in soil or Made Ground in excess of solubility (i.e. free phase product).

5.3 Contaminant Attenuation Assessment

It may be noted from Table 5.4 **(provided in Appendix J**), that assuming a 40% infiltration of incident rainwater into reengineered Made Ground, there remain exceedances of the respective re-use criteria in both residential and commercial redevelopment scenarios, for manganese (within a residential area reusage only) but particularly for a number of PAH and TPH species, total cyanide and ammoniacal nitrogen within both commercial and residential reusage areas.

Given that it is proposed within the reengineered Made Ground, to achieve a permeability of approximately $1x10^{-7}$ m/s, then it is considered , particularly where organic CoC are assessed (such as TPHs and PAHs), that there is a potential for consideration of attenuation through processes of degradation/biodegradation of these leached species within the Made Ground, in view of their likely significant residence time prior to discharge into a local surface water reen.

However, given that the extent of these residual contaminant sources are likely to be of widespread (albeit of variable contribution) presence within the reengineered Made Ground, then the potential for attenuation of these contaminants within the Made Ground between their source and the designated receptor (surface water reen) will be compromised. This needs to be appreciated within the further assessment undertaken, as outlined below:

5.3.1 EA Remedial Target Worksheet (Level 3 Groundwater) Assessment

At this stage of the CWDQRA, it was proposed, additionally, to carry out an EA P20 Level 3 Groundwater Assessment to provide some indication of how close the re-engineered Made Ground can be placed to the reens and which determinands are likely to be most difficult/unlikely to attenuate. In order to factor in additional conservativity, the source concentration values utilised in this P20 Assessment did not factor in any dilution from incident precipitation. The values were simply determined based upon the 95th percentile values recorded for actual soil concentrations (mg/kg) and using the Level 1 Equation (Page 36 Table 5.2 of RTM Guidance Document) for determining equivalent pore water concentrations (source concentrations), based upon these actual soil concentrations (mg/kg) determined.

Where possible, other site specific/site obtained data was also utilised in the Level 3 Groundwater Assessment, as indicated below:

Table 5.3.1: Site Specific Data Sources Utilised in RT Worksheet Level 3 Groundwater Assessment

Variable	Value Utilised	Data Source
Width of aquifer at source	500m	Site measurements and likely width of each separate redevelopment perpendicular to directed perched groundwater flow towards appropriate reen.
Plume thickness at source	2.0m	Based upon proposed thickness of reengineered Made Ground and assumption that full thickness of Made Ground represents potential contaminant source

Saturated aquifer thickness	1.5m	Based upon typical likely groundwater levels in reengineered Made Ground.
Bulk Density of aquifer materials	1.36g/cm^3	Site specific test data
Effective Porosity of aquifer	0.08	Site specific test data
Hydraulic Gradient	0.0133	Estimation - also based upon an earlier estimation used by Atkins and considered to remain appropriate.
Hydraulic Conductivity of aquifer	8.64E-03m/d (1.0E-7m/s)	Based upon proposed permeability to be achieved following turning and reengineering of Made Ground
Distance to Compliance Point	20m	Assumed to be typical distance to surface water reen. However further dilution of contaminants will take place in reens from uncontaminated runoff from redevelopment

Using site-derived soil analyses concentration data for a range of determinands taken from 2017 onwards, 95th percentile derived concentrations (mg/kg), in each case, were then utilised for the modelled determinands. These data were then input into the equation presented in the EA Table 5.2 – soil-water partitioning of the EA Remedial Targets Methodology Guidance (2006) and a pore-water concentration Cp was determined. Soil/water partition coefficient (Kd) values utilised were site specific, and derived from those generated by Atkins (Table E4 of the Llanwern Controlled Waters Detailed Quantitative Risk Assessment Version 3.0 (February 2017)).

However, issues of uncertainty/potential variability are considered to include:

- The Kd (soil water partition coefficient) – the values used are calculated based upon site specific data. This can be compared against documented typical Kd values to further assess their appropriateness;
- The Plume width, which is currently estimated for modelling purposes as 500m can be reconsidered when more information becomes available on potential flow directions within the different site development Phases;
- Further reassessment of hydraulic gradients and the reasonableness of the value utilised (0.01) within each specific development Phase may be possible, with levels data for reens and standing water levels in the Made Ground becoming available. However, the determination of realistic values for the hydraulic gradient may be difficult to achieve/ hampered by a likely potential lack of hydraulic continuity within the re-engineered Made Ground.

It is therefore proposed that the subsequent RLE Site Validation Report(s) will further consider the findings of site determination/verification of each of the development Phase areas and the implications where significant discrepancies are encountered between the model values utilised and the actual site values determined following Made Ground re-engineering works and the placement of the piling mat. The permeability of the construction materials/ piling mat will be assessed as part validation of the clean cover in accordance with the Technical Note 260 (Remediation Strategy - Appendix F, 18669-RLL-22-XX-RP-0260, CWDQRA Validation Plan June 2022).

Consideration has also been given as to the application in the Level 3 Groundwater Remedial Target Calculation of applying 'degradation of organics in all phases' or whether a 'dissolved pollutants only' variable should be applied. It is considered that there are likely to be different degradation rates for dissolved phase and free product. Evidence for choosing an 'all phases' variable was based upon:

- Site observations made on 09/05/19, where it was noted that hydrocarbon free-product was also present on water surface within some of the recent excavations, albeit mainly as surface iridescence, (together with probable dissolved phase). Therefore, there was considered to be evidence for the presence in site soils of hydrocarbons in both dissolved (laboratory evidence) and free-phase (site observations).

- Given, in this instance, that the scenario being considered is near surface degradation and biodegradation, then oxidation and volatilisation are likely to be fairly important means of loss of both free-product and dissolved phase, and will probably encourage a faster rate of degradation than would be likely at greater depth within a more anaerobic/less oxygenated environment. However, it has been noted that 'applying degradation rate to dissolved pollutants only' appears to add more conservativity to the model, so it has been proposed to utilise this variable.

The calculated pore-water values used were considered to be representative of the initial contaminant concentration in groundwater at the plume core, and utilised in the Level 3 Groundwater Remedial Target Calculation, as provided in the Excel Worksheets (Appendix K)
.

Modelled Potential Contaminants of Concern (PCoC)

The selected determinands chosen for modelling were from within (but not all) of those where soil concentrations were found from chemical analyses carried out to continue to exceed the calculated 40% infiltration scenario reuse criteria. These determinands included metals: iron, manganese and vanadium, PAHs; benzo(a)pyrene, benzo(b)fluoranthene and naphthalene, and Total Petroleum Hydrocarbons (TPHs), total cyanide and ammoniacal nitrogen.

In the case of TPH modelling, where species in the C_{16}-C_{21} carbon chain range generally predominated, modelling for the aliphatic hydrocarbon; n-Eicosane (equivalent carbon number 20), was carried out. As 3 (No.) selected PAHs were also being modelled, it was considered that these species were likely to provide a reasonable indication of aromatic TPH attenuation within the re-engineered Made Ground.

As indicated above, In the case of the Remedial Target modelling carried out no specific consideration of 40% infiltration scenario has taken place, and the assessment was carried out essentially to gauge the potential extent of attenuation of these specific determinands within the ground where these soils may be placed, with receiving surface waters being assumed to be existing reens, which have been taken as the Compliance Points. For initial

calculation purposes, it has been assumed that compliant material proposed to be reused, would be placed no nearer than 20m from these reens.

It is proposed that the calculations may be revisited and updated, should it be considered appropriate, as more detailed information becomes available on the proposed site redevelopment layout.

Calculated values for Potential Contaminants of Concern (PCoC), as derived using the Level 3 Groundwater Excel Worksheets, are as indicated above, provided in **Appendix K** to the current Report. Where determined maximum soil concentrations exceed the calculated 40% infiltration reusage criteria, the initial contaminant porewater concentration in groundwater is calculated based upon the 95th percentile soil concentration recorded for each determinand, utilising the Equation provided in Table 5.2 of the EA Remedial Targets Methodology Guidance.

As indicated above, in selecting the specific determinands for modelling, Level 3 Groundwater calculations have been carried out on determinands where actual concentrations of these have been found from analyses of site soils to exceed the calculated 40% infiltration reusage criteria, rather than only considering contaminants currently determined in the reens which are found to exceed the proposed EQS Values. The reasoning for this is based upon the rationale that existing water quality within the reens may not necessarily be representative of the water quality following excavation and replacement of this Made Ground prior to redevelopment.

Sensitivity Analyses

A sensitivity analyses of the variables and input data utilised in the P20 Level 3 modelling has been undertaken. From this, it has been noted that the principal factors affecting the calculated output values are the; hydraulic conductivity and hydraulic gradient, with the achieving of WQS concentrations or better also being a factor of distance to receptor, selected half-life, and the porosity of the material through which the modelled determinands are migrating through. Although the P20 Level 3 modelling has only been undertaken for general information purposes, and to improve understanding of the potential placement distances of the re-engineered Made Ground to the surface water reens, a sensitivity analyses output has been prepared and presented in Appendix M of the current Report.

Sensitivity analyses has been carried out for selected determinands only, which in this case were outputs for; ammoniacal nitrogen and the PAH: benzo(b)fluoranthene. These were considered to be contrasting examples of determinands modelled in the P20 Level 3 groundwater assessment, where:

- For ammoniacal nitrogen the ratio of calculated 95th percentile porewater concentration and the remedial target concentration (in this case proposed WQS) is relatively low and significant variations in pore-water concentration are made by small changes in the variables of; effective porosity, hydraulic conductivity, hydraulic gradient, and degradation half-life.
- For benzo(b)fluoranthene the ratio of calculated 95th percentile porewater concentration and the remedial target concentration (in this case proposed WQS), is high and only minor variations in pore-water benzo(b)fluoranthene concentrations

are made by changes in the variables of; effective porosity, hydraulic conductivity, hydraulic gradient, and degradation half-life. The least sensitive variables in this case are indicated to be; effective porosity, hydraulic gradient and hydraulic conductivity, with the greatest impacts on the enabling of porewater concentrations of benzo(b)fluoranthene to achieve proposed WQS standards, being, by ensuring that the source soils are placed suitably distant from the receiving water reens.

Discussion of Findings

PAHs

As indicated above, the PAHs modelled have included benzo(a)pyrene, benzo(b)fluoranthene and naphthalene.

Although naphthalene concentrations in some site soils were found to be elevated in concentration, this PAH is readily attenuated, probably mostly through processes of volatilisation and aerobic biodegradation as indicated in the Level 3 Groundwater Excel Worksheets, (**Appendix K**) to the current Report.

It may be noted that the PAHs determined in surface water and shallow groundwater samples recovered, which were found to be most significantly elevated, have included fluoranthene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, Benzo(g,h,i)perylene and Indeno(1,2,3-cd)pyrene. This is consistent with many of the PAH determinands found to exceed the calculated reuse criteria. This suggests that significant leaching of these PAHs into the perched groundwater and subsequently into the receiving surface water reens is currently taking place across the site, and from consideration of the Level 3 Groundwater Excel Worksheets, is likely to continue from re-engineered Made Ground assuming that all of the PAH concentrations determined in shallow groundwaters are dissolved rather than being present in all phases. Where the Level 3 Groundwater Excel Worksheets are modelled to 'apply the degradation rate to all phases', then there is significant attenuation of these PAHs, thereby suggesting that re-engineered Made Ground containing concentrations of these PAHs in excess (up to the maximum determined|) of the soil reuse criteria (**Appendix J**) may be utilised. In reality, it is considered likely (as indicated above), that although attenuation is taking place, and some processes of volatilisation and aerobic oxidation are likely to be experienced, these processes are not significant enough to enable placement of soils with PAH concentrations in excess of the calculated reusage criteria (40% infiltration scenario) very close to the surface water reens.

Metals

It may be noted that based upon scenarios where the 95th percentile iron (255000mg/kg), manganese (32200mg/kg) and vanadium (644mg/kg) concentrations determined in samples of Made Ground at the site are utilised , then soils of this concentration and assuming a 40% infiltration of surface water following re-engineering and placement of this material show a potential to impact on the quality of a Compliance Point (taken as the nearest reen) located at a distance of approximately 20m away. **Phenols**

Compared to calculated re-use criteria for 40% infiltration scenarios, no exceedances for phenols were determined. In addition, the maximum phenol concentration previously reported in shallow groundwater (0.83 mg/l) is compliant with the 40% infiltration scenario

Cgw for the commercial (13.10 mg/l) and residential areas (3.32.25 mg/l). As further comparison, a maximum phenol concentration of 0.04mg/l was determined in surface water samples recovered, post 2017.

Petroleum Hydrocarbons:

Exceedances of the re-use criteria are present for several TPH species with respect to the maximum soil concentration within the aromatic C_{10}-C_{21} range for residential reusage and C_{12}-C_{21} range for commercial reusage. However, where average concentrations are considered, it may be noted that these values are all found to be significantly lower than their respective calculated re-use criteria. Where a 95th percentile concentration has been further modelled using a P20 Level 3 Groundwater Assessment, it may be noted that the calculated leachable concentration for an aliphatic C_{20} carbon chain species (modelled on n-Eicosane), was found to be less than the proposed WSQ for TPH of; 0.01mg/l. This finding is generally consistent with actual soil leachate results obtained, over a period from 2018 to 2019, where it was determined that none of the soil leachate samples tested contained TPH concentrations which exceeded the proposed WQS for petroleum hydrocarbons.

Total Cyanide

Exceedances for total cyanide in soils were noted in the calculated re-use criteria for both residential and commercial re-use scenarios. However, the results of Level 3 Groundwater P20 modelling using the porewater leachate equivalent of the 95th percentile cyanide concentration in site soils has indicated the relatively rapid attenuation of cyanide concentrations within the re-engineered Made Ground, with these results suggesting that placement of such material within a 20m distance of the receiving water reens is unlikely to cause discernible impact. This finding is generally consistent with the site sampling findings, where approximately 3.4% of on-site surface waters were found to contain cyanide concentrations in excess of the proposed WQS. However, it has been noted that there appears to a slight increase in cyanide concentrations within the reen system, possibly as leached contributions are made from deposited materials associated with the former coking works located within the northern central section of the site.

Ammoniacal Nitrogen

Exceedances for ammoniacal nitrogen in soils were noted in the calculated re-use criteria for both residential and commercial re-use scenarios. The results of Level 3 Groundwater P20 modelling using the porewater leachate equivalent of the 95th percentile ammoniacal nitrogen concentration in site soils has indicated a slight exceedance of the EQS at a distance of 20m from the receiving water reens. However, if this material is placed at a minimum distance of approximately 30m from receiving water reens, then these soils are unlikely to cause discernible impact. As remedial works are taking place in the area of the site previously occupied by the coking works, then this should have a positive impact on the reduction of ammoniacal and cyanide leachates, which appear to be currently entering the surface water reen drainage system from this source area.

5.4.1. DQRA Discussion

The previous re-use criteria produced by Atkins and provided in their 2017 CWDQRA Report (Version: 3 and dated February 2017), were purposely presented as conservative values. A principal conservativity was indicated to be the dilution assessment assumption of a simultaneous discharge of the annual volume of surface water runoff and infiltrated water (Section 5.4). It was indicated that in actual fact, the infiltrated water is subject to storage within the Made Ground and travel times are anticipated to be elongated. Applying Darcy's Law (Darcy flux (q) = Ki where K = hydraulic conductivity (m/s) and i = hydraulic gradient (-) (change in groundwater level/travel distance) and using a hydraulic conductivity $1x10^{-7}$ m/s, travel distance of 10 m and hydraulic gradient of 0.013 (assuming 2 m thick Made Ground is fully saturated), the un-retarded travel time within the Western Sub-Area is likely to be 238 years (at a flux of 0.04 m/year). With the current CWDQRA Revision, and additional assessment using EA P20 Level 3 Groundwater RT Worksheet modelling, these parameters have been incorporated and the re-engineered Made Ground has been predicted as presenting a hydraulic conductivity of $1x10^{-7}$ m/s.

The earlier assumption which has been shown to have significant impact on the value of the re-use criteria, has been the degree of infiltration of the incident water into the re-engineered Made Ground. The initial assessment assumed that 100% of this water (taking into consideration losses from run-off and evapotranspiration), would penetrate into the Made Ground. However, given the proposed reduced hydraulic conductivity ($1x10^{-7}$ m/s) of this re-engineered material, and the introduction of an overlying 6F2 piling mat/drainage blanket (estimated permeability of $1x10^{-3}$ m/s) beneath clean imported topsoils and subsoils, then a significant proportion of this infiltrating water is considered unlikely to penetrate the re-engineered Made Ground. In order to further encourage lateral movement of this incident water toward the nearest reens prior to penetration into the underlying Made Ground, it has been proposed to create a shallow gradient across the surface of the Made Ground within the development plots sloping downwards towards the reens. On this basis, it has been estimated that water infiltration, rates, provided Made Ground re-engineering works are suitably undertaken, may potentially be reduced to 5% penetration.

It was previously indicated in the initial CWDQRA Report that maximum contaminant soil concentrations were present up to two orders of magnitude larger than the commercial area re-use criteria for several TPH and PAH. In view of this, it was proposed that the poorest quality Made Ground material would be relocated to beneath the commercial area, where infiltration is lowest. It was also indicated that where onsite concentrations are greater than the re-use criteria, remediation or disposal of material offsite may be required. The current revision of the re-use criteria has indicated that provided this material is appropriately re-engineered, then a greater proportion of existing Made Ground may potentially be re-used beneath sections of the site proposed for residential redevelopment. The results of additional EA P20 Level 3 Groundwater RT Worksheet modelling, has also suggested that material which contains concentrations of PAHs in excess of the re-use criteria (Table 5.4 (**Appendix J**)), may also (subject to verification) be suitable for placement across most areas of the site provided that a suitably thick buffer zone of uncontaminated materials is placed between the redeveloped plots and the surface water receptors (reens and ponds). Based upon EA P20 Level 3 Groundwater RT Worksheet modelling, it would appear necessary that the width of this buffer zone between this material and existing surface water reens, will need to be in excess of 20m and potentially closer to 200m. The nature of materials utilised in these buffer zones will need further consideration, in order to optimise the potential for biodegradation of organic contaminants, attenuation of dissolved metals and lowering of pH

values prior to discharge of these waters into the reens, within which it is proposed to further encourage fauna and flora colonisation.

It was previously considered by Atkins that reported exceedances of the WQS in the onsite surface water samples are a reflection of the current site condition. This is considered to remain an important point with post-development conditions significantly reducing surface water infiltration by reducing the permeability of the Made Ground and increasing the impermeable surface area across the site, causing increased surface water runoff and subsequently, dilution within the reens. Concentrations of ammoniacal nitrogen released from Made Ground are considered likely to deplete over time in surface waters across the site as this component is leached from the residual sources associated with the former coking works. However, there are known to be other potential off-site sources (mainly agriculturally related), which will continue to impact on the quality particularly of the Monks' Ditch. However, surface water reens across the site which are hydraulically isolated from the main river Monk's Ditch but receive inflow from upstream off-site, surface waters including agricultural land, may also be impacted by atmospheric contribution of ammoniacal nitrogen, again largely from agriculturally related sources.

As indicated above, fluids passing through the weathering BOF (basic oxygen furnace slag) which will be incorporated within the re-engineered Made Ground will potentially provide an ongoing source of dissolved metals and high pH discharge into the surface water reens. However, reducing the permeability of this Made Ground by reengineering, and placement of a greater proportion of impermeable surface cover following redevelopment should reduce contributions from the present (likely) worst case levels.

6. Conclusions and Recommendations

6.1. Conclusions

Rodgers Leask Environmental Ltd (RLE) has been commissioned by St Modwen Developments Ltd (St Modwen) to update and further develop a Controlled Waters Detailed Quantitative Risk Assessment (CWDQRA) of the potential risk to Controlled Waters for the Glan Llyn development at Llanwern, Newport. A Conceptual Site Model (CSM) for the site has been further developed and updated based on the contamination data assessment. Screening analysis of recent soil, soil leachate, groundwater and surface water data revealed potential moderate to low levels of inorganic and organic contamination present onsite in line with contaminants associated with former steelworks sites (DoE, 1995). Made Ground comprising clayey sandy gravels with local slag, burnt shale, tarmac, concrete, brick and mudstone was found to be a potential source of contamination. Contaminants in the unsaturated zone and shallow groundwater attenuate along the transport pathway, including within the onsite drainage ditches (reens), where groundwater seepage combines with onsite water from the SuDS system before being discharged to the Controlled Waters receptor (Monks' Ditch).

There appears to be no obvious increase or decrease in recorded concentrations of metal determinands within upstream reens and positions downstream within the Kings Wall Reen. However, cyanide concentrations appear to increase downstream within the reen system, possibly as leached contributions are made from deposited materials associated with the former coking works located within the northern central section of the site. However, there is evidence for decrease again in cyanide concentrations, further downstream, potentially due to complexation with metals such as iron and nickel, particularly in the higher pH (alkaline) conditions which are likely to prevail. There is also noted to be evidence of a possible contribution here from ammoniacal liquors associated with the former coking works, although pervasive, slightly elevated concentrations of ammoniacal nitrogen have been recorded in surface waters more widely across the site and, from what appear to be, sources upstream of the study site.

It is considered that following the undertaking specific remedial works within the area of the site previously occupied by the coking works, then this should have a positive impact on the reduction of ammoniacal and cyanide leachates which appear to be currently entering the surface water reen drainage system.

Calculation of conservative re-use criteria was undertaken using a pore water concentration calculation based on the site-wide water balance and has now incorporated permeability and infiltration parameters which it is considered are more representative of the redeveloped site. Comparison of re-use criteria against available information regarding the current composition of the Made Ground established that the much of Made Ground is likely to be suitable for re-use onsite, however localised source materials containing high concentration material (particularly elevated concentrations of iron, manganese and vanadium), and ammoniacal and cyanide components, may require remediation, or offsite disposal.

Where materials contain PAH concentrations in excess of the calculated reuse criteria for 40% infiltration scenario are to be used within areas of the site proposed for residential and

commercial reusage, then it concluded that this material should, as a precaution, be placed no closer than 150m-200m from the surface water reens into which infiltrated waters are likely to discharge and materials placed within the 'buffer zone' be engineered to provide a dissolved hydrocarbons and metals (principally iron and manganese), attenuating capability.

6.2. Recommendations

The following recommendations are proposed based on the outcomes of the assessment:

- The current programme of long-term monthly surface water monitoring should be continued at the established current sampling locations to monitor the quality of the reen system during and post-development until it is established that water quality is stable and compliant;
- Discharges into Monks' Ditch from the reens onsite are not to occur until specified quality criteria and quality control systems have been established and are met; and
- The sitewide MMP sets out the overall approach to materials management within the development and is a live document to be updated as the development progresses. In order to appropriately mitigate the risk to Controlled Waters, a Remediation Strategy has been produced which will, in conjunction with updates to the Materials Management Plan (MMP), as required, on a Phase by Phase basis, enable a regulation of the application of the re-use criteria and establish more specific remediation requirements for any localised source zones.
- As additional sampling of pore waters and testing of permeability is undertaken from boreholes installed as part of site validation works, then these site obtained data should be compared against the calculated values utilised with refinement of the P20 Level 3 Groundwater modelling as necessary.

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Water Supply (Water Quality) Regulations 1989 (as amended). SI 1989/1147.

Water Supply (Water Quality) Regulations 2000 (as amended). SI 2000/3184

Drawings

GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT RCHITECTS AND ENGINEER'S DRAWINGS

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY

Key

Redline boundary

RLRE

CLIENT

ST. MODWEN DEVELOPMENTS

PROJECT

LLANWERN SITE LOCATION PLAN

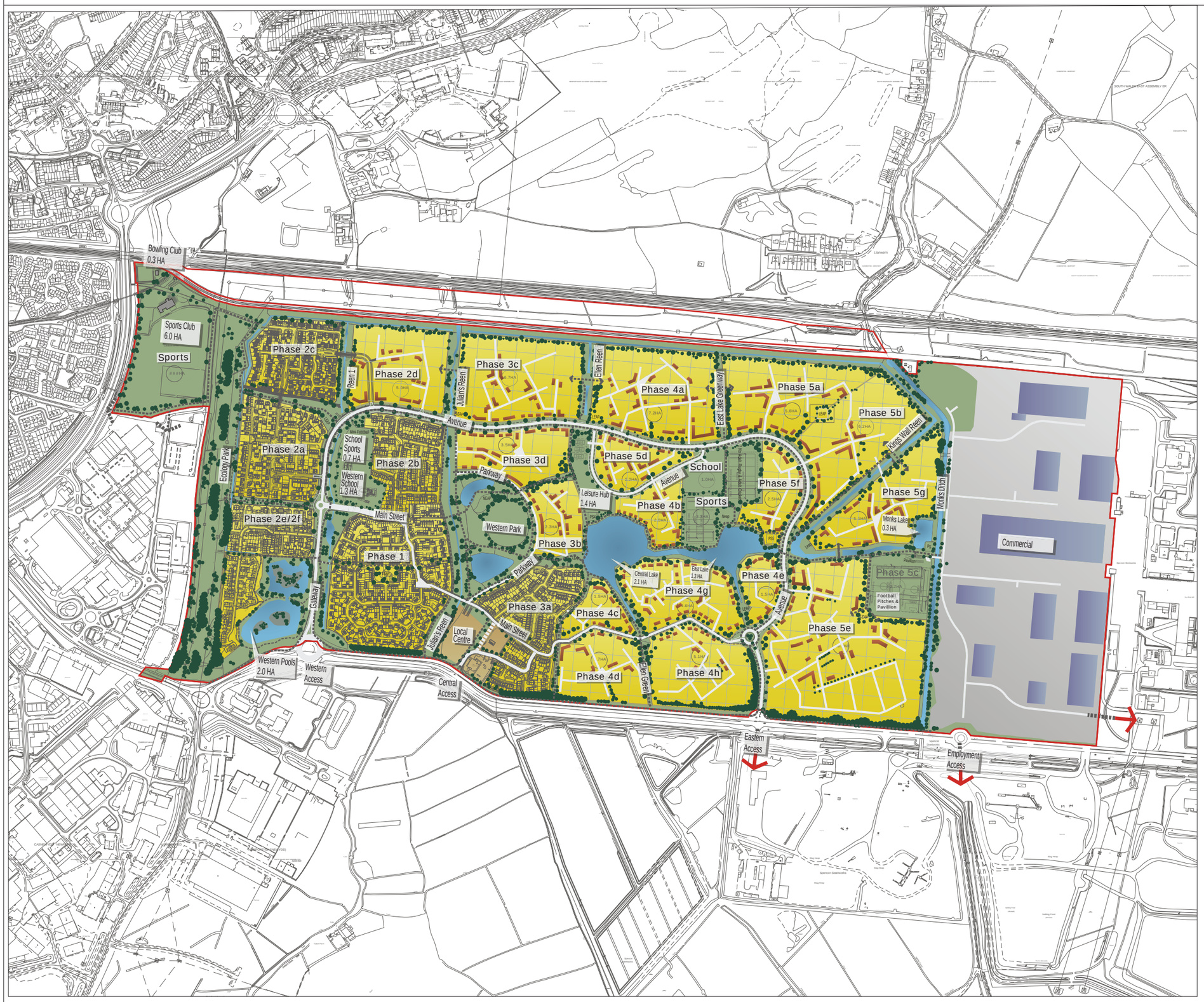
STATUS

FOR INFORMATION

DRAWN	CHECKED	DATE
ET	CW	19/08/2019

PROJECT NUMBER	DRAWING NUMBER	REV.
P18-669	18669-RLE-19-XX-DR-O-0004	

Glan Llyn -ESAMP Indicative Masterplan



Glan Llyn Residential Numbers (based on existing masterplan)					
Phase/Plot	Outlet	Area (HA)	Area (Acres)	Density (HA)	Total Units
1	Persimmon	**9.77**	**24.15**	31.4	307
2/a	Bellway	5.20	12.84	35	182
2/b	SMH	4.06	10.02	35	142
2/c	Bellway	4.30	10.62	35.3	152
2/d	Persimmon	4.98	12.30	35	174
2/e&f	SMH	5.10	12.61	29.8	152
1 and 2/Total		**33.40**	**82.54**		**1109**
3a		5.86	14.49	35	205
3b		2.32	5.74	35	81
3c		6.72	16.60	38.1	256
3d		3.45	8.53	35	121
3 Total		18.36	45.36		663
4a		7.19	17.78	34.8	250
4b		2.04	5.04	35	71
4c		1.53	3.78	35	54
4d		3.65	9.03	35	128
4e		1.49	3.68	35	52
4f		-	-	-	-
4g		4.64	11.46	35	162
4h		5.15	12.73	35	180
5a		5.65	13.95	35	198
5b		6.23	15.41	35	218
5c	Sports	2.67	6.60	35	93
5d		2.24	5.53	35	78
5e		13.72	33.90	35	480
5f		2.49	6.15	35	87
5g		5.06	12.50	35	177
4 and 5/Total		**63.75**	**157.53**		**2230**
1,2,3,4,5 Total		**115.51**	**285.44**		**4002**

NOTE: Areas and housing numbers assume that plot 5c sports is moved to CBP and converted to resi

SGP
Architects + Masterplanners

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SGP File Ref: 8111-08-A011
Project No: 8111-08
Drawn By: NV
Date: 10/04/2019

Drawing No: 8111-08-A011
Rev: Rev P09
Scale: 1:5000 @A1

Notes:
Residential areas quoted are approximate gross site areas and include Leaps, Laps and on plot road infrastructure

Notes:
Residential areas quoted are approximate gross site areas and include Leaps, Laps and on plot road infrastructlayture

0 50 100 200 250 300 400 500
Metres at scale 1:5000

ST.MODWEN

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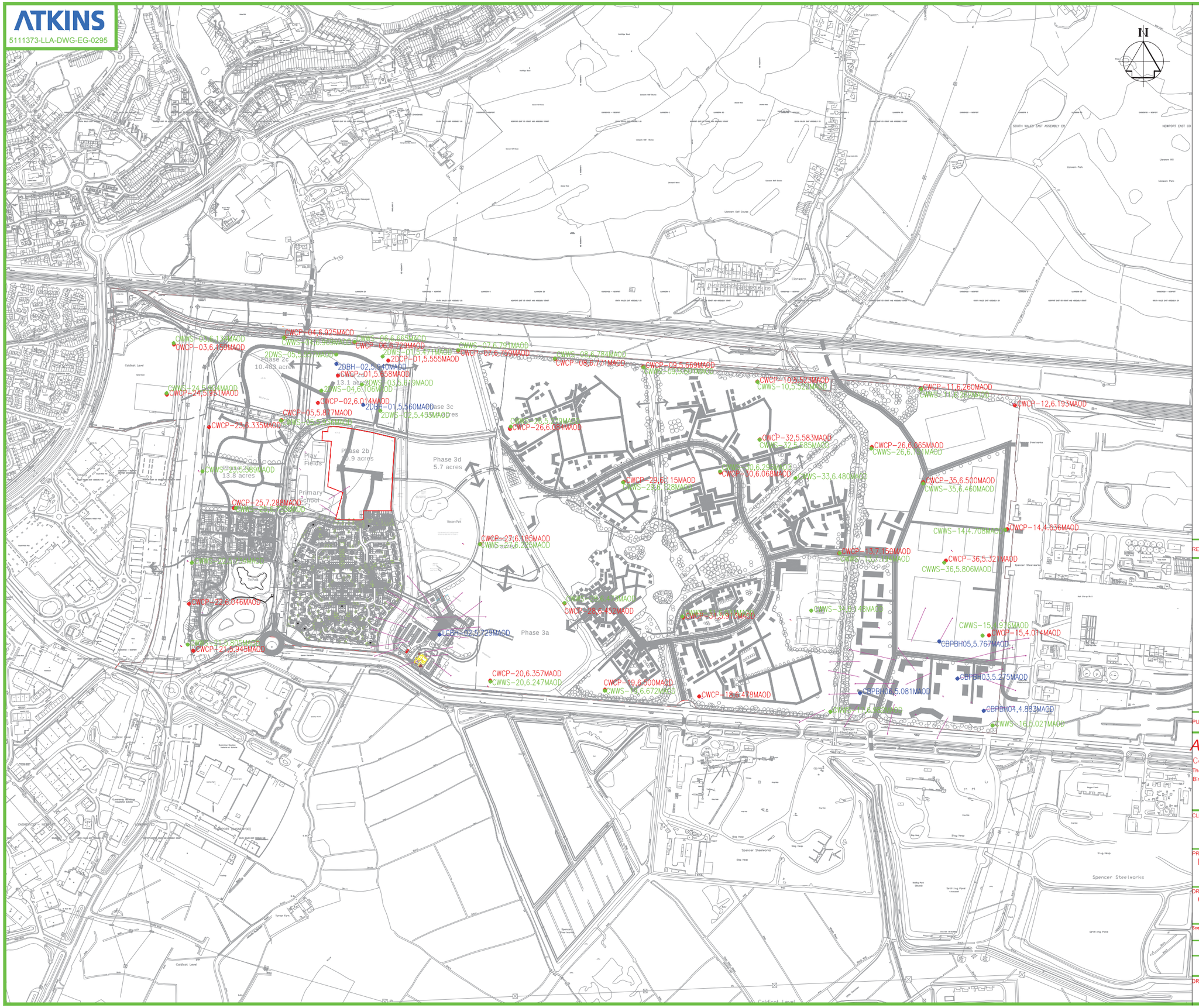
5111373-LLA-DWG-EG-0295



KE□□

- S□ALL□W A□D DEEP M□□□□□□G WELL
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- E□S□□G B□□E□□LE

REVISIONS	Drawn By	Checked By	Date

PURPOSE OF ISSUE	Rev.	Authorised for issue	Date

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CLIENT

ST.MODWEN

PROJECT

Llanwern

DRAWING TITLE

CW□A B□□E□□LE L□CA□□□□ PLA□

Scales	DRAWN	CHECKED	CO-ORD CHECK
1 : 5000	KM	CW	□
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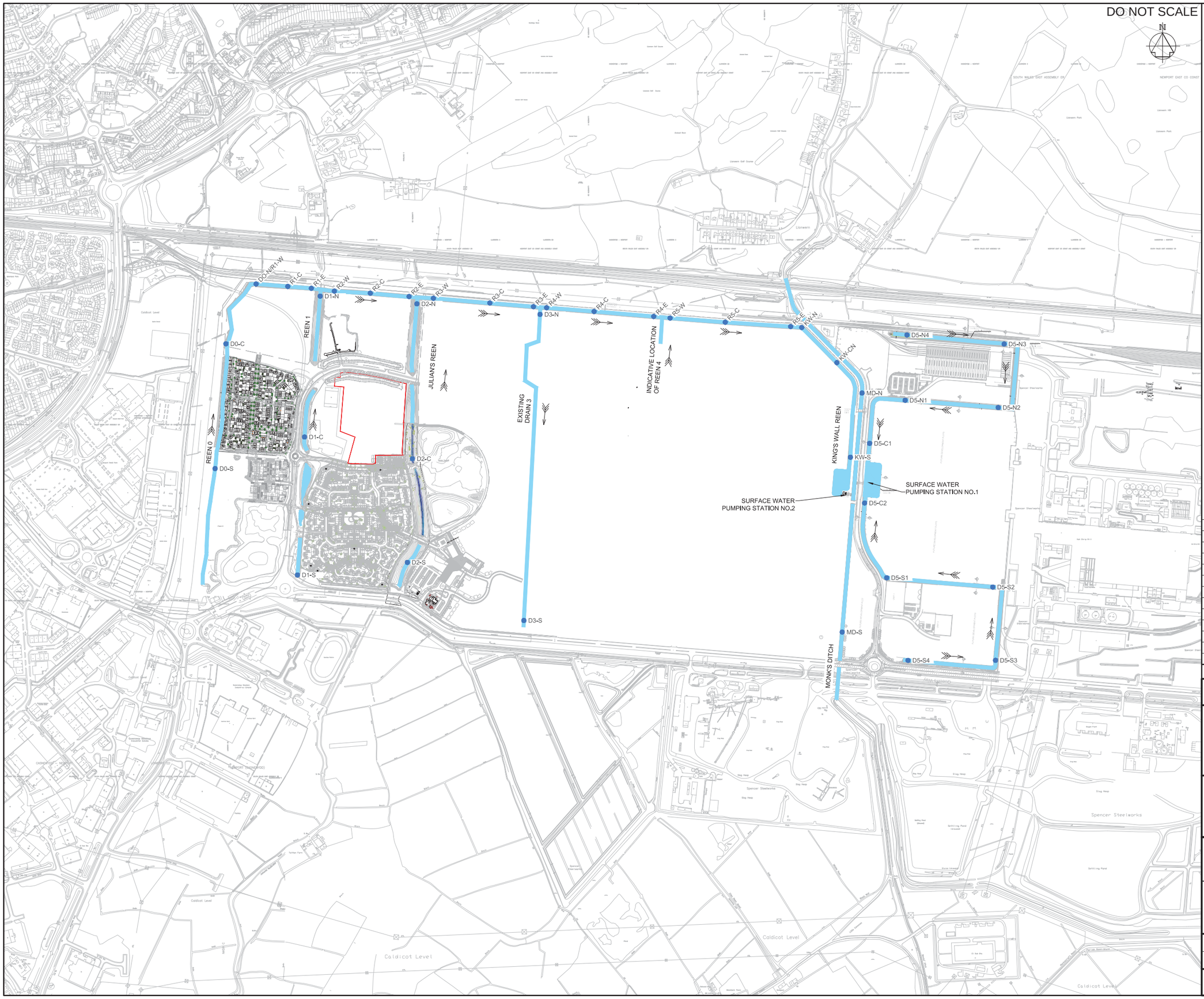
DRAWING NO 5111373-LLA-DWG-EG-0295

REV B



KEY:

- SURFACE WATER MONITORING LOCATION
- SURFACE WATER
- FLOW DIRECTION

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: FOR INFORMATION

Suitability: S2

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Client: ST.MODWEN

Project Title: LLANWERN

Drawing Title: NORTHERN EAST WEST REEN MONITORING

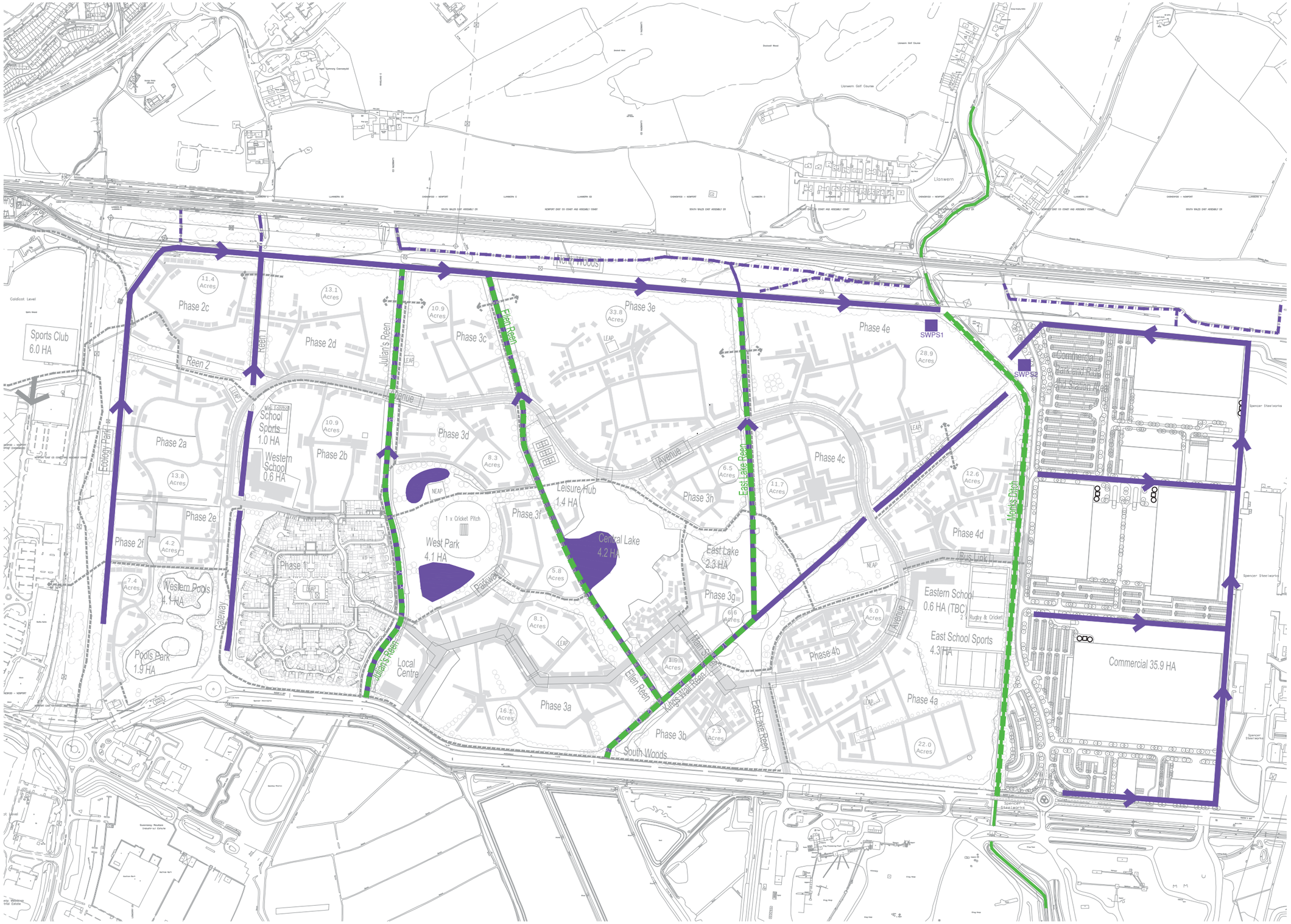
Scale	Designed	Drawn	Checked	Authorised
1:5000	JF	RJ	JF	DW
Original Size	Date	Date	Date	Date
A1	25/05/18	25/05/18	25/05/18	25/05/18

Drawing Number: 5111373-LLA-DWG-EG-0408

Revision: P 1

USER: FOST7548 Date: 29/6/18 16:13:51
Filename: P:\GBBMA\DE2\Dw60\511\5111373 - Llanwern (MP)\6 Drawings\Working\0408 - Northern East West Reen Monitoring Plan.dwg

A3



Notes:

- Monks Ditch
- Existing Reen/Ditch
- New/Upgrade on Site Reen
- Existing off site Reen

Rev.	Date	Amendments	By	Chk

RODGERS LEASK
Consulting Civil & Structural Engineers

Client
St Modwen

Project
Llanwern

Drawing Title
Overall Surface Water Drainage Strategy

Status
Information

Scale	Drawn	Checked	Date
A3@ 1:7500	CB	AC	11/03/15

Project No.	Drawing No.	Rev.
D12-084	512	

File Path:
*

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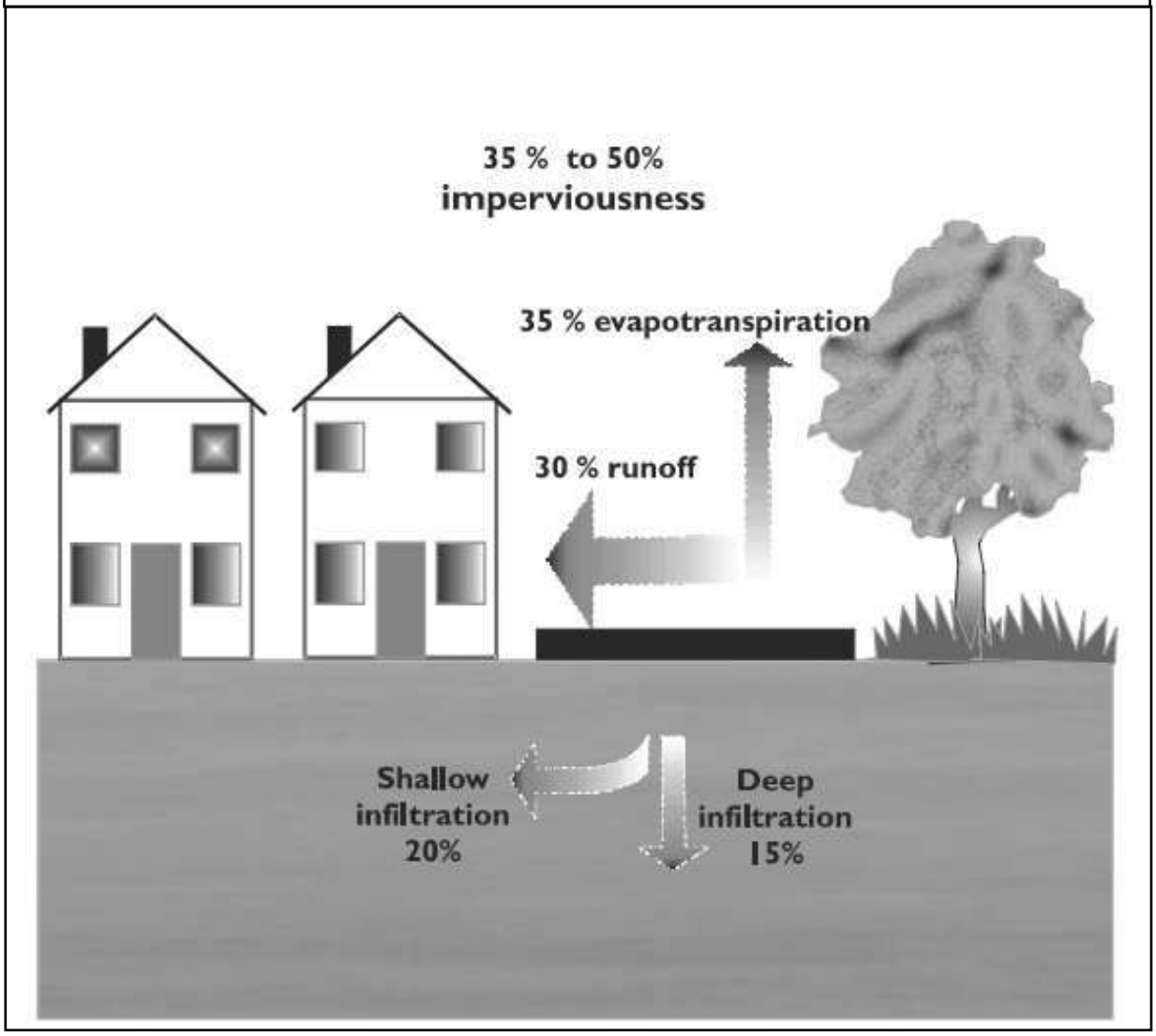
Figure 4.2: CIRIA Document C609: Sustainable Drainage Systems, Hydraulic, Structural and Water Quality Advice – London 2004, fig 4.2



Appendices

Appendix A: RLEs Reclamation Performance Specification.

Technical Note

Project:	Glan Llyn
Subject:	Reclamation Performance Specification A Turnover - Final
Document Reference:	17480-RLE-18-XX-RP-O-1016
Date:	14/12/2018
Prepared by:	Howel Morris - *Associate* BSc (Hons), MSc, CGeol
Reviewed by:	Neil Fraser - Principal Geotechnical Engineer BSc (Hons) MSc FICE

1. Introduction

Rodgers Leask Environmental Ltd (RLE) has been asked by St. Modwen Developments Ltd to prepare a Reclamation Performance Specification for the turnover to reclaim the reens, 15 acres of the Business Park, the proposed Marshalls factory footprint and thirteen residential phases (3b, 3c, 3d, 4a, 4b, 4c, 4e, 4g, 5a, 5b, 5c, 5d, 5g) of the Glan Llyn development.

This specification is intended to develop reclaimed plots that maintain surface compliant water quality, can satisfy the requirements of the contaminated land planning conditions and provide a stable reengineered platform with an accurate record of retained features to support, as far as practical, a site suitable for the proposed development.

2. Reclamation Strategy

The key points of the strategy for reclaiming the site are listed as follows:

- Pre sample each phase of site,
- Review and update site specific Controlled Waters Risk Assessment criteria,
- Designate areas to receive unsuitable material (both chemically and geotechnically unsuitable) – estimated to be 10% of the volume (eg 200,000m^3 for 2 million m^3 turnover) comprising park & ride plots, business park, sport pitches and noise bunds,
- Designate phases where engineering (small 1m clay bunds to promote protection of primary water routes by increasing residency within plots and reducing contamination loading near to site discharge) is required to further protect surface water,
- Sequence turnover and placement to suit direct placement approach to support chemical and geotechnical compliance,
- Agree proposed placement with Monitoring Engineer
- Turnover of the ground to natural deposits and reengineer the site to a minimum of 5.7mAOD (600mm below the minimum flood level),
- Compact material in accordance with the backfill specification to reduce permeability to limit infiltration and air voids to reduce leachability and conditions for potential expansion of Made Ground containing slag,

- Prepare geotechnical and chemical validation report for each phase.

3. Pre Reclamation Sampling

Prior to the commencement of reclamation works each phase will be trial pitted on a 25m grid sampled in accordance with the following:

- One composite chemical sample every exploratory hole to represent how it will be excavated and placed, (current testing is 1 per metre depth for each trial pit location)
- One composite geotechnical sample every exploratory hole and,
- One composite BRE expansion test (at least one per 2000m3).

The sequencing of the reclamation will need to follow the sampling programme. Pre validated material within stockpiles may require some testing to improve frequency to the required ratio.

The Contractor needs to allow in the programme sufficient time for the receipt and assessment of the contamination results and the slag expansion tests which require a 28-day test but there may be limited capacity. Areas where the Made Ground contains high proportions of slag may be reused in the designated open space or commercial areas rather than reuse within the residential phases.

4. Material Suitability – Chemical

The risk driver for the remediation of site is the controlled waters (water quality within site reens prior to discharge into Monk's Ditch). Therefore compliance with the Environmental Quality Standards (EQS) in the surface waters on site is the primary objective. The soil material placed within the plots will be assessed against the site specific criteria derived within the Controlled Waters Risk Assessment for the site and will use these criteria as guideline for compliance. Initial work will be undertaken to review the CWRA criteria to see if improvements are appropriate based on more recent site specific monitoring data and these will be submitted to the NRW for approval.

It is anticipated that the provision of clean cover will be sufficiently protective of human health providing the retained material complies with CWRA criteria.

In addition to chemical compliance reasonable engineering methods (creation of clay bunds below ground level) shall be employed to lengthen the contaminant travel time and direct the perched water discharge to a suitable point within the surface water system on site. This approach shall aim to use of cleaner material nearer the points of discharge.

Material with exceedances of the CWRA criteria may be retained within the plot if the overall profile of the placed material is assessed to be sufficiently protective of the water quality and human health (with the use of clean cover).

Material not suitable for reuse within the residential phases but suitable for public open space or commercial use shall be reused within commercial plots, park and ride areas, sports pitches and noise bunds.

Material assessed as requiring treatment will be investigated to delineate extent of contamination, excavated for treatment as required to permit reuse within one of the designated areas for lower threshold material. This is likely to apply to areas of gross contamination including but not limited to the coking works and the bitmac plant.

A programme of water quality monitoring shall be undertaken, either an existing agreed monitoring regime and/ or a dynamic monitoring programme to support the reclamation works, for the duration of the reclamation works to assess the developing water quality.

A mechanical method (scrubbing) and/ or natural method (reed beds) of water quality improvement may be deployed as mitigation prior to discharge into Monk's Ditch in the event of non-compliance of the EQS. This action shall be supported by monitored natural improvement in water quality within the reens as the development progresses so that mechanical improvement is a short term measure to mitigate the interim state of a reclaimed site without the rainfall interception of the full redevelopment.

The Contractor's method of working in close proximity of to the reen shall protect the watercourse. This shall also include potential run off from surface water or perched water levels. Chemical testing in accordance with EQS at a frequency approved by Natural Resources Wales. It is anticipated that an approach for monitoring the on site surface waters has been developed by Atkins and agreed with NRW.

The Contractor will manage the perched water as required and will provide compliant test results prior to discharge into the surface water course.

5. Material Suitability – Geotechnical

The following material types or physical properties shall be regarded as suitable for immediate placement with appropriate testing:

- Made Ground containing slag,
- Natural strata
- Crushed concrete
- The above materials, less than 300mm in size

The following material types or physical properties shall be regarded as unsuitable for immediate placement and should be deposited within the one the defined areas for unsuitable material:

- Colliery spoil and / or burnt shale
- Pure slag
- Material with obvious evidence visual & olfactory contamination
- Oversize material

- Scrap metals
- Organic material
- Plastics
- Voided areas
- Alluvium

The material visually regarded as not suitable for immediate reuse within the Site may either be retained until test results confirm the suitability for reuse or moved to one of the designated areas.

6. Formation Embankment Details

Where it is necessary to form an embankment an assessment will be undertaken to assess a minimum factor of stability for the slope. The assessment will take into account available land, characteristics of the material to be used and potential for post construction works to maintain stability. In the absence of detail reen volume/ layout/ profile requirements a minimum slope of 1:2 shall be assumed.

7. Levels

The phases within the site, following turn over to natural geology, will be backfilled with site won material to a minimum level of 5.7mAOD.

8. Turnover & Backfill

Within the boundaries of the site, the property will undergo reclamation to a depth where the natural underlying Tidal Flat Deposits can be confirmed. Known obstructions shall be removed, where they are unsuitable for retention within a normal piling layout, to a depth of 2m below minimum ground level in accordance with the flood mitigation requirements. Material within the site will undergo chemical and geotechnical testing.

Reclamation and subsequent backfill will be undertaken in accordance with the 600 Series (Earthworks) of the Specification for Highway Work (SHW) and each phase-specific Reclamation and Backfill Specification. The location and level of identified obstructions remaining in situ shall be accurately surveyed to the base of excavation and the positions recorded on a drawing.

In situ compaction testing of the placed layers shall be undertaken in compliance with the requirements of the 600 Series (Earthworks) of the Specification for Highway Work (SHW) and results provided to the developer. The backfilled material shall be reengineered to a target of 95% compaction. It will be at the discretion of the monitoring engineer to accept results below 95% to a minimum of 90%. The surface of each compacted layer shall be tested to ensure it meets the requirements of the SHW and a minimum CBR value of 2.5% at the surface.

9. Removal of Obstructions in Site Excavation Area

Shallow foundations and other man made obstructions encountered within the Made Ground and above the level of the underlying natural strata shall be entirely removed. Where isolated structures are encountered below 4.3mAOD that extend into the natural strata and measure less than 2.5m by 2.5m these may be retained on agreement with the engineer to reduce unnecessary excavation and support a nominal 3m grid for future piles. Where other obstructions are encountered which extend below the level of the underlying natural strata (e.g. slag in slag pits) these shall be removed unless otherwise agreed in writing by the Engineer.

Where redundant foundation piles or sheet piles are encountered these shall be cut down to the level of 4.3mAOD, and their location accurately surveyed for a future developer.

10. Grading

Fill material shall satisfy grading requirements for SHW Class 1 or Class 2 material except that a maximum particle size of 300mm shall apply and the maximum particle thickness shall not exceed two thirds of proposed compaction layer thickness.

Oversized material shall be removed, during the process of direct turnover, by visual assessment during excavation of existing ground and during the blade placement, by bulldozer, of the excavated ground prior to compaction. Removed oversize material not viable for crushing may be used in the sports pitches or park and ride areas, stored for an alternative suitable use or processed and tested to confirm material acceptability.

Incidental break up of material during the excavation and reengineering process is acceptable. Under no circumstances shall the crushing, as a specific operation, of slag bearing fill to achieve the required grading be permitted.

11. Reuse of Made Ground Containing Slag

Using the pre testing information the average risk of expansion will be managed as the layers of material are placed. Following the reclamation, surface monitoring points will be installed to monitor and validate stability of the reclaimed plot over a defined period to confirm the plot is within expansion tolerance prior to construction. BRE test results will be used to assess the suitability of material for reuse. A target expansion average for the accumulated material within the plot of 2.5% with a maximum of 5% being adopted. This may be amended based on practical mitigation measures and the proposed criteria will be subject to approval by the NHBC.

Where used as a reengineered material, Made Ground containing slag will be placed at a likely average thickness of 2m. A piled foundation solution with incorporated void (nominally 100mm, beam and block) would mitigate the risk of expansion to the building and the reengineered material is unlikely to cause unstable conditions for roads, services and gardens as the reclaimed plot will comprise weathered, well graded and well mixed layers.

Where there are areas of very slag rich made ground, with a potential for substantial expansion (as measured by the slag expansion results), the Contractor will have to regard this material as suitable for use in a public open space area.

12. Settlement & Stability Monitoring

Existing ground levels, on average, are within 300mm of the minimum ground level for flood requirements, therefore the increase in ground loading is not anticipated to be greater than 1m from the existing ground levels to incorporate an appropriate drainage system. Assuming a piled foundation solution, primary consolidation settlement from an increase in ground levels of 1m is likely to be acceptable for the stability of roads, services and gardens without surcharge given the time between reclamation and final development. An appropriate number of floor level monitoring points will be installed on pads of suitable material (5m x 5m) at the likely finished floor level, approximately 600mm above the reclaimed level, to reasonably replicate the final ground loading.

The floor level monitoring points will be monitored for a period to confirm stability of the site with regard to primary consolidation settlement but will also provide information relating heave stability prior to construction.

13. Land Quality Statement

A Land Quality Statement (LQS) will be prepared by St. Modwen Developments' Environmental Consultant which shall include a factual description of the site and its environs, the geo-environmental works carried out and describe the geo-environmental condition of the site following the completion of the agreed works. The LQS will provide a statement by the Environmental Consultant that planning conditions PC27 and PC28 of outline planning permission 06/0471 have been discharged by Newport City Council prior to final construction for the proposed residential end use. Amendments to existing CWRA criteria, which are relevant to the contaminated land planning conditions, will require approval by the NRW and local authority.

14. Notes for Intended Use

The developers and occupiers of the residential phases and reens, where this specification shall be applied, should consider the following:

- The site is underlain by soft organic rich Tidal Flat Deposits which according to historical information have been in part loaded by the former processes on the site. The site will continue to undergo unavoidable long-term creep settlement; this is normal for such sites.
- The buildings with piled foundations will not undergo creep settlement and therefore maintenance may be required where piled buildings meet ground bearing external areas due to the potential for differential settlement. Consideration should be given to boundary fences rather than brick walls. Extensions/ conservatories will require separate assessment to ensure settlement is considered prior to design of foundations.

- The storm water drainage of shall be constructed appropriately so that it does not leak into the underlying Made Ground. Poorly constructed drainage with headwalls into surface water features have the potential to generate leachate through infiltration into the Made Ground and then provide a pathway directly into the surface water.
- The external areas (roads, pavements, open space) have not been designed for the prolonged parking of HGVs, storage of materials, new buildings etc as these activities have the potential to cause settlement.
- The external areas may require maintenance due to creep settlement in the underlying Tidal Deposits.
- Flexible connections should be considered for services entering the piled buildings.
- Dewatering may result in localised reduction in groundwater level, which would induce localised consolidation settlement.

Appendix B: Atkins Permeability Technical Note

Technical Note

ATKINS

Subject:	Glan Llyn, Newport - Engineering Measures to Reduce Permeability & Infiltration		
Reference:	5111373-LLA-OUT-0256	**Revision:**	-
Author:	Howel Morris	**Checker:**	Chris Wilson
Issued to:	Craig Tidyman (Prosurv)	**Reviewer:**	Mark Williams
Date:	15th December 2016	**Authoriser:**	Howel Morris

Introduction

The Made Ground within the Glan Llyn site is generally compliant with residential, open space and commercial human health soil screening criteria. It is recognised that human health criteria is not intended to protect controlled waters but this note has been prepared to support the re-engineering of the onsite Made Ground material as a remediation measure in order to support parameters adopted within the Controlled Water Risk Assessment (Ref.1 5111373-OUT-RPT-0275). This is to be achieved by reducing the permeability of the shallow Made Ground soils by excavation and re-compaction, and providing a fall across its upper surface; as well as the placement of an overlying granular material to create a preferential pathway to minimise the potential for infiltration of precipitation into the underlying re-engineered Made Ground. The reduction in the permeability of the re-engineered Made Ground will attenuate the flow of precipitation through the Made Ground. This will have the intended benefit of increasing the volume intercepted rainwater against water infiltrating through the Made Ground within the surface water drainage system. Thus improving the surface water quality within the reens at the perimeters of the development plots.

It is worth noting that the re-use criteria developed within the CWRA report are protective of the surface water quality in the event that the full annual amount of water infiltrated and intercepted by the site be discharged to the reen system instantaneously. This technical note has been prepared to record the rationale of the chosen values for the permeability parameters used within the Controlled Waters Risk Assessment.

Site Permeability

The interception rates (where precipitation is intercepted by various development surfaces and flows into the surface water drainage system) and infiltration rates (where precipitation infiltrates through permeable gardens or landscaped areas into the underlying material) have been based on the figures provided in the drainage strategy prepared by Rodgers Leask (Rodgers Leask, 2016. Site Wide Surface Water Drainage Strategy Addendum for St Modwen Ltd. Rev 4 D12/084). The report provides figures for impermeable areas within the residential land and when this is compared with the total residential area a ratio of 60:40 is produced in favour of interception. The residential area includes all ancillary land including roads, landscaping features, drainage features, gardens and parks. The commercial area produces a ratio of 90:10 in favour of interception. The ratio provided within the drainage strategy does not account for the permeability of the percentage listed as permeable.

The respective adopted permeable values of 40% and 10% assume free draining material where the precipitation may freely percolate through the underlying materials. However, there are a number of factors resulting from the re-engineering of the development plots that significantly reduce the potential for infiltration of precipitation into the underlying Made Ground. The specification for the re-engineering of the Made Ground (Ref.2 5111373-LLA-OUT-225 Guidance for the Reuse of Made Ground Containing Slag, Dec 2016) requires compaction to a minimum 95% of maximum dry density and a minimum 5% CBR at finished levels to be achieved. The re-engineering of the plots into a stable platform with a fall from the centre to the periphery, and the materials used, will produce a preferential pathway. Based on soakaway tests carried out in the re-engineered Made Ground, and the results of Particle Size Distribution (PSD) laboratory tests carried out on the material, the site won re-engineered Made Ground within the plots is assessed as having a permeability of approximately 1 x 10^{-7} m/s (i.e. poor permeability). The properties of the re-engineered Made Ground are shown in Table 1 below.

Table 1: Properties of the Re-engineered Made Ground

Made Ground	PSD No./ Average	BRE Soakaway Test Result	Adopted Permeability(k)
Test 1	102 No./ 11% fines, 22% sand, 62% gravel, 5% cobbles	Fell 4mm in 3hrs	1 x 10^{-7} m/s
Test 2		Fell 20mm in 2hrs	1 x 10^{-7} m/s

* Unable to calculate an infiltration rate as the amount of infiltration was minimal during the test period indicating low permeability.

The PSD test samples were taken from existing stockpiles of site-won material. The soakaway tests were carried out on a re-engineered development plot within the site using typical stockpiled site-won Made Ground. The permeability of the re-engineered Made Ground was based on the values included within Soil Mechanics Principles & Practice, 3rd Edition, Table 3.3 (Ref.3) for a material with poor drainage characteristics.

The overlying gravel layer to be placed above the re-engineered Made Ground is expected to have a permeability of 1 x10^{-3} m/s (good) based on the values for a material on the boundary between a clean gravel and a clean sand provided in Soil Mechanics Principles & Practice, 3rd Edition, Table 3.3 (Ref.3).

The permeability will be validated on a plot by plot basis by undertaking soakaway tests. The designed fall at the top of the re-engineered Made Ground will promote flow within the more permeable granular layer and the infiltrated water will seek the course of least resistance, potentially flowing within the layer until it daylights at the reens at the periphery of the plot.

Landscaping/ Drainage & Public Open Space

The green areas of the site (including landscaped areas, parks & gardens) have been included within the permeable ratio for the residential areas. The green areas will have a minimum subsoil thickness of 450mm and in this region of south Wales red marl is a readily available subsoil which has already been used in some areas of the Glan Llyn development and which has a low permeability. The reduced permeability of areas assumed to allow free downward migration of rain water will further reduce the volume of rainwater able to infiltrate the re-engineered Made Ground. It is considered that a placed / un-compacted marl will have a permeability of 1 x 10^{-8} m/s, consistent with a stratified clay material (Ref.3). The reduced permeability of the green areas will also help improve the water quality within the drainage system.

Conclusion

The reduction in the permeability of the re-engineered Made Ground is intended to further improve surface water quality by attenuating the flow of infiltrated precipitation through the material. The reduced permeability of the Made Ground dramatically increases the transport time of the rainwater through the material, in contrast, a large volume of intercepted rainwater is able to reach the surface water reen system rapidly via the storm water drainage system. Therefore it is anticipated that the composition of surface waters will be dominated by intercepted clean rainwater. In reality, the large volume of intercepted precipitation and contrasting low volume of infiltrated seepage entering the reens annually will contribute to further improving water quality in a system already designed to maintain a compliant water quality within the surface water reens of the development.

References

1. 5111373-LLA-OUT- 0275, Glan Llyn, Site Wide Controlled Water Risk Assessment Atkins, December 2016.
2. 5111373-LLA-OUT-225 Guidance for the Reuse of Made Ground Containing Slag, Atkins, December 2016.
3. Soil Mechanics Principles & Practice, 3rd Edition, September 2010 (by G.E.Barnes).

Appendix C: Groundwater Levels Monitoring

Table A-1 Summary of 2016 Deep Monitored Groundwater Levels (mAOD)

Borehole	Easting	Northing	Ground Level (mAOD)	Count	Min (mAOD)	Max (mAOD)	Range (m)	Screened Unit*
2DBH-01	335405	187196	5.56	7	4.03	5.05	1.02	MMG
2DBH-02	335331	187310	5.94	7	4.58	5.20	0.62	MMG
2DCP-01	335475	187320	5.555	7	4.65	5.09	0.44	MMG
2DWS-05	335330	187336	5.957	7	3.76	5.60	1.84	TFD (BS)
CBP BH03	337064	186432	5.275	7	3.69	4.38	0.69	TFD (BS)
CBP BH04	337138	186342	4.833	7	4.15	4.63	0.48	TFD (BS)
CBP BH05	337014	186536	5.767	7	3.97	4.60	0.63	TFD (BS)
CBP BH06	336792	186392	5.081	7	4.18	4.70	0.52	TFD (BS)
CL2CB	335141	187332	6.008	5	4.32	4.81	0.49	Unknown
CWCP-01	335335	187278	5.65	7	4.20	4.89	0.69	MMG
CWCP-02	335279	187202	6.014	7	3.34	4.75	1.41	MMG
CWCP-03	334877	187364	6.159	6	4.87	5.49	0.62	MMG
CWCP-04	335186	187385	6.925	7	4.53	5.28	0.75	TFD (BS)
CWCP-05	335177	187153	5.877	7	4.16	5.20	1.04	TFD (BS)
CWCP-06	335381	187371	6.729	7	4.70	5.28	0.58	TFD (BS)
CWCP-07	335670	187347	6.759	7	4.52	6.16	1.64	TFD (BS)
CWCP-08	335941	187323	6.771	7	4.54	5.09	0.55	MMG
CWCP-09	336187	187302	5.699	7	3.65	4.86	1.21	TFD (BS)
CWCP-10	336505	187260	5.523	7	4.30	4.65	0.35	TFD(BS)/MMG
CWCP-11	336961	187241	6.26	7	4.37	4.64	0.27	TFD (BS)
CWCP-12	337225	187195	6.193	6	4.02	4.24	0.22	TFD (BS)
CWCP-13	336734	186782	7.15	7	4.22	4.60	0.38	TFD(BS)/MMG
CWCP-14	337203	186849	4.636	7	4.14	4.40	0.26	MMG
CWCP-15	337152	186553	4.014	7	3.68	4.01	0.33	TFD (BS)
CWCP-18	336343	186382	6.478	7	3.92	4.67	0.75	MMG
CWCP-19	336080	186401	6.5	7	4.59	4.90	0.31	TFD (BS)
CWCP-20	335760	186426	6.357	7	4.10	5.20	1.1	TFD(BS)/MMG
CWCP-21	334931	186510	5.945	6	4.12	5.26	1.14	TFD (BS)
CWCP-22	334919	186641	6.046	7	4.11	4.79	0.68	MMG
CWCP-23	334975	187134	6.335	7	4.72	5.21	0.49	TFD (BS)
CWCP-24	334857	187224	5.951	6	4.81	5.56	0.75	TFD (BS)
CWCP-25	335044	186908	7.288	7	4.35	5.03	0.68	TFD (BS)
CWCP-26-e	336825	187078	6.065	7	4.11	4.71	0.6	TFD(BS)/MMG
CWCP-26-w	335815	187129	6.084	7	4.22	4.96	0.74	TFD(BS)/MMG
CWCP-27	335732	186807	6.185	7	4.39	4.85	0.46	TFD (BS)
CWCP-28	335967	186642	6.452	7	4.68	4.99	0.31	TFD(BS)/MMG
CWCP-29	336132	186981	6.115	7	4.40	5.63	1.23	MMG
CWCP-30	336402	187007	6.068	7	4.42	4.77	0.35	MMG
CWCP-31	336299	186602	5.913	7	3.46	4.78	1.32	MMG
CWCP-32	336512	187099	5.583	7	4.29	4.68	0.39	MMG
CWCP-35	336969	186980	6.5	7	4.21	5.22	1.01	MMG
CWCP-36	337032	186762	5.321	7	4.06	4.34	0.28	TFD (BS)

LCBH2	335618	186555	5.729	7	4.63	4.79	0.16	TFD (BS)

*MMG – Mercia Mudstone Group, TFD (BS) – Tidal Flat Deposit Basal Sands

Table A-2 Summary of 2016 Shallow Monitored Groundwater Levels (mAOD)

Borehole	Easting	Northing	Ground Level (mAOD)	Count	Min (mAOD)	Max (mAOD)	Range (m)	Screened Unit
2DWS-01	335460	187331	5.471	7	3.44	5.37	1.93	TFD
2DWS-02	335453	187179	5.455	7	3.56	4.96	1.4	TFD
2DWS-03	335402	187253	5.619	6	5.12	5.47	0.35	TFD
2DWS-04	335288	187235	6.106	7	5.04	5.31	0.27	MG/TFD
CWWS-03	334876	187368	6.134	6	4.98	5.36	0.38	TFD
CWWS-04	335184	187384	6.969	6	5.13	5.54	0.41	Unknown
CWWS-05	335176	187152	5.936	6	4.98	5.49	0.51	MG
CWWS-06	335382	187372	6.665	2	5.23	5.95	0.72	MG
CWWS-07	335670	187348	6.791	0	Dry	Dry	n/a	MG
CWWS-08	335940	187325	6.784	0	Dry	Dry	n/a	MG
CWWS-09	336187	187301	5.601	6	4.08	5.60	1.52	MG
CWWS-10	336506	187260	5.522	5	4.69	4.86	0.17	MG/TFD
CWWS-11	336962	187240	6.262	7	3.66	4.62	0.96	MG
CWWS-13	336735	186782	7.194	7	5.09	5.46	0.37	MG
CWWS-14	337197	186847	4.708	7	4.14	4.42	0.28	MG
CWWS-15	337134	186552	4.976	7	3.35	4.05	0.7	MG/TFD
CWWS-16	337162	186301	5.021	4	4.24	4.80	0.56	Unknown
CWWS-17	336709	186340	6.982	4	5.35	5.51	0.16	MG
CWWS-19	336080	186398	6.672	7	4.77	4.98	0.21	MG
CWWS-20	335760	186423	6.247	0	Dry	Dry	n/a	MG
CWWS-21	334915	186527	5.805	7	4.92	5.39	0.47	TFD
CWWS-22	334927	186756	5.734	7	4.06	5.40	1.34	MG/TFD
CWWS-23	334957	187010	5.589	7	3.92	4.89	0.97	TFD
CWWS-24	334856	187228	5.904	6	4.78	5.06	0.28	TFD
CWWS-25	335049	186908	6.735	7	4.18	5.65	1.47	MG/TFD
CWWS-26-	336824	187074	6.151	7	4.31	5.90	1.59	MG
CWWS-26-	335817	187135	5.279	7	3.55	4.88	1.33	MG
CWWS-27	335731	186807	6.225	6	4.67	4.92	0.25	TFD
CWWS-28	335967	186643	6.473	7	4.67	4.86	0.19	MG
CWWS-29	336131	186980	6.128	7	4.88	5.14	0.26	MG/TFD
CWWS-30	336402	187010	6.068	7	4.29	5.44	1.15	MG
CWWS-31	336296	186605	6.031	6	4.55	5.08	0.53	MG
CWWS-32	336512	187099	5.585	7	4.94	5.25	0.31	MG
CWWS-33	336612	186991	6.48	7	4.99	5.34	0.35	TFD
CWWS-34	336656	186622	6.148	2	5.41	5.47	0.06	MG
CWWS-35	336968	186977	6.46	7	4.62	4.91	0.29	MG
CWWS-36	337027	186755	5.806	3	4.46	4.50	0.04	MG

*TFD – Tidal Flat Deposits (Clay), MG – Made Ground

Table A-3 Groundwater Level Data

Borehole	Deep/Shallow	Easting	Northing	Ground Level (mAOD)	Count	Min (mAOD)	Max (mAOD)	Range (m)	Depth of Base (mAOD)	10/05/2016	06/06/2016	07/07/2016	02/08/2016	01/09/2016	05/10/2016	03/11/2016
2DBH-01	Deep	335405	187196	5.56	7	4.03	5.05	1.02	-13.14	5.05	4.76	4.88	4.78	4.65	4.81	4.03
2DBH-02	Deep	335331	187310	5.94	7	4.58	5.20	0.62	-12.69	5.2	4.91	5.09	4.92	4.72	4.87	4.58
2DCP-01	Deep	335475	187320	5.555	7	4.65	5.09	0.44	-3.375	5.085	4.795	4.915	4.785	4.755	4.805	4.645
2DWS-05	Deep	335330	187336	5.957	7	3.76	5.60	1.84	2.997	4.017	3.757	4.767	4.727	5.387	5.597	5.557
CBP BH03	Deep	337064	186432	5.275	7	3.69	4.38	0.69	-5.495	4.375	4.295	4.195	4.155	4.115	4.145	3.685
CBP BH04	Deep	337138	186342	4.833	7	4.15	4.63	0.48	-2.057	4.633	4.153	4.413	4.193	4.303	4.493	4.513
CBP BH05	Deep	337014	186536	5.767	7	3.97	4.60	0.63	-4.323	4.357	4.237	4.257	4.597	3.967	4.177	4.057
CBP BH06	Deep	336792	186392	5.081	7	4.18	4.70	0.52	-4.159	4.701	4.601	4.621	4.181	4.201	4.701	4.531
CL2B	Deep	335141	187332	6.008	5	4.32	4.81	0.49	-4.892	-	4.678	4.808	4.668	4.508	-	4.318
CWCP-01	Deep	335335	187278	5.65	7	4.20	4.89	0.69	-3.25	4.89	4.41	4.81	4.71	4.48	4.63	4.2
CWCP-02	Deep	335279	187202	6.014	7	3.34	4.75	1.41	-3.136	4.714	4.134	4.754	3.684	3.564	3.634	3.344
CWCP-03	Deep	334877	187364	6.159	6	4.87	5.49	0.62	-2.951	5.489	5.159	5.219	5.049	4.959	-	4.869
CWCP-04	Deep	335186	187385	6.925	7	4.53	5.28	0.75	-2.485	5.275	4.685	4.815	4.545	4.725	4.785	4.525
CWCP-05	Deep	335177	187153	5.877	7	4.16	5.20	1.04	4.687	5.197	4.157	4.757	4.827	4.717	4.717	4.377
CWCP-06	Deep	335381	187371	6.729	7	4.70	5.28	0.58	-2.521	5.279	4.909	5.009	4.889	4.699	4.909	4.759

CWCP-07	Deep	335670	187347	6.759	7	4.52	6.16	1.64	-2.501	5.029	4.719	4.749	4.659	4.519	6.159	4.859
CWCP-08	Deep	335941	187323	6.771	7	4.54	5.09	0.55	-2.079	5.091	4.811	4.671	4.571	4.541	4.771	4.771
CWCP-09	Deep	336187	187302	5.699	7	3.65	4.86	1.21	-1.641	4.859	4.639	4.619	4.579	4.429	4.439	3.649
CWCP-10	Deep	336505	187260	5.523	7	4.30	4.65	0.35	-3.477	4.653	4.533	4.473	4.423	4.303	4.463	4.373
CWCP-11	Deep	336961	187241	6.26	7	4.37	4.64	0.27	0.33	4.57	4.64	4.59	4.37	4.48	4.63	4.45
CWCP-12	Deep	337225	187195	6.193	6	4.02	4.24	0.22	Unknown	-	4.143	4.243	4.083	4.023	4.133	4.093
CWCP-13	Deep	336734	186782	7.15	7	4.22	4.60	0.38	-4.76	4.56	4.6	4.41	4.31	4.22	4.33	4.23
CWCP-14	Deep	337203	186849	4.636	7	4.14	4.40	0.26	-4.904	4.396	4.366	4.306	4.186	4.136	4.206	4.136
CWCP-15	Deep	337152	186553	4.014	7	3.68	4.01	0.33	-5.116	4.014	4.014	4.014	4.014	4.014	3.684	4.014
CWCP-18	Deep	336343	186382	6.478	7	3.92	4.67	0.75	-5.442	4.668	4.518	4.408	4.578	4.188	3.918	4.168
CWCP-19	Deep	336080	186401	6.5	7	4.59	4.90	0.31	-2.51	4.82	4.9	4.75	4.75	4.59	4.69	4.7
CWCP-20	Deep	335760	186426	6.357	7	4.10	5.20	1.1	-5.513	4.707	4.777	4.247	5.197	4.097	4.177	5.067
CWCP-21	Deep	334931	186510	5.945	6	4.12	5.26	1.14	-4.635	4.455	4.425	4.295	5.255	4.115	4.125	-
CWCP-22	Deep	334919	186641	6.046	7	4.11	4.79	0.68	-5.554	4.586	4.526	4.356	4.786	4.296	4.246	4.106
CWCP-23	Deep	334975	187134	6.335	7	4.72	5.21	0.49	-3.895	5.205	4.865	4.775	4.715	4.785	4.925	4.715
CWCP-24	Deep	334857	187224	5.951	6	4.81	5.56	0.75	-3.509	5.561	5.061	5.131	5.011	4.911	-	4.811
CWCP-25	Deep	335044	186908	7.288	7	4.35	5.03	0.68	-4.532	5.028	4.738	4.778	4.688	4.638	4.728	4.348
CWCP-26-e	Deep	336825	187078	6.065	7	4.11	4.71	0.6	-4.345	4.475	4.525	4.395	4.325	4.155	4.705	4.105
CWCP-26-w	Deep	335815	187129	6.084	7	4.22	4.96	0.74	-4.276	4.964	4.784	4.794	4.744	4.604	4.224	4.574

CWCP-27	Deep	335732	186807	6.185	7	4.39	4.85	0.46	-5.325	4.845	4.665	4.665	4.555	4.515	4.605	4.385
CWCP-28	Deep	335967	186642	6.452	7	4.68	4.99	0.31	-5.308	4.992	4.892	4.862	4.682	4.902	4.932	4.892
CWCP-29	Deep	336132	186981	6.115	7	4.40	5.63	1.23	-4.585	4.945	4.725	4.725	4.615	4.525	5.625	4.395
CWCP-30	Deep	336402	187007	6.068	7	4.42	4.77	0.35	-5.372	4.768	4.638	4.528	4.528	4.438	4.518	4.418
CWCP-31	Deep	336299	186602	5.913	7	3.46	4.78	1.32	-4.247	4.783	4.663	4.623	4.603	3.463	4.563	4.313
CWCP-32	Deep	336512	187099	5.583	7	4.29	4.68	0.39	-4.637	4.683	4.593	4.503	4.373	4.293	4.483	4.383
CWCP-35	Deep	336969	186980	6.5	7	4.21	5.22	1.01	-5.54	4.52	4.44	4.39	4.32	5.22	4.33	4.21
CWCP-36	Deep	337032	186762	5.321	7	4.06	4.34	0.28	-3.889	4.341	4.331	4.191	4.141	4.071	4.151	4.061
LCBH2	Deep	335618	186555	5.729	7	4.63	4.79	0.16	-4.251	4.629	4.709	4.689	4.789	4.689	4.639	4.629
2DWS-01	Shallow	335460	187331	5.471	7	3.44	5.37	1.93	2.491	3.441	3.761	4.801	4.681	5.231	5.371	5.181
2DWS-02	Shallow	335453	187179	5.455	7	3.56	4.96	1.4	2.435	3.555	4.835	4.895	4.775	4.905	4.955	4.685
2DWS-03	Shallow	335402	187253	5.619	6	5.12	5.47	0.35	2.729	5.119	5.219	5.349	5.369	5.179	5.469	-
2DWS-04	Shallow	335288	187235	6.106	7	5.04	5.31	0.27	3.476	5.186	5.036	5.096	5.126	5.146	5.306	5.056
CWWS-03	Shallow	334876	187368	6.134	6	4.98	5.36	0.38	3.204	5.294	5.154	5.364	5.014	4.984	-	5.174
CWWS-04	Shallow	335184	187384	6.969	6	5.13	5.54	0.41	4.439	5.539	5.449	5.479	5.129	5.269	Dry	5.299
CWWS-05	Shallow	335176	187152	5.936	6	4.98	5.49	0.51	-3.244	5.016	4.976	Dry	5.256	5.376	5.486	5.446
CWWS-06	Shallow	335382	187372	6.665	2	5.23	5.95	0.72	Unknown	Dry	Dry	Dry	5.225	Dry	-	5.945
CWWS-07	Shallow	335670	187348	6.791	0	0.00	0.00	0	Unknown	Dry	Dry	Dry	Dry	Dry	Dry	Dry
CWWS-08	Shallow	335940	187325	6.784	0	0.00	0.00	0	Unknown	Dry	Dry	Dry	Dry	Dry	-	-

CWWS-09	Shallow	336187	187301	5.601	6	4.08	5.60	1.52	4.431	4.841	5.321	5.601	4.511	4.591	4.561	4.081
CWWS-10	Shallow	336506	187260	5.522	5	4.69	4.86	0.17	4.402	4.742	Dry	Dry	4.702	4.692	4.862	4.792
CWWS-11	Shallow	336962	187240	6.262	7	3.66	4.62	0.96	3.252	4.522	4.622	4.602	4.462	4.462	3.662	4.462
CWWS-13	Shallow	336735	186782	7.194	7	5.09	5.46	0.37	4.454	5.464	5.434	5.394	5.154	5.114	5.104	5.094
CWWS-14	Shallow	337197	186847	4.708	7	4.14	4.42	0.28	3.228	4.388	4.288	4.328	4.298	4.138	4.418	4.268
CWWS-15	Shallow	337134	186552	4.976	7	3.35	4.05	0.7	2.396	3.936	3.896	3.346	4.046	3.836	3.926	3.906
CWWS-16	Shallow	337162	186301	5.021	4	4.24	4.80	0.56	4.191	4.331	4.241	4.801	Dry	Dry	4.661	Dry
CWWS-17	Shallow	336709	186340	6.982	4	5.35	5.51	0.16	5.282	5.352	5.392	5.492	Dry	Dry	5.512	Dry
CWWS-19	Shallow	336080	186398	6.672	7	4.77	4.98	0.21	3.932	4.932	4.972	4.982	4.832	4.772	4.942	4.812
CWWS-20	Shallow	335760	186423	6.247	0	0.00	0.00	0	5.287	Dry	Dry	Dry	Dry	Dry	Dry	Dry
CWWS-21	Shallow	334915	186527	5.805	7	4.92	5.39	0.47	4.515	5.385	5.195	5.355	4.915	4.935	5.305	5.205
CWWS-22	Shallow	334927	186756	5.734	7	4.06	5.40	1.34	4.294	5.404	4.374	4.354	4.104	4.064	4.334	4.154
CWWS-23	Shallow	334957	187010	5.589	7	3.92	4.89	0.97	3.569	4.679	4.269	3.919	4.569	4.749	4.889	4.689
CWWS-24	Shallow	334856	187228	5.904	6	4.78	5.06	0.28	2.994	4.954	4.934	5.014	5.024	4.784	-	5.064
CWWS-25	Shallow	335049	186908	6.735	7	4.18	5.65	1.47	4.095	5.645	4.995	5.025	5.085	4.975	4.175	4.985
CWWS-26-e	Shallow	336824	187074	6.151	7	4.31	5.90	1.59	3.411	4.481	4.511	4.591	4.441	4.311	5.901	4.311
CWWS-26-w	Shallow	335817	187135	5.279	7	3.55	4.88	1.33	3.689	4.439	4.419	4.449	4.419	4.449	3.549	4.879
CWWS-27	Shallow	335731	186807	6.225	6	4.67	4.92	0.25	4.475	Dry	4.755	4.765	4.725	4.665	4.915	4.745
CWWS-28	Shallow	335967	186643	6.473	7	4.67	4.86	0.19	3.573	4.803	4.823	4.823	4.703	4.723	4.863	4.673

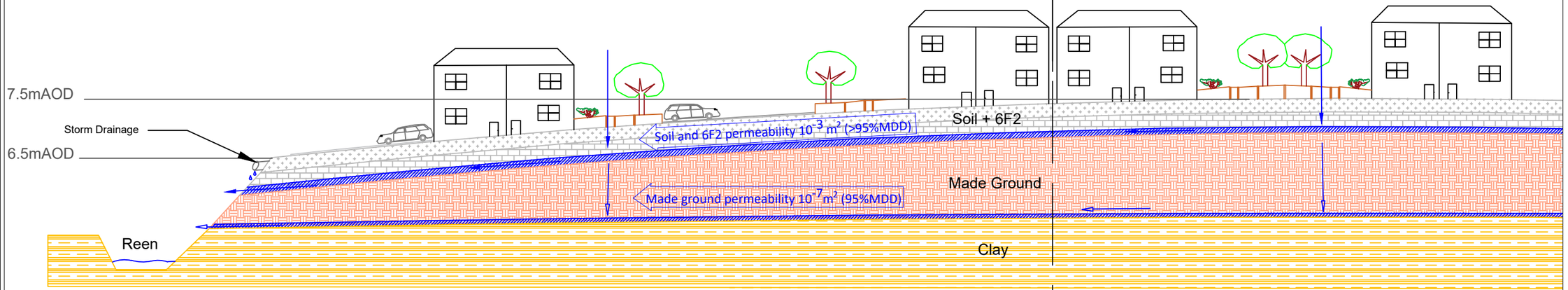
CWWS-29	Shallow	336131	186980	6.128	7	4.88	5.14	0.26	3.528	5.138	5.088	5.138	4.878	4.908	5.138	4.948
CWWS-30	Shallow	336402	187010	6.068	7	4.29	5.44	1.15	3.758	4.388	4.468	4.378	4.328	5.438	4.518	4.288
CWWS-31	Shallow	336296	186605	6.031	6	4.55	5.08	0.53	4.111	5.081	4.991	5.021	Dry	4.551	4.951	4.821
CWWS-32	Shallow	336512	187099	5.585	7	4.94	5.25	0.31	4.085	5.245	5.045	5.055	5.075	4.995	5.045	4.935
CWWS-33	Shallow	336612	186991	6.48	7	4.99	5.34	0.35	4.53	5.34	5.27	5.24	5.07	4.99	5.19	5.08
CWWS-34	Shallow	336656	186622	6.148	2	5.41	5.47	0.06		Dry	Dry	5.408	Dry	Dry	5.468	Dry
CWWS-35	Shallow	336968	186977	6.46	7	4.62	4.91	0.29	2.82	4.79	4.91	4.86	4.68	4.62	4.84	4.65
CWWS-36	Shallow	337027	186755	5.806	3	4.46	4.50	0.04	4.386	Dry	4.496	4.486	Dry	4.456	Dry	Dry

Appendix D: Glan Llyn Diagrammatic CSM

Area covered by landscaping = 23.8%

40% Infiltration into made ground

5% Infiltration
Increased distance from surface water



GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY

Water movement within Soil and 6F2

Water movement within Made ground

Rev	Date	Amendments	By	Chk

St Modwen

Project
Llanwern

Drawing Title
Glan Llyn Diagrammatic CSM

Status
Information

	Drawn	Checked	Date
NTS	ET	CW	05.07.19

Drawing Ref. Rev
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Appendix E: Soils Analysis

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3ATPGR02	3ATPGR03	3ATPGR03	3ATPGR04	3ATPGR04	3ATPGR02 CL	3ATPGR03 CL	TP3AA5V	TP3AB4V	TP3AB5V
Depth	1.2	0.7	1.2	0.4	1.3	2.2	2.7	0	0	0
Sampled Date	03/01/2018	03/01/2018	03/01/2018	03/01/2018	03/01/2018	03/01/2018	03/01/2018	04/01/2018	05/01/2018	05/01/2018
Carbon										
Soil Organic Matter (SOM)	1.72	0.536	2.93	0.507	0.35	5.1	1.16	1.56	1.13	10.4
Metals (Solids)										
Arsenic	9.42	3.34	6	2.51	6	14.7	11.4	13.1	15.8	32.3
Cadmium	1.64	0.27	0.2	0.289	0.2	0.478	0.02	0.0899	0.02	0.841
Chromium	358	9.41	695	4.87	1030	30.3	18.1	32	19.2	42.8
Copper	36.4	7.32	24.6	7.82	14.9	18.2	10.8	11.1	9.55	19.1
Lead	208	11.3	24.4	11.1	16.5	49.2	26.4	24.7	21.9	52.5
Mercury	1.4	0.14	1.4	0.14	1.4	1.4	0.918	0.14	0.386	0.14
Nickel	23.9	6.55	18.8	2.69	4.67	35.1	38.2	40.9	33.9	27
Selenium	14.4	1	19.9	1	22.4	10	1.47	1	1.98	1
Vanadium	302	8	442	3.8	578	59	60.4	54.7	49.8	71.7
Zinc	1030	28.4	70.5	35	25.6	160	151	118	98.5	160
TPH Criteria Working Group (TPH CWG)										
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.002	0.008	0.0151
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.003	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.0571
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.0622
Aliphatics >C12-C16	3.03	0.1	6.01	0.1	0.714	0.1	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	21.3	1.3	29.4	0.526	2.83	1.12	0.1	0.1	0.1	0.1
Aliphatics >C21-C35	90.5	7.16	154	2.9	23.8	9.7	4.4	0.524	0.1	12.1
Aliphatics >C35-C44	14.7	0.928	49	0.926	3.76	1.39	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.0403
Aromatics >EC12-EC16	1.04	0.1	2.26	0.1	0.1	0.727	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	6.01	0.1	20	0.1	0.846	1.87	0.774	0.1	0.1	1.59
Aromatics >EC21-EC35	26.4	1.28	107	0.1	8.02	25	10.6	2.66	0.748	49.7
Aromatics >EC35-EC44	8.73	0.1	48.6	0.1	3.81	7.63	5.5	0.969	0.92	9.91
Aromatics >EC40-EC44	3.67	0.1	19	0.1	1.46	3.15	2.03	0.1	0.1	3.71
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	30.3	12	12	12	12	12	12	12	12	12
Acenaphthene	8	8	262	8	8	8	8	8	8	8
Anthracene	37.9	16	304	16	16	16	16	16	16	16
Benz(a)anthracene	125	14	2920	14	14	51.4	14	14	14	87.9
Benzo(a)pyrene	118	18.2	3610	19.2	20.1	56.6	15	15	15	65.9
Benzo(b)fluoranthene	235	23.8	5000	29.7	36.5	105	15	15	15	152
Benzo(k)fluoranthene	91.5	14	1910	14	17.5	37.4	14	14	14	35.3
Benzo(g,h,i)perylene	171	24	2670	24	24	61.1	24	24	24	53.1
Chrysene	148	13.3	2640	23.8	18.2	68.7	10	10	10	80.5
Dibenzo(a,h)anthracene	0.023	0.023	732	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	133	0.018	2420	0.018	0.018	46.2	0.018	0.018	0.018	46.5
Fluoranthene	197	22.4	3730	31.4	43	172	0.017	0.017	0.017	173
Fluorene	10	10	96	10	10	10	10	10	10	10
Naphthalene	95.4	12.4	233	13.8	11	19	9	9	9	28.6
Phenanthrene	145	27.2	2110	29.1	33.6	166	15	15	15	111
Pyrene										
PAH, Total Detected USEPA 16	1.7	0.137	31.8	0.174	0.214	0.913	0.118	0.118	0.118	0.955
Naphthalene-d8 % recovery**	101	98.9	98.1	98.6	101	125	85	93.8	108	105
Acenaphthene-d10 % recovery**	98.2	96.6	97.1	96.3	97.1	123	79.4	86.3	106	100
Phenanthrene-d10 % recovery**	98.4	96.9	99.2	96.1	96.6	121	75.9	79.2	104	95.9
Chrysene-d12 % recovery**	96.9	92.8	107	90.1	93.1	117	68.3	83.6	94.6	85.3
Perylene-d12 % recovery**	95.7	100	121	90.5	91.2	121	69.4	85.9	94.8	86.4
Total Aliphatics >C12-C44	130	9.39	239	4.35	31.1	12.2	4.4	0.524	0.1	12.1
Total Aromatics >EC12-EC44	42.2	1.28	178	0.1	12.7	35.2	16.9	3.63	1.67	61.2
Total Aliphatics & Aromatics >C5-C44										
Metals - (Solid)										
Iron	149000	7870	170000	3220	149000	40000	45500	40300	35300	28600
Manganese	19700	376	29500	140	35700	609	698	583	1320	231
Metals - (Liquid)										
Calcium	224000	396000	236000	398000	343000	-	-	-	-	-
Magnesium	28900	3100	13800	1990	14300	-	-	-	-	-
Phenols										
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.011	0.01	0.0112	0.01	0.01	0.01	0.01	0.01	0.01	0.0168
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE	0.0901	-	0.004	0.0694	-	-	-	-	-	-
pH	12.3	10.6	12.4	8.88	12.7	7.73	8.09	7.33	8.23	7.11
Sulphate, Total	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.12	-	0.0407	0.0712	-	-	-	-	-	-
Sulphate, Total potential	0.36	-	0.122	0.214	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.215	-	0.325	0.0987	-	-	-	-	-	-
Cyanide, Total	2.62	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	276	176	147	97.1	184
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-
Date of Analysis	05/01/2018	05/01/2018	-	-	05/01/2018	-	-	-	-	-
Analysed By	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	-	Barbara Urbanek-Walsh	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-
Fibrous Tremolite	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-
Fibrous Actinolite	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-
Comments	0	0	-	-	0	-	-	-	-	-
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-
Sum of BTEX	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AC401	TP3AC402	TP3AC501	TP3AC502	TP3AC503	TP3AC601	TP3AC602	TP3AC603	TP3AC4V	TP3AC5V	TP3AC6V	TP3AD10	TP3AD10	TP3AD11	TP3AD11	TP3AD13	TP3AD13
Depth	0.5	1.5	0.5	1	1.5	0.5	1	2	2.1	2.1	2.4	0.5	1.5	1	2	0.5	1
Sampled Date	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	19/01/2018	19/01/2018	19/01/2018	19/01/2018	19/01/2018	19/01/2018
Carbon																	
Soil Organic Matter (SOM)	20.7	10.4	10.3	1.84	8.33	3.72	6.03	8.91	2.12	0.765	1.07	1.9	2.62	0.995	1.53	3.72	3.62
Metals (Solids)																	
Arsenic	5.86	9.74	10.9	7.89	6	6	6	9.82	20.2	9.9	11.4	13.7	7.35	6	6	10.3	12.9
Cadmium	0.02	0.869	0.265	0.2	0.2	0.792	2.01	0.838	0.02	0.162	0.02	0.194	0.2	0.2	0.2	1.07	0.545
Chromium	4.22	53.7	27	260	9	104	318	138	10.9	19.3	24.3	24.9	179	116	50.9	49.2	142
Copper	20.1	49.4	31.3	19	15.5	14	14	20.9	12.7	10.7	12.2	19.1	28.8	14	16.4	22.6	27
Lead	91.1	184	97.5	24.6	83.9	71.8	229	125	19	22.9	28	57	159	34.6	83	190	151
Mercury	1.05	1.98	1.4	1.4	1.82	1.4	1.4	1.4	0.752	0.654	0.72	0.14	1.4	1.4	1.4	1.4	1.4
Nickel	15.1	40.4	24.9	24.8	34.3	15.4	13.8	26.1	27	28.4	33.2	32.7	24.4	13.6	13.3	16	24.9
Selenium	2.03	10	10	10	10	10	10	10	1.27	1.22	1.25	1.41	10	10	10	10	10
Vanadium	33.1	101	47.9	274	56.8	123	250	291	41.1	44	51.2	44.9	203	412	92.7	38.1	96.3
Zinc	351	652	187	105	296	225	869	348	100	113	114	169	450	97.8	104	491	466
TPH Criteria Working Group (TPH CWG)																	
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.0173	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.00875	0.00944	0.0092
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.0598	0.0564	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.0506	0.392	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	2.74	1.79	3.34	0.1	2.03	1.2	2.5	3.71	0.14	0.1	0.1	0.1	4.94	3.43	3.18	4.65	4.48
Aliphatics >C16-C21	23	14.9	13.8	0.1	11.6	6.74	11.3	12	4.53	0.1	0.1	0.1	15.3	13.1	14.1	14.2	13.6
Aliphatics >C21-C35	115	64.1	70.1	3.47	74.1	53.9	170	64.1	18.6	0.1	1.73	2.33	57.5	51.6	55.8	52.5	49
Aliphatics >C35-C44	33.5	19	29.7	0.1	33.2	29	99.7	24.4	1.32	0.1	0.822	0.1	19.5	24.7	19.3	17.2	14.8
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.061	0.284	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	2.25	1.89	2.41	0.1	2.08	2.16	3.33	3.94	1.29	0.1	0.1	0.1	1.71	1.84	2.86	1.94	1.53
Aromatics >EC16-EC21	13.2	12.9	15.3	1.12	13.4	24.2	27.5	18.6	7.03	0.1	0.1	0.952	6.74	15.2	18.2	9.54	8.31
Aromatics >EC21-EC35	72.6	63.7	86.3	7.04	68.5	88	193	83.4	40.4	5.54	2.03	6.36	37.7	50.5	64.1	44.8	40.2
Aromatics >EC35-EC44	40.8	31.1	53.7	0.727	40.2	49	122	42.4	14.1	1.27	1.33	1.51	22.3	19.6	26.9	22.2	19.7
Aromatics >EC40-EC44	16.6	11.4	22.6	0.1	15.7	19.1	43.4	16.5	4.69	0.1	0.1	0.1	9.3	7.43	9.73	8.75	7.77
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	119	121	152	22.6	152	190	334	150	12	12	12	12	38.9	98.5	522	106	98.4
Acenaphthene	48.5	40.2	65.4	8	98.4	27.2	32	22.3	52.5	8	8	21.5	38.5	42.7	67.2	53.7	30.6
Anthracene	287	330	320	79.2	322	292	792	231	80	16	16	52.7	104	203	1230	289	195
Benz(a)anthracene	1190	835	1100	169	926	1560	2560	1240	234	14	42.8	282	324	817	3190	880	768
Benzo(a)pyrene	1250	732	1110	120	799	1610	2470	1290	182	15	31.5	243	312	730	2500	862	792
Benzo(b)fluoranthene	1860	976	1540	177	1220	2330	3670	1800	246	15	47.6	433	492	1220	3740	1350	1310
Benzo(k)fluoranthene	660	509	662	78	497	749	1530	682	110	14	21.4	160	181	506	1420	496	437
Benzo(g,h,i)perylene	1050	678	934	81.2	703	1170	1840	831	160	24	24	180	276	594	1610	626	609
Chrysene	1310	901	1210	124	1020	1100	2810	827	237	10	35.1	302	367	1000	3050	817	739
Dibenzo(a,h)anthracene	277	177	263	0.023	210	351	529	268	44.6	0.023	0.023	60.3	66.8	154	477	180	176
Indeno(1,2,3-cd)pyrene	877	530	784	73.8	582	1150	1680	824	121	0.018	0.018	153	216	511	1600	527	516
Fluoranthene	2160	1790	2140	342	2060	1760	4890	1390	479	0.017	64.7	419	625	1470	7760	1860	1330
Fluorene	104	137	136	25.3	237	96.8	146	74.9	45.7	10	10	24.2	38.5	78	772	102	107
Naphthalene	397	291	404	25.7	963	616	533	259	79	9	16.3	33.3	205	282	620	257	496
Phenanthrene	1090	1090	1130	191	1660	896	1650	694	313	15	55.5	185	389	893	6040	1090	806
Pyrene																	
PAH, Total Detected USEPA 16	14.4	10.5	13.6	1.76	13	15.4	29.3	11.7	2.8	0.118	0.368	2.85	4.18	9.7	39.4	11.1	9.53
Naphthalene-d8 % recovery**	107	94.3	104	95.2	105	93.6	104	94	113	111	109	96.1	108	100	92.9	92	113
Acenaphthene-d10 % recovery**	105	91.2	101	90.2	102	91.8	101	92.6	108	111	106	87.9	103	94.7	87.9	88.8	109
Phenanthrene-d10 % recovery**	104	91.1	101	86.1	102	86.5	99.1	86.7	104	103	102	83.7	103	94.3	88.6	88.1	107
Chrysene-d12 % recovery**	103	88.1	99.5	87	98.5	97.4	100	95.6	94.4	106	91.8	80	107	94.7	94.5	89.4	108
Perylene-d12 % recovery**	107	87.2	104	91.3	99.1	111	103	110	92	115	85.2	83.5	115	97.2	97.4	97.5	117
Total Aliphatics >C12-C44	174	99.8	117	3.47	121	90.9	284	104	24.6	0.1	2.55	2.33	97.1	92.8	92.4	88.5	81.9
Total Aromatics >EC12-EC44	129	110	158	8.88	124	163	345	148	62.8	6.8	3.37	8.81	68.4	87.1	112	78.5	69.8
Total Aliphatics & Aromatics >C5-C44																	
Metals - (Solid)																	
Iron	53000	131000	65100	135000	153000	65800	119000	95600	43200	35500	37400	37100	195000	86800	141000	87200	137000
Manganese	2660	7720	2220	17100	3660	8100	16300	7510	941	966	384	2470	8820	9810	5990	4210	4370
Metals - (Liquid)																	
Calcium	156000	135000	77700	137000	77700	146000	161000	83300	57300	49700	4950	22300	116000	171000	127000	110000	94800
Magnesium	24900	21400	15800	13600	7340	18300	17000	10500	10700	10200	10100	7250	12100	27700	23700	28400	15900
Phenols																	
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0761	0.109	0.0118	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0109	0.0109	0.0236	0.0115
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.087	0.12	0.035	0.035
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	0.17	0.117	0.0663	-	0.0946	0.221	-	0.0996	-	-	-	-	0.205	0.004	-	0.136	-
pH	11	11.1	10.5	9.07	10.8	10.2	10.9	10.5	8.69	8.17	8.27	10.5	11.4	11.4	11.9	10.7	10.7
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.375	0.237	0.115	-	0.138	0.352	-	0.137	-	-	-	-	0.314	0.23	-	0.178	-
Sulphate, Total potential	1.13	0.711	0.345	-	0.414	1.06	-	0.411	-	-	-	-	0.942	0.69	-	0.534	-
Sulphate, acid soluble (total)	0.533	0.417	0.123	-	0.138	0.934	-	0.199	-	-	-	-	0.552	0.439	-	0.139	-
Cyanide, Total	1.23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	23.1	28	12	12	12	12	12	12	21.4
Asbestos																	
Asbestos Quantification - Gravimetric - %	0.0052	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	04/01/2018	04/01/2018	03/01/2018	23/12/2017	04/01/2018	03/01/2018	04/01/2018	23/12/2017	-	-	-	-	23/01/2018	-	23/01/2018	23/01/2018	-
Analysed By	Barbara Urbanek-Walsh	Neville Mann	James Richards	Neville Mann	Marcin Magdziarek	Renata Bozhkov	Renata Bozhkov	Neville Mann	-	-	-	-	Eva Guerra	-	Christian Hallam	Christian Hallam	-
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048	Chrysotile	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	Loose fibres in soil	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	0.0052	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-
Comments	Fibre bundles in soil.	--	0	0	Loose fibres in soil	0	0	0	-	-	-	-	0	-	0	0	-
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	0.13	0.157	0.13	0.313	0.13	0.13	0.13	-	-	-	0.13	0.13	0.0555	0.13	0.13	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AD301	TP3AD501	TP3AD502	TP3AD601	TP3AD602	TP3AD603	TP3AD701	TP3AD702	TP3AD703	TP3AD704
Depth	0.7	0.3	1	0.5	1	2	0.5	1	2	3
Sampled Date	26/09/2017	26/09/2017	26/09/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017
Carbon										
Soil Organic Matter (SOM)	11.2	22.8	5.14	9.95	5.52	13.2	2.5	2.6	1.32	3.29
Metals (Solids)										
Arsenic	11.4	7.12	12.3	7.09	13.8	11.7	8.88	11.4	7.85	9.78
Cadmium	0.321	0.17	0.74	0.2	0.456	0.204	1.64	1.14	1.22	1.47
Chromium	40.1	13.3	7.24	15.1	16.8	0.9	37.9	237	15.6	89
Copper	16.5	5.49	33.9	17.8	28.5	34.8	23.3	28	18.8	15
Lead	53.1	17.4	52.6	46.5	78.2	320	544	103	100	122
Mercury	0.384	0.509	0.398	0.622	0.528	0.706	1.4	1.4	0.532	1.4
Nickel	11.5	10.4	19.2	14.7	18	15.8	29.2	28.2	16.6	28.4
Selenium	1	1.13	1	1.03	1.21	1.71	10	10	2.79	10
Vanadium	36.1	31.9	26.9	24.4	28.4	25.7	86.5	292	80.1	118
Zinc	155	63.4	136	136	158	136	308	224	152	280
TPH Criteria Working Group (TPH CWG)										
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.0633	0.008	0.008	0.00912	0.008	0.00831	0.008	0.008	0.0153
Ethylbenzene	0.012	0.0172	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.113	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.124	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.0464	0.0697	0.0534	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.0712	0.0697	0.058	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	3.44	4.14	1.19	2.24	2.26	3.16	1.8	1.63	1.58	1.27
Aliphatics >C16-C21	10.9	21	6.38	14.8	9.5	13.2	6.21	4.54	3.5	7.6
Aliphatics >C21-C35	54.7	112	21.2	64.6	47.1	99.1	32.4	24.3	14.1	37.1
Aliphatics >C35-C44	21.5	40.6	5.92	24.8	17.1	52.1	7.13	2.84	2.63	7.68
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.0633	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.0421	0.176	0.0452	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.0475	0.0461	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	2.85	6.63	1.49	4.64	2.77	4.45	1.98	1.53	1.46	2.35
Aromatics >EC16-EC21	15.8	40.6	12	29.7	15.9	24.5	8.55	6.68	4.58	12.8
Aromatics >EC21-EC35	77.5	123	51.2	102	76.9	148	34.6	25.7	17.6	41.4
Aromatics >EC35-EC44	40	42.2	19.2	47	38.5	89.1	13.5	8.39	6.29	16.8
Aromatics >EC40-EC44	17	15.1	7.72	16.7	14.2	34.2	4.69	2.81	2.31	6.09
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	99.5	492	107	591	215	123	62.9	58.1	19	165
Acenaphthene	106	77.5	109	104	124	77.5	32.5	41.1	19.5	36.5
Anthracene	269	1510	284	1870	557	330	140	155	45.9	270
Benz(a)anthracene	602	4900	1580	3860	3210	1170	492	475	103	824
Benzo(a)pyrene	613	4610	1550	3460	2890	1090	438	397	77.3	739
Benzo(b)fluoranthene	881	5930	2730	4650	4010	1720	663	647	130	1260
Benzo(k)fluoranthene	358	2690	801	2010	1490	638	240	217	56	452
Benzo(g,h,i)perylene	532	4150	1120	2530	1900	824	294	275	76.4	515
Chrysene	745	4670	1500	3830	3130	809	344	364	133	756
Dibenzo(a,h)anthracene	132	965	354	761	686	255	98.6	86.4	24.2	134
Indeno(1,2,3-cd)pyrene	396	3250	905	2320	1680	758	287	262	53.5	458
Fluoranthene	1340	11200	2340	8640	5580	1500	574	680	199	1640
Fluorene	172	516	136	1110	250	217	56.9	90.6	28.7	98.7
Naphthalene	376	2140	304	1320	496	425	186	215	99.2	518
Phenanthrene	914	8060	854	6350	1760	1220	473	613	272	1190
Pyrene										
PAH, Total Detected USEPA 16	8.63	63.8	16.5	49.5	32.2	12.3	4.81	5.07	1.49	10.3
Naphthalene-d8 % recovery**	107	109	103	103	110	85	92.6	91.9	99.2	99.9
Acenaphthene-d10 % recovery**	93.6	101	98.3	100	107	81.6	91.9	89.4	95.2	95.9
Phenanthrene-d10 % recovery**	93.2	102	95	100	105	76.7	87.1	84.2	93.8	95.3
Chrysene-d12 % recovery**	84.6	108	97.3	103	108	84.9	96.4	90.9	86.7	99.2
Perylene-d12 % recovery**	78.3	104	99.4	107	113	92.3	111	98.1	84.7	103
Total Aliphatics >C12-C44	90.5	178	34.7	106	76	168	47.5	33.3	21.8	53.7
Total Aromatics >EC12-EC44	136	212	83.9	183	134	266	58.6	42.3	29.9	73.4
Total Aliphatics & Aromatics >C5-C44										
Metals - (Solid)										
Iron	23400	28600	26500	38300	34100	46300	61200	67600	51000	88700
Manganese	2160	2760	1610	1370	1410	1580	3250	6010	3240	6650
Metals - (Liquid)										
Calcium	119000	146000	57700	115000	87300	61100	86500	91000	93800	93300
Magnesium	17900	19100	21100	7600	23500	6950	13900	16600	22600	15300
Phenols										
Phenol	0.01	0.0107	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.0113	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE	0.0882	0.103	0.0534	0.134	-	0.113	0.261	-	0.116	0.214
pH	10.5	11.1	8.45	9.67	9.36	9.78	10.2	10.4	9.3	10.7
Sulphate, Total	9500	7110	800	-	-	-	-	-	-	-
Sulphur, Total	-	-	-	0.174	-	0.195	0.158	-	0.116	0.175
Sulphate, Total potential	-	-	-	0.522	-	0.585	0.474	-	0.348	0.525
Sulphate, acid soluble (total)	0.95	0.711	0.08	0.127	-	0.253	0.194	-	0.155	0.256
Cyanide, Total	1	1.15	1	1.1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	18.5	12	12	12	12	12	12	12
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-
Date of Analysis	06/10/2017	06/10/17	-	03/01/2018	03/01/2018	03/01/2018	04/01/2018	04/01/2018	04/01/2018	04/01/2018
Analysed By	Neville Mann	Christian Hallam	-	Marcin Magdziarek	Marcin Magdziarek	Renata Bozhkov	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	Marcin Magdziarek
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Comments	0	0	-	0	0	0	0	0	n	0
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	0.294	0.13	0.13	0.13	0.13	0.13	0.201
Sum of BTEX	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AD13V	TP3AD14V	TP3AD3V	TP3AD3V	TP3AD4V	TP3AD5V	TP3AD5V	TP3AD6V	TP3AD7V	TP3AE10	TP3AE10
Depth	0	0	0	1.8	0	0	1.4	2.9	3.9	0.5	1.5
Sampled Date	26/02/2018	26/02/2018	12/01/2018	26/09/2017	12/01/2018	12/01/2018	26/09/2017	15/12/2017	15/12/2017	19/01/2018	19/01/2018
Carbon											
Soil Organic Matter (SOM)	3.4	1.7	2.59	2.12	0.974	3.21	1.08	2.4	3.69	1.27	2.52
Metals (Solids)											
Arsenic	13.8	16.8	9.86	9.44	14.6	11.6	11.8	10.9	14.6	8.26	8.48
Cadmium	0.02	0.02	0.02	0.241	0.02	0.145	0.161	0.02	0.02	0.2	0.2
Chromium	30.4	31.1	28	28.1	18.2	30.4	22.9	30.7	14.4	327	92
Copper	12.6	11.7	14.5	12	8.45	14.8	8.72	14.8	11.2	19.1	21
Lead	34.3	28.7	25.8	28.8	19	32.7	21.8	25.2	17.1	41.2	62.6
Mercury	0.14	0.14	0.14	0.676	0.14	0.14	0.634	0.801	0.671	1.4	1.4
Nickel	32	40.6	38.5	34.3	30.2	28.4	30.9	34.8	26.1	16.9	22
Selenium	1	1	1.14	1	1.44	1	1	1.27	1.27	11.4	10
Vanadium	58.9	55.8	52.1	57.2	42	49	49.6	59.2	38.7	314	171
Zinc	117	108	112	118	89.6	120	94.8	110	96.1	95.1	159
TPH Criteria Working Group (TPH CWG)											
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	1.94	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.0966	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.747	0.1	0.1	0.1	0.1	0.1	0.1	0.101	3.27	2.19	1.95
Aliphatics >C16-C21	1.43	0.1	0.1	0.252	0.1	0.1	0.1	0.527	7.07	10.7	8.6
Aliphatics >C21-C35	18.3	1.42	1.42	2.89	0.956	0.1	1.91	5.2	17.8	69.5	49.3
Aliphatics >C35-C44	3.16	0.1	0.1	0.281	0.1	0.1	0.1	0.1	3.77	33.9	25.4
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	1.29	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.0649	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.29	1.11	0.888
Aromatics >EC16-EC21	4.94	0.1	0.1	0.1	0.605	0.1	0.1	0.376	2.61	8.49	6.83
Aromatics >EC21-EC35	19.1	2.15	4.17	4.14	2.78	4.52	1.7	9.01	32.2	65.6	49.1
Aromatics >EC35-EC44	12.1	0.771	1.21	1.3	0.684	3.45	0.933	7.08	15.6	47	33.5
Aromatics >EC40-EC44	3.91	0.1	0.1	0.233	0.1	1.75	0.1	2.77	4.06	20.6	14.2
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	12	12	12	12	12	12	12	12	12	21.3	64.6
Acenaphthene	8	8	8	8	8	8	8	8	13.9	39.1	39.3
Anthracene	16	16	16	16	16	16	16	16	42.6	91.4	144
Benz(a)anthracene	14	14	14	14	14	14	14	53.6	31.1	658	686
Benzo(a)pyrene	29.7	15	15	15	15	15	15	50	54.2	697	753
Benzo(b)fluoranthene	45.2	15	15	15	15	15	15	61.8	87.2	1110	1150
Benzo(k)fluoranthene	14	14	14	14	14	14	14	31.9	40.9	396	417
Benzo(g,h,i)perylene	43.2	24	24	24	24	24	24	45.3	67.9	542	559
Chrysene	37.5	10	10	10	10	10	10	55.8	61.4	788	691
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	142	147
Indeno(1,2,3-cd)pyrene	28.9	0.018	0.018	0.018	0.018	0.018	0.018	35.1	47.2	422	468
Fluoranthene	53.9	0.017	0.017	0.017	0.017	0.017	0.017	115	142	959	1140
Fluorene	10	10	10	10	10	10	10	10	30.9	25.6	54
Naphthalene	9	9	9	9	9	9	9	9	47.4	97.4	261
Phenanthrene	38.2	15	15	15	15	15	15	67.1	147	437	579
Pyrene											
PAH, Total Detected USEPA 16	0.313	0.118	0.118	0.118	0.118	0.118	0.118	0.591	0.912	7.28	8.1
Naphthalene-d8 % recovery**	99.9	93.7	98.5	108	94.9	107	114	109	126	93.2	101
Acenaphthene-d10 % recovery**	99.5	93.9	92.1	104	90.5	103	105	106	123	88.3	96
Phenanthrene-d10 % recovery**	90.2	85.4	90.9	99.9	88.1	98.8	103	103	121	86.9	94.7
Chrysene-d12 % recovery**	91	84.8	86.4	94.9	84	100	97.5	93.7	114	90.6	94.1
Perylene-d12 % recovery**	87.9	77.3	90.9	96.7	86.7	94.1	92.3	91.2	119	95.8	103
Total Aliphatics >C12-C44	23.7	1.42	1.42	3.42	0.956	0.1	1.91	5.83	31.9	116	85.3
Total Aromatics >EC12-EC44	36.2	2.93	5.37	5.44	4.06	7.98	2.64	16.5	51.7	122	90.4
Total Aliphatics & Aromatics >C5-C44											
Metals - (Solid)											
Iron	35800	34200	34000	39800	33900	37200	35700	33100	40700	156000	163000
Manganese	1300	329	1500	538	2400	969	683	260	1020	14900	5450
Metals - (Liquid)											
Calcium	-	-	-	-	-	-	-	5570	50600	184000	95600
Magnesium	-	-	-	-	-	-	-	10400	9820	4510	14300
Phenols											
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0146	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	-	-	-	-	-	-	0.107
pH	7.65	7.4	7.49	7.64	8.28	7.4	8.47	8.14	7.93	11.3	10.8
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	-	-	-	-	-	-	-	-	-	-	0.172
Sulphate, Total potential	-	-	-	-	-	-	-	-	-	-	0.516
Sulphate, acid soluble (total)	-	-	-	-	-	-	-	-	-	-	0.303
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	175	47.1	145	213	78.3	237	65.6	52.3	12	12	12
Asbestos											
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	-	23/01/2018
Analysed By	-	-	-	-	-	-	-	-	-	-	Paul Poynton
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	-	Not Detected
Comments	-	-	-	-	-	-	-	-	-	-	0
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	0.13	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	TP3AE11	TP3AE11	TP3AE12	TP3AE13	TP3AE701	TP3AE9	TP3AE901	TP3AE902	TP3AE401	TP3AE402	TP3AE601	TP3AE602	TP3AE603	TP3AE801	TP3AE802	TP3AE803	TP3AE11V
Depth	1	2	1	0.3	0.5	0.8	0.4	1	0.4	0.8	0.5	1	1.5	0.3	0.6	0.9	0
Sampled Date	19/01/2018	19/01/2018	19/01/2018	19/01/2018	26/09/2017	19/01/2018	26/09/2017	26/09/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	05/03/2018
Carbon																	
Soil Organic Matter (SOM)	0.612	1.79	2.22	3.14	2.95	1.47	1.03	0.35	16.2	6.43	3.48	2.84	1.38	5.74	1.9	3.86	3.15
Metals (Solids)																	
Arsenic	6	6	6.79	6	7.85	6.32	3.2	24.1	9.62	11.9	4.65	7.5	6.19	11.6	7.79	12.7	12
Cadmium	0.2	0.2	0.2	0.2	0.823	0.2	0.259	0.2	0.171	0.143	0.02	0.966	0.358	0.202	0.02	0.2	0.136
Chromium	988	612	744	287	16.8	56.1	0.9	9	14.1	13.8	92.9	5.1	12.3	12.2	7.26	9	35.9
Copper	20.7	20.3	84.7	20.1	15.7	19.3	1.4	14	27.7	31.5	12.2	12.6	11.4	29	18.3	26.3	12.4
Lead	18.4	24	35.5	57.7	175	35.4	11.4	8.36	27.1	27.3	32.6	137	46.3	55.7	37.8	28.7	30.1
Mercury	1.4	1.4	1.4	1.4	0.159	1.4	0.726	1.68	0.661	0.973	0.541	0.516	0.676	1.4	0.747	1.4	0.14
Nickel	10.8	33.6	34.8	13.3	19.4	21.4	7.19	2	25.2	31.8	11.9	18.1	11.8	29.7	17	32	30
Selenium	16	13.4	15.9	10.8	1.82	10	1	12.2	1	1	3.07	2.25	1	10	2.12	10	1
Vanadium	502	341	577	383	45.5	88.9	24.2	33.4	26.2	36.8	480	32	56.1	54.8	38.4	31.9	58.3
Zinc	49.1	85.4	100	117	145	97.6	54.8	22.1	74.5	104	120	122	143	129	105	54.4	115
TPH Criteria Working Group (TPH CWG)																	
Benzene	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.008	0.008	0.008	0.00222	0.008	0.008	0.008	0.008	0.008	0.0119	0.008	0.008	0.008	0.0229	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.003	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.081	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.123	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.138	0.0487	0.04	0.0479	0.04	0.189	0.0418	0.04
Aliphatics >C12-C16	1.46	1.79	4.55	0.785	0.833	1.62	0.736	0.1	12.4	85.1	1.34	1.47	0.519	4.04	2.86	2.18	0.644
Aliphatics >C16-C21	8.07	10.5	28.5	3.46	6.93	4.88	3.47	0.399	84.2	213	4.34	2.5	4.15	17	11.7	4.9	2.41
Aliphatics >C21-C35	61.1	73.8	199	26.3	24.9	27.7	43.4	7.85	50.1	80.7	25.8	12.1	25.9	37.2	42.2	13	19.6
Aliphatics >C35-C44	18.1	17.5	116	7.75	5.42	13.4	24.8	1.28	1.22	0.1	7.95	1.73	10.5	7.35	14.2	1.75	3.75
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0945	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.0915	0.04	0.04	0.04	0.04	0.127	0.04	0.04
Aromatics >EC12-EC16	0.6	1.11	2.12	0.954	1.34	0.542	0.375	0.1	8.59	12.1	1.31	1.51	1.47	5.43	1.79	4.32	1.01
Aromatics >EC16-EC21	6.31	8.9	15.8	4.77	6.13	3.13	4.03	0.1	33	72.3	11.2	4.85	5.84	42.5	7.6	7.87	3.7
Aromatics >EC21-EC35	37.8	47	64.8	25.2	25.9	23.6	52.2	1.28	50.5	73.7	40.9	19.2	29.6	86.1	43.6	20.8	51.2
Aromatics >EC35-EC44	14.9	17.1	34.5	13.2	9.61	15.5	38.3	0.253	8.48	9.37	17.6	7.28	18.6	33.9	25.7	8.66	16.1
Aromatics >EC40-EC44	5.53	6.39	14.8	5.33	3.53	6.49	16.1	0.1	3.2	3.87	7.04	2.72	6.94	13.2	10.6	3.56	5.7
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	12	239	145	77.8	39.9	21.5	42	12	16.3	20.9	68.8	29	35.4	81	92.4	12	12
Acenaphthene	30.9	59.1	44.8	19	26.1	33.1	15.8	8	30.6	31	15.7	10.8	8	16.2	25.9	11.4	8
Anthracene	72.9	477	274	168	104	121	194	16	71.7	60.4	139	65.8	52.5	134	155	24.2	16
Benz(a)anthracene	619	1510	1300	555	275	555	1300	14	187	176	653	255	157	441	833	48	14
Benzo(a)pyrene	647	1350	1280	492	232	582	1430	15	157	169	589	202	118	441	829	36.6	15
Benzo(b)fluoranthene	1130	2120	1930	764	455	839	1880	15	242	215	886	316	203	640	1170	56.6	15
Benzo(k)fluoranthene	395	768	845	241	149	308	740	14	102	94.6	294	117	77.6	246	376	24.9	14
Benzo(g,h,i)perylene	536	933	880	403	223	430	1040	24	116	110	358	140	121	377	557	39.8	24
Chrysene	725	1670	1340	540	275	618	1140	10	188	165	451	167	172	462	487	74.3	24.8
Dibenzo(a,h)anthracene	140	229	232	111	58.1	128	267	0.023	31	26.8	120	43.6	39	104	185	0.023	0.023
Indeno(1,2,3-cd)pyrene	443	833	826	336	158	354	811	0.018	89.2	83.7	343	132	92.3	309	553	29.3	0.018
Fluoranthene	1230	3190	2210	1310	495	926	1720	0.017	311	247	773	312	309	809	895	96.3	36.1
Fluorene	12.3	473	95.2	55.1	57	38.6	26.7	10	84.5	109	56.6	33.4	36.2	49.5	56.5	16.7	10
Naphthalene	57.1	178	274	203	186	74.1	65.3	9	245	245	136	98.9	80.1	156	149	94.7	9
Phenanthrene	687	3020	959	541	471	396	683	15	481	399	459	255	213	375	502	192	28.4
Pyrene																	
PAH, Total Detected USEPA 16	7.73	19.3	14.3	6.82	3.56	6.18	12.8	0.118	2.62	2.42	5.94	2.41	1.94	5.3	7.56	0.833	0.118
Naphthalene-d8 % recovery**	95.5	93.4	92.4	98.9	95.9	95.9	96.9	94.6	96.5	96.3	94.7	95.7	105	108	97.5	104	90.6
Acenaphthene-d10 % recovery**	90.9	87.7	87.1	98	91.7	89.8	92.1	91.3	93.1	94.4	92.5	92.4	102	103	96.1	101	92.8
Phenanthrene-d10 % recovery**	91.4	87.8	87.6	94.2	89.6	87	90.8	89.7	93.2	92.3	85.9	85.5	100	102	91.1	98.8	85.2
Chrysene-d12 % recovery**	92.5	92.6	92.8	96.7	91.7	87.5	95.3	86.3	95.8	97.2	92.4	91.5	91.3	98.1	98.5	90.3	87.6
Perylene-d12 % recovery**	100	95.9	97.7	93.5	91.6	93	96.7	90.8	97.7	102	105	100	87.1	99.3	111	87.7	85.3
Total Aliphatics >C12-C44	88.7	104	349	38.3	38.1	47.6	72.4	9.53	148	379	39.4	17.8	41	65.6	71	21.8	26.4
Total Aromatics >EC12-EC44	59.6	74.1	117	44.1	43	42.8	94.9	1.53	101	167	71.1	32.8	55.5	168	78.7	41.6	72
Total Aliphatics & Aromatics >C5-C44																	
Metals - (Solid)																	
Iron	162000	219000	213000	130000	50700	74900	37400	370000	24400	39600	58800	39800	38900	66100	55600	71000	28300
Manganese	26900	22500	24900	14200	2990	3680	2860	12000	638	1310	5650	2560	2100	2500	2750	1850	261
Metals - (Liquid)																	
Calcium	198000	217000	206000	171000	86100	91800	150000	4140	12400	17100	139000	91400	94200	70400	60400	12700	-
Magnesium	20500	19400	1870	17700	25400	14900	29500	520	3970	3720	37100	13500	27500	11500	10700	2580	-
Phenols																	
Phenol	0.01	0.01	0.0107	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0104	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.004	0.004	0.147	0.144	0.0679	0.409	0.177	0.487	0.367	0.466	-	0.211	0.175	-	0.06	-
pH	12.7	12.6	12.5	11.5	10.3	10.5	10.7	9.89	8.33	8.08	8.63	8.59	9.4	9.26	8.62	8.54	7.22
Sulphate, Total	-	-	-	-	5490	-	22900	788	-	-	-	-	-	-	-	-	-
Sulphur, Total	-	0.26	0.195	0.34	-	0.131	-	-	0.0923	0.0946	0.199	-	0.188	0.121	-	0.115	-
Sulphate, Total potential	-	0.78	0.585	1.02	-	0.393	-	-	0.277	0.284	0.597	-	0.564	0.363	-	0.345	-
Sulphate, acid soluble (total)	-	0.348	0.286	0.549	0.549	0.246	2.29	0.0788	0.195	0.176	0.357	-	0.248	0.127	-	0.0677	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	229
Asbestos																	
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-
Date of Analysis	-	23/01/2018	-	23/01/2018	06/10/2017	23/01/2018	-	06/10/2017	04/01/2018	03/01/2018	04/01/2018	04/01/2018	04/01/2018	03/01/2018	04/01/2018	04/01/2018	-
Analysed By	-	Paul Poynton	-	Paul Poynton	Neville Mann	Christian Hallam	-	Neville Mann	Marcin Magdziarek	Renata Bozhkov	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	Neville Mann	James Richards	Barbara Urbanek-Walsh	Neville Mann	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected	-
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Fibrous Tremolite	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Fibrous Actinolite	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Comments	-	0	-	0	0	0	-	0	0	0	0	0	0	0	Loose fibres in soil.	--	-
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	0.13	0.0199	0.13	-	0.13	-	-	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AE12V	TP3AE14V	TP3AE3V	TP3AE5V	TP3AE7V	TP3AE9V	TP3AE9V	TP3AE4V	TP3AE6V	TP3AE8V	TP3AF10	TP3AF10	TP3AF101	TP3AF102	TP3AF103	TP3AF11	TP3AF11
Depth	0	0	0	0	0	0	2	1	2	1.1	1	1.5	0.1	0.2	1	1	1.5
Sampled Date	27/02/2018	26/02/2018	12/01/2018	12/01/2018	12/01/2018	09/03/2018	26/09/2017	15/12/2017	15/12/2017	15/12/2017	19/01/2018	19/01/2018	26/09/2017	26/09/2017	26/09/2017	19/01/2018	19/01/2018
Carbon																	
Soil Organic Matter (SOM)	1.53	2.31	1.88	1.97	2.6	2.57	10.1	0.907	0.909	15.9	2.4	0.679	3.72	3.45	2.22	3.5	4.1
Metals (Solids)																	
Arsenic	13.3	14.9	11.1	11.3	10.3	14.3	18	14.2	6.51	37	9.63	6	7.11	36.9	7.18	10.3	6
Cadmium	0.02	0.02	0.0275	0.0739	0.0759	0.408	0.68	0.2	0.02	0.362	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Chromium	26.8	28.8	28.3	30.6	31.7	33.7	32.2	23.3	22.7	12.9	107	537	71.2	54.8	84.9	129	124
Copper	9.74	9.43	12.9	11.7	16.9	13	17.9	11.1	9.84	34.6	20.6	24.8	14	46.3	21.9	44.3	21.8
Lead	27.8	32.2	27	30.2	31	32.1	51.5	37.3	19.2	25.9	38.9	21.7	62.9	60.8	93.8	12.4	28.5
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.657	0.83	0.741	0.517	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Nickel	36.7	31.6	36.7	37	29.5	36.6	25.1	33.4	29.7	32.6	39.2	17	18.6	53.2	41.5	67.6	76.7
Selenium	1	1	1	1.31	1	1.25	1	1.04	1	6.62	10	22.1	10	10	10	10	10
Vanadium	55.5	54.7	53.1	47.4	51.9	64.5	60.5	45.9	45.6	60.8	423	552	119	294	732	155	161
Zinc	109	118	115	117	122	144	156	111	104	63.4	127	39.1	183	164	211	104	150
TPH Criteria Working Group (TPH CWG)																	
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.00974	0.008	0.008	0.008	0.00858	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0408	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0762	0.04	0.04
Aliphatics >C12-C16	0.1	0.1	0.1	0.1	0.1	0.1	1.59	0.1	0.1	0.708	2.36	0.748	0.416	9.03	2.88	6.48	7.07
Aliphatics >C16-C21	0.1	0.1	0.1	0.1	0.898	0.1	0.272	0.1	0.998	1.58	13.5	5.21	5.46	19.3	16.1	35.3	33.9
Aliphatics >C21-C35	0.1	0.1	1.41	0.1	0.902	0.1	9.67	0.1	2.87	13.2	120	47.8	29.1	54.5	104	228	147
Aliphatics >C35-C44	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.11	38.9	17.5	6.7	14.4	33.2	59.7	18.8
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0515	0.04	0.04
Aromatics >EC12-EC16	0.1	0.1	0.1	0.1	0.1	0.1	0.778	0.1	0.1	0.1	1.61	0.1	0.947	1.7	1.16	2.35	4.21
Aromatics >EC16-EC21	0.1	0.1	0.1	0.1	0.1	0.1	2.27	1.08	1.34	0.1	8.15	6.68	7.55	3.34	6.52	15.7	31
Aromatics >EC21-EC35	1.42	4.89	3.67	2.21	3.24	4.27	58.3	4.85	5.19	3.11	63.3	54.1	46.9	17.6	41.7	92.6	173
Aromatics >EC35-EC44	1.04	0.903	0.935	4.16	3.28	0.493	13.1	0.361	1.08	1.11	35.8	19.9	15.9	7.9	19.2	30.5	37.5
Aromatics >EC40-EC44	0.1	0.1	0.1	2.04	1.65	0.1	3.92	0.1	0.1	0.1	14.6	7.46	5.88	2.95	7.09	12.2	14.2
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	12	12	12	12	12	12	12	12	12	12	33	13.6	59	22.6	32.4	24.5	26.2
Acenaphthene	8	8	8	8	8	8	8	8	8	8	51	102	10.9	14.6	94.2	15.4	29.5
Anthracene	16	16	16	16	16	16	16	16	16	16	108	198	128	50.2	177	77.4	111
Benz(a)anthracene	14	14	14	14	14	14	119	14	14	14	569	2160	471	197	796	579	807
Benzo(a)pyrene	15	15	20.3	15	15	15	106	15	15	15	610	2590	511	206	919	410	623
Benzo(b)fluoranthene	15	15	15	15	15	15	215	15	15	15	1070	3770	801	350	1500	614	920
Benzo(k)fluoranthene	14	14	14	14	14	14	63.5	14	14	14	325	1330	260	110	550	175	264
Benzo(g,h,i)perylene	24	24	48.5	24	24	24	136	24	24	24	617	1860	506	201	838	478	775
Chrysene	10	10	10	10	10	10	116	10	10	10	707	2560	485	232	909	715	1100
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	154	460	109	39.2	171	100	154
Indeno(1,2,3-cd)pyrene	0.018	0.018	31.5	0.018	0.018	0.018	100	0.018	0.018	0.018	477	1410	364	134	605	197	320
Fluoranthene	0.017	0.017	0.017	0.017	0.017	0.017	195	0.017	0.017	0.017	1030	2920	848	395	1940	711	959
Fluorene	10	10	10	10	10	10	10	10	10	10	41.6	36.3	29.5	21.2	58.2	15.8	27.6
Naphthalene	9	9	9	9	9	9	29.6	9	9	34.7	174	94.6	218	134	307	259	181
Phenanthrene	15	15	15	15	15	15	130	15	15	23	585	994	395	279	2320	704	1210
Pyrene																	
PAH, Total Detected USEPA 16	0.118	0.118	0.118	0.118	0.118	0.118	1.35	0.118	0.118	0.118	7.48	23.2	5.84	2.69	12.7	6.35	9.4
Naphthalene-d8 % recovery**	97.2	100	87.2	106	109	106	117	102	108	95.5	99	97.9	93.9	94.6	95.5	98.3	90.7
Acenaphthene-d10 % recovery**	101	107	81.5	104	106	103	109	99.3	104	92.8	96.9	93.7	88.6	88.7	93.6	93.9	86.5
Phenanthrene-d10 % recovery**	93.7	89.7	78	99.5	101	97.6	109	92.7	102	74.9	93.9	92.5	86.7	87.2	91.6	95.2	88.1
Chrysene-d12 % recovery**	95.4	87.5	75.6	102	103	90.7	108	95.8	91.6	18.7	96.3	99.6	88.1	87.6	94.6	98.3	96.3
Perylene-d12 % recovery**	92.8	96.9	78.9	97.6	97.5	89.2	111	108	85.3	4.38	92.3	106	89.4	89	100	108	104
Total Aliphatics >C12-C44	0.1	0.1	1.41	0.1	1.8	0.1	11.5	0.1	3.87	17.6	175	71.2	41.7	97.2	156	329	206
Total Aromatics >EC12-EC44	2.46	5.79	4.6	6.37	6.52	4.77	74.5	6.29	7.61	4.22	109	80.7	71.3	30.5	68.6	141	246
Total Aliphatics & Aromatics >C5-C44																	
Metals - (Solid)																	
Iron	39300	32100	28800	37800	37000	43700	34200	41100	35200	15800	166000	191000	114000	295000	209000	247000	163000
Manganese	578	492	771	1560	695	842	373	313	457	233	8890	32100	7540	10800	13100	8430	7460
Metals - (Liquid)																	
Calcium	-	-	-	-	-	-	-	4150	32500	9770	105000	226000	119000	117000	158000	87600	115000
Magnesium	-	-	-	-	-	-	-	9590	10700	2090	12100	7690	21400	15600	22800	14400	26800
Phenols																	
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0298	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	-	-	-	-	-	-	0.135	-	0.127	0.105	0.0347	-	0.0487
pH	7.28	7.26	7.82	7.7	7.64	7.05	7.21	8.23	8.69	6.54	11.7	11.9	9.89	12	12.6	12.3	12.2
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	3750	2070	8810	-	-
Sulphur, Total	-	-	-	-	-	-	-	-	-	-	0.167	-	-	-	-	-	0.165
Sulphate, Total potential	-	-	-	-	-	-	-	-	-	-	0.501	-	-	-	-	-	0.495
Sulphate, acid soluble (total)	-	-	-	-	-	-	-	-	-	-	0.299	-	0.375	0.207	0.881	-	0.249
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.26	1	1
Exchangeable Ammonia as N	225	86.3	129	134	171	274	260	12	19.9	12	12	12	19.4	12	12	12	12
Asbestos																	
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	-	-	23/01/2018	-	06/10/2017	06/10/2017	-	23/01/2018
Analysed By	-	-	-	-	-	-	-	-	-	-	-	Christian Hallam	-	Neville Mann	Neville Mann	-	Paul Poynton
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Comments	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	0.13	0.13	-	-	-	0.13	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AF1101	TP3AF12	TP3AF12	TP3AF13	TP3AF13	TP3AF301	TP3AF302	TP3AF9	TP3AF9	TP3AF501	TP3AF502	TP3AF601	TP3AF602	TP3AF603	TP3AF701	TP3AF702
Depth	0.2	0.7	1.5	0.8	1.5	0.3	1.2	0.5	1	0.5	1	0.5	1	1.5	0.5	1
Sampled Date	26/09/2017	19/01/2018	19/01/2018	19/01/2018	19/01/2018	26/09/2017	26/09/2017	19/01/2018	19/01/2018	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017	15/12/2017
Carbon																
Soil Organic Matter (SOM)	1.58	5.65	1.68	6.1	5.9	1.53	2.29	0.912	0.436	0.641	0.772	2.4	2.97	3.52	4.9	2.6
Metals (Solids)																
Arsenic	8.98	46.6	57.3	6	10.2	6	6	6.77	5.89	2.82	6	9.47	7.53	7.39	10.5	6.98
Cadmium	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.02	0.02	0.02	0.2	0.995	0.185	0.0301	0.67	0.871
Chromium	117	258	259	320	113	197	229	20	45.9	0.9	9	0.9	44	28.5	7.44	25.7
Copper	19.6	320	370	25.8	34.1	61.8	17.6	33.3	35.2	2.35	14	16.8	15.4	16.5	20.5	17.3
Lead	34	183	172	68.2	95	31.6	99.1	28.1	23.1	3.24	16.1	44.2	51	66.2	80.9	77.2
Mercury	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	1.18	3.2	0.804	0.633	0.728	0.605	0.685
Nickel	11	169	222	16.7	20.6	75.1	31.2	28.9	28.7	1.34	4.17	20.6	16.3	16.6	20	19.1
Selenium	10	10	10	10.7	10	17.2	14	1	1	4.05	10	1.05	3.41	2.78	2.36	3.29
Vanadium	184	10.9	113	533	585	801	1090	30.7	64	30.3	37.3	25.4	127	170	39.6	67.1
Zinc	123	743	749	154	304	104	308	117	84.1	29.3	37.1	131	170	144	148	187
TPH Criteria Working Group (TPH CWG)																
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.008	0.00852	0.008	0.0105	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.0204
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.0407	0.04	0.0467	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.0935	0.04	0.0913	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0403	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.0616	0.04	0.235	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0456	0.04
Aliphatics >C12-C16	0.747	3.06	2.76	0.1	2.12	10.5	5.26	0.1	0.287	0.1	0.1	0.765	0.624	1.92	1.61	0.83
Aliphatics >C16-C21	7.35	17.3	20.2	1.4	8.7	60.6	28.6	0.371	0.156	0.1	1.77	2.18	4.75	4.85	4.57	4.73
Aliphatics >C21-C35	73.8	146	171	5.68	39.9	465	216	8.72	3.55	10.8	10.5	9.69	38.4	31.5	23.6	25.6
Aliphatics >C35-C44	16.9	70.9	101	0.1	10.7	176	75	4.42	0.1	4.77	3.98	0.1	7.03	7.98	3.64	7.18
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.0726	0.04	0.0754	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0449
Aromatics >EC10-EC12	0.04	0.04	0.04	0.0407	0.04	0.156	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.355	1.3	1.42	0.1	1.54	4.82	2.14	0.1	0.1	0.1	0.339	4.7	1.56	0.899	1.64	1.95
Aromatics >EC16-EC21	3.07	6.13	6.15	2	12.7	25.6	44.6	0.442	0.1	1.09	0.999	29.4	7.33	5.15	5.08	9.33
Aromatics >EC21-EC35	21.7	35.7	41.6	5.7	51.8	132	96.3	6.32	1.05	12.1	8.41	60.2	34.5	26.6	19.7	33.1
Aromatics >EC35-EC44	8.3	18.1	27.4	1.12	17	70.4	39.3	5	0.526	11.9	6.21	17.7	12.9	11	8.44	14.7
Aromatics >EC40-EC44	3.24	7.65	12.5	0.1	5.13	29.6	15.6	2.17	0.1	5.2	2.47	6.59	5.06	4.05	3.15	6.58
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	12	31.5	22.7	193	215	24.7	12	21.8	12	12	12	78.1	92.8	59.9	45	56.8
Acenaphthene	16.1	8	8	29.3	48	77.1	73.8	25.4	8	8	8	144	38.2	17.1	30.7	30.7
Anthracene	31.5	77	113	318	482	114	212	83.5	16	16	16	259	167	127	112	117
Benz(a)anthracene	198	236	246	1110	1620	928	2300	322	14	32.8	23.9	739	642	577	369	453
Benzo(a)pyrene	179	240	195	1030	1610	965	1630	131	15	30.4	23.1	597	544	549	325	379
Benzo(b)fluoranthene	430	375	308	1680	2570	1970	4240	264	15	44.8	35.2	1080	1010	761	460	560
Benzo(k)fluoranthene	125	145	142	599	906	657	1110	110	14	21.2	16.8	386	324	336	175	188
Benzo(g,h,i)perylene	224	184	141	741	1180	998	1470	99.9	24	36.3	25.5	383	401	356	212	223
Chrysene	216	229	273	1060	1600	1120	3110	306	10	40.6	34.1	680	591	520	262	281
Dibenzo(a,h)anthracene	47.8	50.3	36.6	211	334	222	319	42.3	0.023	0.023	0.023	121	103	87.9	66.9	74.2
Indeno(1,2,3-cd)pyrene	160	153	122	646	1050	743	1000	88.4	0.018	23.2	0.018	349	361	304	198	230
Fluoranthene	337	483	500	2140	3470	2000	5920	824	0.017	55.5	39.7	1180	934	883	498	554
Fluorene	10	26.3	38.5	93.6	140	46	30.8	50.3	10	10	10	222	88.3	41.1	63.2	66.6
Naphthalene	47.8	116	62.4	592	612	158	330	33.4	9	35.3	26.5	172	414	165	164	202
Phenanthrene	197	376	402	1060	1760	1740	3900	250	15	53.6	39.5	973	742	545	435	481
Pyrene																
PAH, Total Detected USEPA 16	2.5	3.11	2.96	13.1	20.2	13.3	30.5	3.18	0.118	0.414	0.296	8.19	7.18	6.07	3.77	4.3
Naphthalene-d8 % recovery**	94.8	90.8	93.8	82.1	89.3	101	96.1	87.3	86.3	101	97.9	101	111	96	93	93.9
Acenaphthene-d10 % recovery**	91.1	86.7	88.7	73	82.8	96.4	93.8	82.6	79.4	97.5	94.8	99.6	108	94.1	91.3	91.8
Phenanthrene-d10 % recovery**	90.4	86.3	89.3	68.4	80.6	95.9	93.1	80.3	75.7	96.1	93	96	105	90.9	85.5	86.6
Chrysene-d12 % recovery**	91.7	86.8	91.7	66.5	78.6	104	98.3	80.9	74.7	87.7	85.7	105	109	96.3	92.6	94.4
Perylene-d12 % recovery**	99	95.2	95	68.1	83.7	113	104	83.8	82.1	85.6	84.6	108	117	103	102	107
Total Aliphatics >C12-C44	98.8	238	295	7.07	61.5	712	325	13.5	3.99	15.5	16.2	12.6	50.8	46.2	33.4	38.4
Total Aromatics >EC12-EC44	33.4	61.3	76.5	8.82	83.1	233	182	11.8	1.58	25.1	16	112	56.2	43.7	34.8	59.1
Total Aliphatics & Aromatics >C5-C44																
Metals - (Solid)																
Iron	276000	232000	149000	184000	<100000	347000	221000	30700	35100	61800	301000	45800	62200	68800	44600	57500
Manganese	10900	10000	3860	16600	8760	28200	23400	1070	2010	5840	3310	2300	7200	6020	1920	3710
Metals - (Liquid)																
Calcium	102000	85200	196000	197000	118000	142000	190000	41000	35600	183000	50600	84100	124000	131000	48100	68400
Magnesium	7120	7590	6920	11700	15300	10200	24100	18200	18500	23700	6090	30100	14600	32900	9940	14500
Phenols																
Phenol	0.01	0.0108	0.0107	0.01	0.01	0.01	0.011	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0106	0.0102
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	0.0862	-	0.0628	0.004	-	0.004	0.0246	0.0273	-	0.0941	0.109	0.268	-	0.114	0.299	-
pH	12	11.6	11.2	11.5	11.8	12.7	12.7	9.78	8.45	9.53	9.26	8.84	9.51	9.1	9.94	10.5
Sulphate, Total	4030	-	-	-	-	2510	5470	-	-	-	-	-	-	-	-	-
Sulphur, Total	-	-	0.127	0.252	-	-	-	0.02	-	0.229	0.101	0.125	-	0.058	0.155	-
Sulphate, Total potential	-	-	0.381	0.756	-	-	-	0.06	-	0.687	0.303	0.375	-	0.174	0.465	-
Sulphate, acid soluble (total)	0.403	-	0.102	0.34	-	0.251	0.547	0.02	-	1.05	0.196	0.242	-	0.238	0.406	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	44.1	12	12	12	12	12	12	12	12	12	12
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	06/10/2017	23/01/2018	-	-	23/01/2018	-	06/10/2017	-	23/01/2018	04/01/2018	23/12/2017	04/01/2018	23/12/2017	04/01/2018	04/01/2018	04/01/2018
Analysed By	Neville Mann	Paul Poynton	-	-	Christian Hallam	-	Neville Mann	-	Christian Hallam	Renata Bozhkov	Neville Mann	Barbara Urbanek-Walsh	Neville Mann	James Richards	Renata Bozhkov	Barbara Urbanek-Walsh
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Comments	0	0	-	-	0	-	0	-	0	0	0	0	0	0	0	0
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	0.13	0.13	0.13	0.13	-	-	0.013	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	TP3AF703	TP3AF801	TP3AF802	TP3AF803	TP3AF10V	TP3AF11V	TP3AF12V	TP3AF14V	TP3AF1V	TP3AF9V	TP3AF5V	TP3AF6V	TP3AF7V	TP3AF8V
Depth	1.5	0.25	0.5	0.75	0	0	0	0	2.7	0	1.4	2.1	2.5	1
Sampled Date	15/12/2017	15/12/2017	15/12/2017	15/12/2017	05/03/2018	05/03/2018	27/02/2018	26/02/2018	26/09/2017	09/03/2018	15/12/2017	15/12/2017	15/12/2017	15/12/2017
Carbon														
Soil Organic Matter (SOM)	2.03	1.95	3.95	3.07	1.66	1.51	1.95	2	10.5	2.14	2.21	7.98	2.81	8.98
Metals (Solids)														
Arsenic	14.5	19.1	11.6	9.73	11.9	12.2	14.5	10.8	7.57	13	9.97	32	11.9	33.8
Cadmium	0.848	0.669	0.316	0.209	0.216	0.218	0.02	0.02	0.923	0.362	0.02	0.623	0.02	0.288
Chromium	41.1	18.7	9	9	33.5	34	27.7	25.7	21.1	36.3	23.6	23.2	21.5	24.4
Copper	14.3	64.9	26.3	23.9	11.8	15.8	11.6	9.85	18.6	12.1	14.4	21.1	12.7	21
Lead	85.1	34.8	62.9	68.6	29.6	29.7	30.2	27.2	53	30.8	24.7	44.5	25	32.8
Mercury	0.57	1.4	1.4	1.58	0.14	0.14	0.14	0.14	0.659	0.14	0.828	0.963	0.729	0.844
Nickel	18.5	24.9	26.4	24.5	38.4	36.8	33	26.5	20.2	39.4	33	30.4	30.8	29.7
Selenium	2.67	10	10	10	1	1.15	1	1	4.13	1	1.45	1	1.69	1.11
Vanadium	170	92.8	55.6	84.6	60.1	59.7	56.1	52.8	44.8	65.8	52.6	53.3	49	61.2
Zinc	155	112	155	173	131	134	111	101	156	134	126	183	112	138
TPH Criteria Working Group (TPH CWG)														
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.118
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.0648
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.0533	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.0666	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0473	0.04	0.04	0.04	0.04	0.0418
Aliphatics >C10-C12	0.0966	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0718	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	1.15	2.1	1.01	1.98	0.1	0.1	2.63	0.1	0.1	0.1	0.1	0.1	3.55	0.1
Aliphatics >C16-C21	3.25	7.68	2.72	8.33	0.1	0.1	0.1	0.1	0.856	0.1	0.1	0.609	10	1.38
Aliphatics >C21-C35	19.6	31	13.2	29.1	0.1	2.59	2.91	1.63	12.7	0.487	0.171	10.7	7.42	11.5
Aliphatics >C35-C44	10.7	6.34	2.34	8.11	0.1	0.1	0.1	0.1	0.881	0.1	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.118
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0648
Aromatics >EC8-EC10	0.0555	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0403
Aromatics >EC10-EC12	0.0644	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0473	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.97	4.21	1.73	1.45	0.1	0.791	0.1	0.1	2.03	0.1	0.1	1.26	0.734	0.1
Aromatics >EC16-EC21	3.64	16.6	4	6.17	0.1	1.62	0.1	0.683	4.35	0.1	0.1	3.9	3.84	1.11
Aromatics >EC21-EC35	17.1	52.7	14.7	26.8	8.53	18.6	13.8	6.64	42.1	1.38	13.3	47.4	13.7	58.6
Aromatics >EC35-EC44	14.9	23.4	6.36	13.9	2.06	7.66	3.04	2.98	8.08	0.1	1.4	7.69	1.53	6.02
Aromatics >EC40-EC44	6.38	9.51	2.43	5.59	0.548	3.59	1.26	1.22	2.38	0.1	0.254	1.44	0.1	1.69
Polyaromatic Hydrocarbons (PAHs)														
Acenaphthylene	34.1	38.9	22.3	60.4	12	12	12	12	12	12	12	12	12	12
Acenaphthene	30.9	16.5	8	11.6	8	8	8	8	161	8	8	8	8	8
Anthracene	90.1	60.9	63.2	91.3	16	16	16	16	53.4	16	16	16	16	16
Benz(a)anthracene	215	293	167	315	14	14	14	14	133	14	14	31.2	14	27.9
Benzo(a)pyrene	173	312	127	289	15	15	15	15	142	15	15	61	15	26.4
Benzo(b)fluoranthene	297	472	208	449	15	15	15	15	349	15	15	62.8	30.7	51.1
Benzo(k)fluoranthene	118	175	83.4	178	14	14	14	14	86.8	14	14	39.4	14	14
Benzo(g,h,i)perylene	141	212	129	266	24	24	24	24	183	24	24	77.5	24	23.7
Chrysene	221	200	217	353	10	10	10	10	202	10	10	68.8	10	23.7
Dibenzo(a,h)anthracene	35.4	64.8	0.023	78.5	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	114	204	95.3	202	0.018	0.018	0.018	0.018	130	0.018	0.018	54.7	0.018	0.018
Fluoranthene	383	368	321	536	0.017	0.017	0.017	0.017	349	0.017	0.017	107	50	41
Fluorene	40.9	25.6	16.6	41.4	10	10	10	10	134	10	10	14.5	10	10
Naphthalene	122	92.6	76.9	148	9	9	9	9	845	9	9	19.8	20.3	17.1
Phenanthrene	353	235	218	345	15	15	15	15	660	15	15	81.1	59.4	37.5
Pyrene														
PAH, Total Detected USEPA 16	2.67	3.06	1.99	3.77	0.118	0.118	0.118	0.118	3.65	0.118	0.118	0.7	0.201	0.257
Naphthalene-d8 % recovery**	97.2	92.7	105	104	102	89	96.8	91.7	109	103	125	96.1	104	104
Acenaphthene-d10 % recovery**	94.7	89.8	102	99.9	111	92.3	101	102	104	101	116	90.3	101	104
Phenanthrene-d10 % recovery**	92.8	84.9	99.7	99	103	87.1	93.6	91.5	100	96.7	112	88.9	96.7	94.6
Chrysene-d12 % recovery**	94.9	87.1	91.5	93.9	100	88.7	94.9	83.2	99.2	91.2	110	85.1	97.1	91.4
Perylene-d12 % recovery**	98.6	99.3	88.6	94.9	86	81.5	90.5	94.1	104	90.8	114	88.9	99.6	88.9
Total Aliphatics >C12-C44	34.7	47.1	19.3	47.5	0.1	2.59	5.55	1.63	14.4	0.487	0.171	11.3	21	12.9
Total Aromatics >EC12-EC44	36.6	96.9	26.8	48.3	10.6	28.7	16.8	10.3	56.5	1.38	14.7	60.2	19.8	65.7
Total Aliphatics & Aromatics >C5-C44														
Metals - (Solid)														
Iron	56300	88000	79800	118000	35600	34500	41200	41600	26100	36600	41400	36900	42000	27800
Manganese	4890	3330	2880	3430	740	915	468	347	740	513	693	350	1150	205
Metals - (Liquid)														
Calcium	76600	66400	55400	69900	-	-	-	-	-	-	4220	8320	17900	-
Magnesium	13000	12400	10400	8670	-	-	-	-	-	-	8870	7640	9030	-
Phenols														
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0567	0.01	0.01	0.05	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0756	0.01	0.01	0.05	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.075	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.132	0.035	0.035	0.035	0.035	0.035
Inorganics														
Soluble Sulphate 2:1 extract as SO4 BRE	0.125	0.0444	-	0.11	-	-	-	-	-	-	-	-	-	-
pH	9.83	9.81	9.13	9.62	7.65	7.33	7.27	7.2	10.6	7.07	7.32	7.44	7.77	6.88
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.131	0.118	-	0.284	-	-	-	-	-	-	-	-	-	-
Sulphate, Total potential	0.393	0.354	-	0.852	-	-	-	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.115	0.0969	-	0.244	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	212	238	206	173	24.7	270	183	150	223	60
Asbestos														
Asbestos Quantification - Gravimetric - %	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	04/01/2018	03/01/2018	03/01/2018	04/01/2018	-	-	-	-	-	-	-	-	-	-
Analysed By	James Richards	James Richards	Renata Bozhkov	Barbara Urbanek-Walsh	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	None	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	N/C	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-
Comments	0	Fibre bundles in soil	0	0	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)														
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	0.13	0.13	0.13	-	-	-	-	-	-	-	-	-	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics														
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AG10	TP3AG10	TP3AG11	TP3AG13	TP3AG13	TP3AG501	TP3AG9	TP3AG901	TP3AG902	TP3AG10V	TP3AG11V	TP3AG12V	TP3AG13V	TP3AG14V	TP3AG1V	TP3AG2V	TP3AG3V	TP3AG4V	TP3AG5V	TP3AG6V	TP3AG7V	TP3AG8V	TP3AG9V
Depth	1	1.5	0.8	0.8	1.2	0.5	1.5	0.3	0.9	0	0	0	0	0	0	0	0	0	2	0	0	0	0
Sampled Date	########	19/01/2018	19/01/2018	19/01/2018	19/01/2018	26/09/2017	19/01/2018	26/09/2017	26/09/2017	05/03/2018	05/03/2018	27/02/2018	27/02/2018	26/02/2018	23/01/2018	23/01/2018	24/01/2018	29/01/2018	26/09/2017	30/01/2018	30/01/2018	30/01/2018	09/03/2018
Carbon																							
Soil Organic Matter (SOM)	3.36	2.59	1.9	1.67	2.03	1.16	3.67	1.68	0.35	2.98	3.1	3.62	2.12	3.03	2.1	1.26	0.841	1.02	1.91	0.852	4.83	1.34	2.34
Metals (Solids)																							
Arsenic	8.08	6	13.4	6	6.31	6	7.36	6	27.6	13.4	12.3	13.4	15.7	12.8	14.8	13	14.4	15.9	10.6	11.4	13.5	15	12.6
Cadmium	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.313	0.193	0.02	0.02	0.02	0.146	0.2	0.274	0.122	0.18	0.02	0.186	0.0415	0.021
Chromium	303	319	380	391	187	9	79.6	126	9	34.9	34	30.7	27.1	25.3	36.9	34	26.1	31.8	28.3	32.3	33.5	31	30.3
Copper	45.2	32.7	69.8	14.5	14.8	16.3	20.7	14	14	13.9	11.7	11.4	11.4	10.2	14.1	14	9.99	10.6	10.8	8.78	12.9	10	11
Lead	28	35.3	35.6	32.5	41.5	17.3	73.4	42.6	11.4	40.2	30.3	33.6	28.5	29.7	23.2	35.5	25.8	28.8	28.1	28	34.3	27.9	29.3
Mercury	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.694	0.14	0.14	0.14	0.14
Nickel	39.5	32.9	36.4	11.1	6.8	11.2	40.4	9.43	6.85	33.7	27.3	29.6	28.8	24.1	32.2	43.6	37.1	40.6	37.6	38	24.2	39	35.1
Selenium	10	10	12.5	10	10	10	10	10	22.2	1	1	1	1	1	1	10	1	1.11	1	1	1	1	1
Vanadium	310	370	512	344	223	105	197	173	23.5	62.9	55.5	57.1	55.5	52.3	53.7	57.8	49.8	59.8	65.5	58.5	53.3	57.3	60.1
Zinc	116	131	107	87.5	108	55.6	241	135	36.1	155	120	115	108	102	112	120	104	124	109	122	118	114	126
TPH Criteria Working Group (TPH CWG)																							
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.002
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.003
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0584	0.04	0.01
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0949	0.04	0.01
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01
Aliphatics >C12-C16	2.96	2.7	2.22	1.57	0.737	2.81	1.54	1.96	1.34	0.139	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.56	0.1	0.1	0.242	0.1
Aliphatics >C16-C21	23.4	19.5	17.8	11.9	3.52	9.69	11.4	10.8	1.96	0.363	0.1	0.349	0.1	0.1	0.1	0.1	0.1	0.1	2.74	0.1	1.24	0.1	0.1
Aliphatics >C21-C35	238	184	167	38	24.5	52.9	69.5	93.1	3	5.24	7.92	7.58	3.63	2.23	1.29	0.855	0.1	1.09	3.57	0.1	3.74	1.47	0.1
Aliphatics >C35-C44	81.2	62.1	54.9	7.65	6.41	26.6	33.4	89.6	0.698	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	12.9	0.1	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0642	0.04	0.01
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01
Aromatics >EC12-EC16	1.13	1.15	1.1	0.463	0.1	0.321	1.05	1.02	0.1	0.767	0.591	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.37	1.24	0.1	0.1	0.409
Aromatics >EC16-EC21	5.97	5.47	5.3	6.92	1.71	0.75	6.12	4.57	0.1	2.17	1.58	1.03	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.63	0.393	0.1	0.656
Aromatics >EC21-EC35	53.1	45.6	42.8	28.7	11.2	33.2	58	82.4	0.1	33.4	44	32.6	15.1	6.09	2.99	1.48	2.43	1.36	0.1	0.1	10.3	2.94	10.9
Aromatics >EC35-EC44	28.2	24.9	22	7.42	3.36	25.7	49.7	115	0.1	9.04	10.2	10.6	7.63	1.19	3.25	0.341	0.726	1.33	0.481	17.9	2.39	1.23	19.3
Aromatics >EC40-EC44	11.7	10.3	8.92	2.61	1.21	10	21.6	55	0.1	3.24	3.16	4.1	2.15	0.1	1.99	0.1	0.1	0.627	0.1	11.6	0.477	0.1	9.63
Polyaromatic Hydrocarbons (PAHs)																							
Acenaphthylene	30.6	110	23.6	28.4	44	12	101	40.6	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Acenaphthene	14.3	23	13.7	10.5	13.5	12	19.2	44.2	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Anthracene	68.4	218	48.8	62.3	68.7	39.6	149	69.8	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Benz(a)anthracene	262	913	241	271	366	359	560	316	40.6	14	14	14	14	14	14	14	14	14	24	14	32.6	14	14
Benzo(a)pyrene	268	920	266	268	382	359	705	208	34.9	15	15	15	15	15	15	15	15	15	26.4	15	15	15	15
Benzo(b)fluoranthene	495	1370	507	427	596	679	811	342	65.9	15	15	22.5	15	15	15	15	15	15	43.2	15	15	15	15
Benzo(k)fluoranthene	137	492	218	198	210	236	368	136	18.5	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Benzo(g,h,i)perylene	253	658	298	231	295	330	619	171	36.7	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Chrysene	319	860	327	301	358	366	587	310	22.1	10	10	10	10	10	10	10	10	10	16.6	10	10	10	10
Dibenzo(a,h)anthracene	59.4	162	67.8	57	81.3	80.4	143	41.8	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	193	572	230	197	256	260	499	127	25.3	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Fluoranthene	479	2000	536	415	609	492	920	352	68.2	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	37.8	0.017	0.017	0.017	0.017
Fluorene	20.7	54.7	15.8	21.3	21.7	10	46.6	27.6	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Naphthalene	239	239	149	87.7	81.6	45.5	356	220	40.3	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Phenanthrene	379	1010	381	239	260	182	478	220	61.4	15	15	24.6	15	15	15	15	15	15	23.1	15	15	15	15
Pyrene																							
PAH, Total Detected USEPA 16	3.6	11.1	3.71	3.14	4.13	4	7.22	3.52	0.466	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.118	0.22	0.118	0.118	0.118	0.118
Naphthalene-d8 % recovery**	85.1	96.6	103	91	93.3	101	95.8	102	94.4	130	95.7	105	101	95	103	107	103	97.9	106	106	110	105	88
Acenaphthene-d10 % recovery**	82.2	92.3	97.2	85.8	90.1	96.3	91.8	97.9	89.4	130	94	111	106	108	98.8	102	100	93.4	102	99.9	97.7	98.9	94.5
Phenanthrene-d10 % recovery**	81.8	90.5	96.8	85.6	88	95	91.1	96.2	87.1	120	89.5	102	97.9	94.6	96	99.3	95	90.9	99.8	95.3	81.5	95	82.9
Chrysene-d12 % recovery**	86.8	95.3	101	86.8	86.9	96.4	91.9	99.1	85.5	120	87.7	105	99.8	86.4	84.4	96.2	110	90.4	98.1	91.2	72.8	90.5	80.7
Perylene-d12 % recovery**	95.8	105	110	91	96.1	104	101	106	85.8	130	85.4	103	101	93.7	78.7	102	103	91.5	103	93.3	73.9	92.7	80.2
Total Aliphatics >C12-C44	345	269	241	59.2	35.2	92	116	195	7	5.74	7.92	7.93	3.63	2.23	1.29	0.855	0.1	1.09	7.87	12.9	4.99	1.71	0.1
Total Aromatics >EC12-EC44	88.4	77.2	71.3	43.5	16.2	59.9	115	203	0.1	45.4	56.4	44.2	22.7	7.28	6.24	1.82	3.15	2.69	0.851	19.8	13	4.17	31.3
Total Aliphatics & Aromatics >C5-C44																							
Metals - (Solid)																							
Iron	197000	234000	173000	229000	180000	186000	139000	111000	362000	30100	28100	34600	39300	38300	40500	40500	35000	34200	49800	32800	30100	36900	41000
Manganese	11800	11200	20100	14700	8370	5170	5800	13500	32800	661	207	375	412	268	287	542	961	451	1310	439	220	395	500
Metals - (Liquid)																							
Calcium	123000	146000	146000	139000	75200	119000	178000	180000	1750	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	14100	13100	15100	4970	6880	18200	18600	17700	635	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																							
Phenol	0.01	0.01	0.01	0.0111	0.011	0.01	0.01	0.01	0.01	0.01	0.0138	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																							
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.042	0.004	0.004	-	0.131	0.109	0.136	0.0676	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	11.9	12.4	12.6	12.4	12.3	11.3	9.93	11.4	10.6	7.52	7.58	7.39	7.59	7.33	8.01	8.24	-	-	7.86	-	-	-	7.16
Sulphate, Total	-	-	-	-	-	11700	-	6490	518	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	-	0.208	0.215	0.16	-	-	0.184	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Total potential	-	0.624	0.645	0.48	-	-	0.552	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	-	0.351	0.35	0.297	-	1.17	0.287	0.649	0.0518	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	233	225	242	247	172	101	87.5	110	71.1	123	121	260	188	277
Asbestos																							
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	23/01/2018	-	-	24/01/2018	06/10/17	-	06/10/17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysed By	-	Eva Guerra	-	-	Christian Hallam	Christian Hallam	-	Christian Hallam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Tremolite	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comments	-	0	-	-	0	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																							
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	0.13	0.13	0.13	0.013	-	0.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																							
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AH10	TP3AH101	TP3AH11	TP3AH9	TP3AH901	TP3AH902	TP3AH1001	TP3AH1002	TP3AH1003	TP3AH1101	TP3AH1102	TP3AH1103	TP3AH1201	TP3AH1202	TP3AH1203	TP3AH11V
Depth	0.8	0.2	1	1	0.5	1.5	0.3	1	2	0.5	1.5	2.5	0.5	1	1.6	0
Sampled Date	19/01/2018	26/09/2017	19/01/2018	19/01/2018	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	07/12/2017	26/03/2018
Carbon																
Soil Organic Matter (SOM)	3.38	2.47	0.722	1.83	1.43	0.548	1.09	0.35	0.35	3.05	1.14	0.35	0.988	1.11	1.93	0.967
Metals (Solids)																
Arsenic	9.96	9.28	6	8.53	6	12.4	6	6	19	6	6.59	32	6	6	8.08	19.8
Cadmium	0.2	0.2	0.2	0.2	2.43	4.21	2.49	0.304	3.66	1.91	2.46	5.05	1.84	1.98	1.88	0.02
Chromium	709	54.4	773	377	348	9	600	12.9	9	1120	73.2	9	1260	984	143	31.9
Copper	77.2	56.8	31.3	41.9	35	14	20.6	14	14	14	14	14	14	43.9	14	11.8
Lead	34.3	51.8	21.1	39.2	35.8	8.42	46.1	7	11.2	19.4	18.8	12.8	17.8	43.1	46.5	29
Mercury	1.4	1.4	1.4	1.4	1.4	1.88	1.4	1.4	1.43	1.4	1.4	1.4	1.4	1.4	1.4	0.14
Nickel	48.8	24.3	22.4	29.9	22.6	2	12.1	2	2	8.08	8.06	2.42	3.23	30.2	11.9	45.6
Selenium	12.5	10	17.4	10.6	10	10	13.5	10	10	19.2	10	20.1	22	15.7	10	1
Vanadium	587	230	616	309	279	46.9	567	28.5	129	706	174	39.1	923	571	170	-
Zinc	85.7	149	41.5	100	104	19	94.2	19	19	44	30.5	34.4	291	107	82.8	123
TPH Criteria Working Group (TPH CWG)																
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.0113	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0488	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0933	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	2.19	0.849	0.1	10.7	5.66	12.3	2.57	0.612	0.516	0.1	2.79	0.1	0.1	1.77	0.1	0.1
Aliphatics >C16-C21	12.1	6.25	3.07	23.8	17.5	19.3	11.8	3.03	2.4	2.4	7.66	1.1	4.14	9.95	3.63	0.1
Aliphatics >C21-C35	72.8	49.4	23.7	69.2	73.6	85.5	91.4	25.2	15.5	42	22.6	7.94	63.5	83.1	23.5	0.1
Aliphatics >C35-C44	18.3	24.6	5.25	42.5	40.7	8.95	26	2.2	2.13	8.82	5.73	0.842	20.9	25.2	3.44	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0618	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	1	1.73	0.439	3.08	1.3	3.6	1.13	0.1	0.1	1.1	1.1	0.1	0.1	0.964	0.1	0.1
Aromatics >EC16-EC21	4.32	8.05	2.89	10.6	6.35	8.88	6.24	0.599	1.57	4.72	4.94	1.15	0.1	5.09	1.57	0.1
Aromatics >EC21-EC35	22.4	35.1	13.9	51.8	55	44.4	36.8	7.84	16	33.6	29.3	11	17.6	31.3	21.3	0.241
Aromatics >EC35-EC44	10	18	5.98	51.1	65.6	13.7	14.4	3.58	3.23	29.5	10.6	0.76	6.56	15.8	3.54	0.353
Aromatics >EC40-EC44	4.01	7.22	2.34	24.1	29.3	5.8	5.2	1.46	0.1	13.6	3.71	0.1	1.64	6.58	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	30.1	41.1	57.7	34.1	12	12	12	12	12	34.2	17.1	12	12	19.1	12	12
Acenaphthene	10.6	82.1	16.9	39.4	10.3	23.2	37.5	8	9.37	9.74	27.6	8	8	39.3	12.2	8
Anthracene	56.9	163	97.2	58.5	16	16	59.9	16	16	58.9	48.9	16	16	53.6	16	16
Benz(a)anthracene	165	604	333	287	119	67.6	590	57.9	124	240	348	37.4	32.7	399	33.8	14
Benzo(a)pyrene	151	650	286	321	104	49.1	665	49.8	148	257	357	36.5	37.8	406	38.4	15
Benzo(b)fluoranthene	266	1100	525	540	250	71.6	1070	68.3	157	455	550	44.4	53	668	46.5	15
Benzo(k)fluoranthene	112	378	164	200	94	24.6	407	34.3	71	174	182	21.5	31.4	254	24.3	14
Benzo(g,h,i)perylene	147	581	218	294	145	44.6	531	48.8	109	273	264	32.6	39.4	341	42.1	24
Chrysene	216	590	378	352	164	45.2	676	45.3	129	232	324	35.8	39	353	45.1	10
Dibenzo(a,h)anthracene	36.4	131	60.6	72.7	38.5	0.023	127	0.023	0.023	65.3	63	0.023	0.023	84.7	0.023	0.023
Indeno(1,2,3-cd)pyrene	114	422	186	232	128	30.2	429	34.9	81.6	221	213	26.8	31.6	285	29.7	0.018
Fluoranthene	403	918	609	535	177	81.5	1010	72.4	173	309	513	69.5	86.9	604	83.2	0.017
Fluorene	34.4	55.4	54.6	30.4	10	16.4	18.1	10	10	16.1	18.3	10	10	25.3	11.7	10
Naphthalene	210	441	667	126	30.5	35.8	49.9	9	9	102	34.4	29.8	9	98.7	44.7	9
Phenanthrene	357	685	361	242	86.8	80.5	551	39.8	75.4	219	372	60.7	73	415	87.4	15
Pyrene																
PAH, Total Detected USEPA 16	2.6	7.7	4.48	3.91	1.51	0.642	7.08	0.521	1.24	2.96	3.8	0.458	0.486	4.52	0.564	0.118
Naphthalene-d8 % recovery**	86.4	101	106	91.9	94.5	95.2	100	90.3	89.7	93.6	100	90.8	88.2	100	95.9	102
Acenaphthene-d10 % recovery**	81.7	96	100	88.9	91.2	92.5	95.9	88.8	88.3	90.5	97.4	89.5	86.5	95.7	95.5	105
Phenanthrene-d10 % recovery**	81.7	95.2	99.7	88.7	89.1	91	94.8	87.2	87.4	87.9	96.4	87.7	85.8	94.3	94.2	107
Chrysene-d12 % recovery**	84.6	99.3	98.3	93	98.3	92.8	99.7	91.4	93.6	92.9	99.3	92.1	92.6	98.2	98.2	105
Perylene-d12 % recovery**	89.1	106	102	102	106	94.7	102	99	102	100	100	98.6	99.4	101	106	107
Total Aliphatics >C12-C44	105	81	32	146	138	126	132	31	20.6	53.2	38.7	9.88	88.5	120	30.6	0.1
Total Aromatics >EC12-EC44	37.8	62.9	23.2	117	128	70.6	58.6	12	20.8	68.9	46	12.9	24.2	53.2	26.4	0.595
Total Aliphatics & Aromatics >C5-C44																
Metals - (Solid)																
Iron	198000	135000	224000	213000	189000	315000	199000	31100	290000	179000	206000	374000	190000	187000	139000	37600
Manganese	17500	7030	22900	12600	17000	8630	25800	5240	10800	40800	10600	31200	46500	33400	10200	298
Metals - (Liquid)																
Calcium	211000	82500	212000	130000	195000	40000	247000	325000	58900	266000	163000	3940	330000	255000	147000	-
Magnesium	22200	11700	13500	12100	14500	3320	18200	40600	3710	15800	10600	266	17300	14800	13800	-
Phenols																
Phenol	0.01	0.0112	0.01	0.01	0.01	0.0222	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	0.004	0.136	0.0352	0.164	-	-	-	-	-	-	-	-	-	-	-	-
pH	12.7	11	12.6	11.6	11.9	11.4	12.6	11.8	11.8	12.7	12.2	10.2	12.8	12.7	12.5	-
Sulphate, Total	-	2180	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.213	-	0.242	0.257	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Total potential	0.639	-	0.726	0.771	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.302	0.218	0.393	0.478	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12	12	12	44.8	12	102
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	0.0294	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	06/10/2017	23/01/2018	23/01/2018	19/12/2017	19/12/2017	19/12/2017	-	19/12/2017	-	19/12/2017	19/12/2017	19/12/2017	19/12/2017	-	-
Analysed By	-	Neville Mann	Paul Poynton	Christian Hallam	James Richards	Renata Bozhkov	Neville Mann	-	Neville Mann	-	Renata Bozhkov	Renata Bozhkov	James Richards	James Richards	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	0.0294	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	-
Amosite (Brown) Asbestos	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	-
Crocidolite (Blue) Asbestos	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	-
Fibrous Anthophyllite	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	-
Fibrous Tremolite	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	-
Fibrous Actinolite	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	-
Non-Asbestos Fibre	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	-
Comments	-	0	0	Soil containing material typical of AC	0	0	0	-	0	-	0	0	0	0	-	-
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	-	0.335	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	TP3AH13V	TP3AH14V	TP3AH1V	TP3AH2V	TP3AH3V	TP3AH4V	TP3AH5V	TP3AH6V	TP3AH7V	TP3AH8V	TP3AH9V	TP3AH12V	TP3AI10	TP3AI11	TP3AI11	TP3AI301	TP3AI601	TP3AI901	TP3AI902	TP3AI1001
Depth	0	0	1.05	0	0	0	0	0	0	0	2	1.8	1	0.5	1.5	0.3	0.5	0.3	0.8	0.4
Sampled Date	26/03/2018	26/03/2018	26/09/2017	23/01/2018	24/01/2018	29/01/2018	29/01/2018	30/01/2018	30/01/2018	30/01/2018	07/12/2017	07/12/2017	19/01/2018	19/01/2018	19/01/2018	26/09/2017	26/09/2017	07/12/2017	07/12/2017	07/12/2017
Carbon																				
Soil Organic Matter (SOM)	4.24	6.95	3.12	1.08	4.86	1	0.952	2.84	1.95	1.72	3.29	6.02	1.11	0.602	0.484	3.05	0.662	3.15	1.37	1.72
Metals (Solids)																				
Arsenic	13.9	15	10.1	12.1	10.7	15.1	13.1	14.6	13.4	11.6	10.4	14.9	6	6	6.06	6	6	6	6	8.68
Cadmium	0.0955	0.293	0.208	0.2	0.732	0.137	0.151	0.0844	0.0756	0.02	0.616	0.83	0.2	0.2	0.2	0.726	0.2	2.34	2.04	2.66
Chromium	35.3	36.4	32.8	32.9	5.63	31.3	34.8	30.4	32.1	34.4	61.9	36.6	742	739	308	55	9	9	70.3	89.4
Copper	13.6	14.7	13.9	14	530	12.1	10.9	12.3	11	10.3	17.8	15.9	56.6	25.3	24.4	17.2	33.4	14	24.9	14
Lead	35.8	42.5	27.8	31.9	238	28.3	29	35.1	30.2	25.3	33.5	49.5	37.6	16.5	18.9	28.5	11.8	55.5	24.2	26.9
Mercury	0.14	0.14	0.676	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Nickel	26.5	25.5	26.2	43.2	15.7	37.5	38	27.4	31.5	32.5	35.7	29.9	31.3	13.8	15.1	15.5	8.59	30.7	20.1	19.5
Selenium	1	1	1	10	1	1	1	1	1	1	10	10	15.7	13.8	10	10	10	10	10	10
Vanadium	-	-	54.6	54.6	42.1	54.4	58.8	56.5	59.4	56.7	65.9	61.6	627	551	269	186	115	190	155	172
Zinc	125	132	119	98.6	265	140	128	118	117	113	107	145	87.3	28.9	23.5	75.5	45.5	181	62.3	63.5
TPH Criteria Working Group (TPH CWG)																				
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.0176	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.124	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.0816	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.128	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.251	0.04	0.04	0.04	0.04	0.04	0.0402	0.04	0.115	0.04	0.04	0.04	0.04	0.04	0.04	0.0561	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.217	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0702	0.04	0.04	0.04	0.04	0.04	0.04	0.105	0.04	0.04	0.0577
Aliphatics >C12-C16	0.1	2.41	0.1	0.563	0.1	0.1	0.1	0.1	0.1	0.1	19.4	0.1	1.27	1.51	1.31	2.29	6.92	1.2	2	25.9
Aliphatics >C16-C21	1.33	3.46	0.1	0.715	0.1	0.1	0.1	0.1	0.1	0.1	31.9	0.1	10.2	14.6	11.7	21.1	22.1	12.3	15.3	59.5
Aliphatics >C21-C35	7.86	10.5	1.14	0.211	1.49	1.09	1.56	3.74	3.45	0.1	30.4	2.47	81.7	155	120	247	84	116	122	130
Aliphatics >C35-C44	2.26	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	4	0.1	31.5	52.7	42.1	76.6	18	65.9	86.8	24.6
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.168	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0837	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.144	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0473	0.04	0.04	0.04	0.04	0.04	0.04	0.0693	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	2.74	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	6.44	0.1	1.88	0.1	0.1	1.37	0.862	1.01	1.63	3.77
Aromatics >EC16-EC21	1.38	3.13	0.1	0.1	0.1	0.133	0.1	0.621	0.1	0.2	15	0.1	5.57	3.44	2.37	9.43	5.02	10.1	10.6	13.8
Aromatics >EC21-EC35	29.8	53.6	5.87	2.14	1.1	1.9	1.66	5.2	4.55	1.95	33.1	31.4	29.7	36.4	27.1	98.4	23.9	103	103	38.5
Aromatics >EC35-EC44	10.3	8.32	2.77	0.1	0.128	0.1	0.392	1.34	0.1	0.1	8.3	3.64	17.8	20.5	15.7	59	12.5	78.9	109	17
Aromatics >EC40-EC44	4.39	2.66	0.929	0.1	0.1	0.1	0.1	0.367	0.1	0.1	2.68	0.1	7.91	8.49	6.53	24.3	5.36	32.7	50.6	6.49
Polyaromatic Hydrocarbons (PAHs)																				
Acenaphthylene	12	12	12	12	12	12	12	12	12	12	12	12	36	12	15.9	97.3	12	138	35.5	23.1
Acenaphthene	8	8	8	8	8	8	8	8	8	8	97.1	8	94.8	8	11.9	18.1	8	48.2	18.9	21
Anthracene	16	16	16	16	16	16	16	16	16	16	71.5	16	167	16	36.6	174	16	262	61.8	42.7
Benz(a)anthracene	14	14	14	14	14	14	14	47	14	14	30	37.8	942	36.9	206	688	25.1	921	325	163
Benzo(a)pyrene	15	15	15	15	15	15	15	15	15	15	15	51.5	1070	52	200	712	40.6	878	326	133
Benzo(b)fluoranthene	29.4	39.8	15	15	15	15	15	15	15	15	34.6	88.3	1670	105	312	1190	62.4	904	497	272
Benzo(k)fluoranthene	14	14	14	14	14	14	14	14	14	14	14	29.1	625	42.6	116	401	20.3	562	204	123
Benzo(g,h,i)perylene	24	24	24	24	24	24	24	24	24	24	24	65.2	835	51.5	165	578	38.5	682	347	175
Chrysene	20	23.3	10	10	10	10	10	17.9	10	10	37.3	74.6	1160	52.3	203	639	31	838	327	204
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	211	0.023	45.3	135	0.023	169	69.4	40.1
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	41.4	691	42.6	135	445	26.1	570	259	134
Fluoranthene	33.8	41.4	0.017	0.017	0.017	0.017	0.017	31.6	0.017	0.017	159	91.1	1670	104	306	1030	57.4	1530	449	287
Fluorene	10	10	10	10	10	10	10	10	10	10	135	10	68.7	10	21.2	55.2	10	139	28.6	22.4
Naphthalene	9	9	9	9	9	9	9	32.8	9	9	226	31	242	39.3	117	201	29.3	490	137	165
Phenanthrene	22.9	31.6	15	15	15	15	15	45.9	15	15	381	83.8	1010	98	200	428	45.5	884	237	205
Pyrene																				
PAH, Total Detected USEPA 16	0.132	0.168	0.118	0.118	0.118	0.118	0.118	0.2	0.118	0.118	1.29	0.664	11.9	0.698	2.33	7.81	0.422	10.4	3.88	2.24
Naphthalene-d8 % recovery**	94.9	90.7	106	116	109	101	106	114	99.5	97.9	101	117	101	95.6	92.3	100	95.2	89.9	92.9	93.3
Acenaphthene-d10 % recovery**	93.3	91.9	102	105	105	92.1	102	108	95.5	96.1	98	113	96.5	91.7	87.1	94.9	90.5	87.9	89.5	90.9
Phenanthrene-d10 % recovery**	94.8	99.2	98.4	101	101	85.6	98.7	103	91.7	95.5	94.7	110	96.5	90.7	87.4	94.5	90.1	87.6	87.1	87.5
Chrysene-d12 % recovery**	87.2	97.9	94.5	99.7	110	89.4	98.2	102	95.7	88.2	99	110	103	91.4	90.9	100	90.4	95.5	94.2	92.6
Perylene-d12 % recovery**	102	104	96.9	105	94.8	79.3	98.5	107	95.8	87.2	107	118	111	99.3	98.2	109	94.7	103	101	101
Total Aliphatics >C12-C44	11.4	16.3	1.14	1.49	1.49	1.09	1.56	3.74	3.45	0.1	85.8	2.47	125	224	175	347	131	195	226	240
Total Aromatics >EC12-EC44	41.4	67.7	8.64	2.14	1.23	2.03	2.05	7.17	4.55	2.15	62.8	35.1	55	60.4	45.2	168	42.3	193	225	73.1
Total Aliphatics & Aromatics >C5-C44																				
Metals - (Solid)																				
Iron	26300	23900	33700	38100	27800	32800	19400	41000	39200	29800	34000	33000	162000	191000	167000	108000	128000	171000	170000	218000
Manganese	251	282	393	738	902	451	219	430	369	489	540	245	22700	19700	10100	9730	5330	5800	11000	20500
Metals - (Liquid)																				
Calcium	-	-	-	-	-	-	-	-	-	-	16400	5010	206000	248000	167000	159000	137000	161000	171000	180000
Magnesium	-	-	-	-	-	-	-	-	-	-	9690	7150	17500	8820	6360	37000	28500	27200	17800	11400
Phenols																				
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0105	0.0106	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0152	0.0109	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																				
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	-	-	-	-	-	-	-	-	0.0064	0.0091	-	0.136	0.319	-	-	-
pH	-	-	7.86	7.76	-	-	-	-	-	-	7.87	7.91	12.7	12.7	12.7	11.8	9.98	11.2	11.5	12.1
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5420	18700	-	-	-
Sulphur, Total	-	-	-	-	-	-	-	-	-	-	-	-	0.199	0.164	-	-	-	-	-	-
Sulphate, Total potential	-	-	-	-	-	-	-	-	-	-	-	-	0.597	0.492	-	-	-	-	-	-
Sulphate, acid soluble (total)	-	-	-	-	-	-	-	-	-	-	-	-	0.271	0.19	-	0.542	1.87	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	246	398	262	86.7	21.5	142	135	123	193	199	96.5	307	12	12	12	15.5	12	12	12	12
Asbestos																				
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Date of Analysis	-	-	-	-	-	-	-	-	-	-	-	-	23/01/2018	-	23/01/2018	06/10/2017	06/10/2017	19/12/2017	19/12/2017	19/12/2017
Analysed By	-	-	-	-	-	-	-	-	-	-	-	-	Christian Hallam	-	Christian Hallam	Neville Mann	Neville Mann	Renata Bozhkov	Renata Bozhkov	Renata Bozhkov
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/C	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Comments	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	0	0	Loose fibres in soil	0
Volatile Organic Compounds (VOCs)																				
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	0.13	0.13	0.13	0.13	0.13	-	-	0.13	0.13	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																				
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AI1002	TP3AI1101	TP3AI1102	TP3AI13V	TP3AI14V	TP3AI1V	TP3AI2V	TP3AI3V	TP3AI3V	TP3AI4V	TP3AI5V	TP3AI6V	TP3AI7V	TP3AI8V	TP3AI9V	TP3AI10V	TP3AI11V	TP3AJ101	TP3AJ1V	TP3AJ2V
Depth	1.5	1	2	0	0	0	0	0	1.5	0	0	0	0	0	1.1	2.4	2.6	0.2	1.6	0
Sampled Date	07/12/2017	07/12/2017	07/12/2017	26/03/2018	26/03/2018	23/01/2018	23/01/2018	24/01/2018	26/09/2017	29/01/2018	29/01/2018	30/01/2018	30/01/2018	30/01/2018	07/12/2017	07/12/2017	07/12/2017	26/09/2017	26/09/2017	23/01/2018
Carbon																				
Soil Organic Matter (SOM)	1.3	1.53	0.35	7.83	2.88	2.17	1.01	0.952	1.36	2.67	2.34	0.772	1.52	1.49	8.4	2.59	2.53	7.28	3.43	1.02
Metals (Solids)																				
Arsenic	17.3	23.4	6.33	13.8	12.6	11	16.6	12.8	9.76	13.4	12.7	14.4	12.6	15	14.4	13.7	12.2	12.6	10.7	13.9
Cadmium	4.17	2.01	1.77	0.323	0.0374	0.879	0.0609	0.201	0.179	0.203	0.148	0.051	0.0281	0.0632	0.77	0.489	0.418	0.2	0.299	0.02
Chromium	9	796	566	35.2	33	32.1	30	26.7	33.6	33.7	36	25.2	30	36.1	22.7	24.6	25.6	80.2	30.5	31
Copper	19.5	29.9	14	13.8	11.4	14.7	10.1	9.31	11	13.5	13.2	10.5	11.2	13.1	17.8	11.1	11.2	37.4	14.3	8.98
Lead	19.6	28	15.4	40.4	29.9	103	27.4	24	33.5	35.6	27.6	24.4	25.4	31.4	42.7	26.7	27.2	239	31.5	32.3
Mercury	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.741	0.14	0.14	0.14	0.14	0.14	0.14	0.725	0.865	0.905	1.4	0.713	0.14
Nickel	10.9	58.8	12.4	23.3	29	30.9	38.5	34.1	38.2	32.9	38.1	31.2	36.7	39.4	25.7	30.8	30.5	29.6	32.4	38.8
Selenium	14.4	15.5	12.3	1	1	1	1.05	1	1	1	1	1	1	1	1	1	1	10	1	1
Vanadium	297	635	503	-	-	45.5	60.2	49.1	61.6	61.3	60	46.3	55.5	55.5	49.8	60.9	59.8	224	57	55.4
Zinc	40	78	34.3	127	117	253	117	102	128	125	115	102	114	113	171	115	116	711	116	122
TPH Criteria Working Group (TPH CWG)																				
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.0111	0.0123	0.013
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.0403	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.0587	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	8.77	1.75	0.972	20.1	1.06	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.74	0.759	0.1	1.24	0.211	0.1
Aliphatics >C16-C21	17.5	15	4.47	12.7	0.665	1.68	1.17	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.06	1.23	0.453	8.05	0.484	0.1
Aliphatics >C21-C35	33	141	48.6	0.1	6.32	7.03	0.952	1.72	0.1	1.05	0.1	1.1	2.59	2.65	8.8	10.5	2.96	48.8	7.07	0.1
Aliphatics >C35-C44	7.45	39.5	8.9	6.13	5.25	1.12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.802	0.1	13.2	0.47	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	2.89	0.88	0.32	8.09	0.237	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.253	1.35	0.263	0.1
Aromatics >EC16-EC21	9.56	5.69	1.32	0.1	0.1	0.533	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.5	0.442	0.1	8.79	0.607	0.446
Aromatics >EC21-EC35	36.3	50.2	14.4	0.1	15.8	3.52	1.21	0.449	0.1	2.35	0.578	0.717	2.45	1.79	58.2	46.4	10.1	35.1	24	1.78
Aromatics >EC35-EC44	15.1	23.6	4.03	0.1	7.93	0.83	0.517	0.578	0.1	0.406	0.904	0.195	0.4	0.1	5.88	7.88	1.25	13.9	5.82	5.51
Aromatics >EC40-EC44	5.49	8.98	1.43	0.1	3	0.1	0.1	0.1	0.1	0.1	0.502	0.1	0.1	0.1	0.1	2.59	0.1	5.15	1.88	3.33
Polyaromatic Hydrocarbons (PAHs)																				
Acenaphthylene	13.9	12	12	12	12	12	12	12	12	12	12	12	12	12	32	12	12	391	19.2	12
Acenaphthene	27.5	30.3	8	8	8	8	8	8	8	8	8	8	8	8	40.2	8	8	56.9	26.8	8
Anthracene	53.2	36.5	16	16	16	16	16	16	16	16	16	16	16	16	84.4	16	16	625	16	16
Benz(a)anthracene	500	349	168	14	14	14	14	14	14	24.4	14	14	14	14	248	20.5	14	1910	42.6	14
Benzo(a)pyrene	567	327	176	15	15	15	15	15	15	27.4	15	15	15	15	214	34.1	15	1860	59	15
Benzo(b)fluoranthene	742	605	277	15	15	15	15	15	15	28.6	15	15	15	15	318	43.1	15	3050	109	15
Benzo(k)fluoranthene	290	213	83.7	14	14	14	14	14	14	14	14	14	14	14	135	24.5	14	970	32.9	14
Benzo(g,h,i)perylene	501	290	204	24	24	24	24	24	24	24	24	24	24	24	169	45.6	24	1420	55.4	24
Chrysene	428	332	158	10	10	10	10	10	10	18.5	10	10	10	10	287	29.1	10	1620	52.2	10
Dibenzo(a,h)anthracene	82.3	72.6	41	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	58.3	0.023	0.023	360	0.023	0.023
Indeno(1,2,3-cd)pyrene	360	244	142	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	152	31.9	0.018	1130	44.7	0.018
Fluoranthene	631	570	214	0.017	0.017	0.017	0.017	0.017	0.017	36.1	0.017	0.017	0.017	0.017	408	52	0.017	3390	92.7	0.017
Fluorene	16.7	15.1	10	10	10	10	10	10	10	10	10	10	10	10	52.5	10	10	213	25.2	10
Naphthalene	83.4	64.8	18.7	9	9	9	9	9	9	9	9	9	9	9	50.6	54.8	9	1130	115	9
Phenanthrene	304	340	103	15	15	15	15	15	15	26	15	15	15	15	255	53.7	15	1840	74.6	15
Pyrene																				
PAH, Total Detected USEPA 16	5.16	3.93	1.78	0.118	0.118	0.118	0.118	0.118	0.118	0.19	0.118	0.118	0.118	0.118	2.87	0.431	0.118	22.6	0.816	0.118
Naphthalene-d8 % recovery**	99.4	97	106	102	100	91.1	98.6	104	115	100	102	111	102	104	98.4	111	99.1	100	120	101
Acenaphthene-d10 % recovery**	101	92.9	103	107	100	82.1	93.4	99.1	112	87.6	93.9	105	101	99	98.4	107	94.2	96.5	118	94.1
Phenanthrene-d10 % recovery**	96	91.4	99.7	114	105	76.2	90.5	96.6	108	80.2	88.4	100	102	94.9	96.9	97.2	92.3	94.6	115	91.1
Chrysene-d12 % recovery**	97.6	95.5	107	104	99.2	71.2	76.8	110	104	91.2	84.3	95.1	97.7	92.7	104	81	86.5	97.2	114	92.1
Perylene-d12 % recovery**	108	98	115	116	102	70.2	70.1	98.5	108	82.3	84.9	97.1	98.6	94.8	114	88.8	82.7	103	125	93.7
Total Aliphatics >C12-C44	66.7	197	62.9	38.9	13.3	9.83	2.13	1.72	0.1	1.05	0.1	1.1	2.59	2.65	11.6	13.3	3.41	71.3	8.24	0.1
Total Aromatics >EC12-EC44	63.8	80.3	20	8.09	23.9	4.88	1.73	1.03	0.1	2.75	1.48	0.912	2.85	1.79	67.6	54.7	11.6	59.1	30.7	7.74
Total Aliphatics & Aromatics >C5-C44																				
Metals - (Solid)																				
Iron	325000	181000	167000	24200	42500	34600	44600	33400	37400	27300	31900	36900	31700	33100	32200	41100	38300	244000	34800	40800
Manganese	18500	30500	27500	157	306	312	372	880	305	441	242	970	358	324	696	916	456	11100	352	247
Metals - (Liquid)																				
Calcium	66100	259000	187000	-	-	-	-	-	-	-	-	-	-	-	8100	14900	5550	127000	-	-
Magnesium	3200	10600	14500	-	-	-	-	-	-	-	-	-	-	-	8270	8920	8170	13900	-	-
Phenols																				
Phenol	0.01	0.011	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0154	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																				
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.266	-	-
pH	12.2	12.7	12.4	-	-	7.83	8.37	-	8.07	-	-	-	-	-	7.41	8.28	8.28	11.2	8.22	8.54
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2700	-	-
Sulphur, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Total potential	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.27	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	288	131	138	50.6	138	155	141	64.1	224	64.6	297	249	185	21.9	334	96.1
Asbestos																				
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	19/12/2017	19/12/2017	19/12/2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysed By	Neville Mann	Neville Mann	Renata Bozhkov	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comments	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																				
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	0.13	0.13	-	-	-	-	-	-	-	-	-	-	-	0.13	0.13	0.13	-	-	-
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																				
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3AJ3V	TP3AJ4V	TP3AJ5V	TP3AK401	TP3AK402	TP3AK2V	TP3AK3V	TP3AK4V	3DV01	3DV02	3DV03	3DD2	3DD2	3DD3	3DD3	3DD2V	3DD3V	3DE2
Depth	0	0	0	0.5	1	0	0	2	0	0	0	0.2	0.8	0.5	1	1.5	2	0.5
Sampled Date	24/01/2018	29/01/2018	29/01/2018	26/09/2017	26/09/2017	24/01/2018	24/01/2018	26/09/2017	16/05/2017	16/05/2017	16/05/2017	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019
Carbon																		
Soil Organic Matter (SOM)	2.45	6.05	12.8	0.376	0.35	1.49	4.72	1.98	0.972	4.43	1.83	3.88	4.62	5.88	4.95	1.34	26.4	2.98
Metals (Solids)																		
Arsenic	10.9	15.3	35.7	6	6	15.3	11.2	12	12	12.1	8.49	13.9	19.2	9.62	10	12.3	1.49	8.01
Cadmium	0.188	0.341	0.683	0.2	0.2	0.02	0.312	0.234	0.02	0.02	0.02	0.587	1.15	1.83	0.778	0.245	0.071	0.633
Chromium	34.7	36.7	31.2	73	9	36.6	46.4	27.8	22.1	24.5	34	24.2	82.8	222	47	30.8	3.62	20.4
Copper	12.1	16.8	19.2	14	14	15.8	16	12.5	10.1	14.7	16.6	20.3	34	18.8	20.2	15.9	2.57	14.8
Lead	28.2	43.8	49.8	66.5	7	25.6	34.3	31.1	17.4	28.3	27.1	75.8	89.2	152	87.4	24	2.85	53.7
Mercury	0.14	0.14	0.14	1.4	2.92	0.14	0.14	0.697	0.544	0.65	0.574	0.14	0.14	1.4	0.14	0.14	0.14	0.14
Nickel	36.8	26.6	25.7	3.96	2	33.7	30.3	42.5	28.3	31.2	33.6	20.5	28.9	16.8	16.3	37.9	4.54	14.6
Selenium	1	1	1	10.7	10	1	1	1	1	1	1	1	3.01	10	1.93	1	1	1
Vanadium	55.8	58	53.5	334	18.1	54.8	70	60.1	44.5	52.5	61.6	34.7	99.8	381	105	51.8	6.25	41.3
Zinc	109	135	152	19	19	129	133	117	96.3	119	129	127	394	317	320	118	7.15	157
TPH Criteria Working Group (TPH CWG)																		
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04							
Toluene	0.008	0.008	0.008	0.0134	0.008	0.008	0.0139	0.0109	0.008	0.008	0.008							
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012							
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009							
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.0414	0.02	0.02	0.02	0.02	0.0253
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.0482	0.02	0.0502	0.0258	0.0263	0.0759
Aliphatics >C8-C10	0.04	0.04	0.11	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.0526	0.02	0.0524	0.0206	0.02	0.0759
Aliphatics >C10-C12	0.04	0.04	0.225	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0244	0.19	0.02	0.136	0.02	0.02	0.116
Aliphatics >C12-C16	0.1	0.1	0.1	0.141	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.03	1.96	2.75	0.1	0.1	1.16
Aliphatics >C16-C21	0.1	0.1	0.1	3.29	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.03	9.52	9.94	12.4	0.1	0.1	8.33
Aliphatics >C21-C35	0.1	4.78	7.3	11.6	2.96	0.1	4.26	0.1	2.19	4.39	2.96	73.8	57.3	41	55.2	0.1	3.02	73
Aliphatics >C35-C44	0.1	0.1	0.1	4.85	0.1	0.1	0.1	0.1	0.1	7.81	0.1	25.1	14.7	10.7	15	0.1	0.306	33.4
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0464	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.04	0.04	0.074	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.0347	0.02	0.0353	0.02	0.02	0.0506
Aromatics >EC10-EC12	0.04	0.04	0.15	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02	0.127	0.02	0.0901	0.02	0.02	0.0782
Aromatics >EC12-EC16	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.32	1.51	0.414	2.93	2.17	2.96	0.1	0.1	1.97
Aromatics >EC16-EC21	0.1	0.1	0.85	0.1	0.1	0.1	0.427	0.1	0.1	0.813	1.56	1.36	19.1	7.63	32	0.1	0.979	10.3
Aromatics >EC21-EC35	0.1	31.7	47.9	3.77	0.1	0.1	15.6	0.1	0.37	0.1	6.35	33.3	61.6	36.6	67.8	0.1	42.7	74.3
Aromatics >EC35-EC44	0.1	5.73	9.09	5.45	0.1	0.1	4.64	0.1	0.1	3.12	2.76	9.31	23.7	9.39	22.8	0.1	7.47	58.4
Aromatics >EC40-EC44	0.1	2.37	3.45	2.38	0.1	0.1	1.46	0.1	0.1	1.53	1.15	1.13	8.52	1.78	8.01	0.1	2.34	24.6
Polyaromatic Hydrocarbons (PAHs)																		
Acenaphthylene	12	12	12	12	12	12	12	12	12	12	12	29.1	339	84	121	12	12	57.3
Acenaphthene	8	8	8	8	8	8	8	8	8	8	8	8	29.1	13.3	15.9	8	8	26.1
Anthracene	16	16	16	18.3	16	16	16	16	16	16	16	44.5	847	123	212	16	16	174
Benz(a)anthracene	14	14	97.7	63.9	14	14	14	14	14	14	90	191	1690	402	586	14	14	405
Benzo(a)pyrene	15	15	61	61.5	15	15	15	15	15	34	103	186	1540	369	506	15	15	335
Benzo(b)fluoranthene	15	15	129	130	15	15	15	15	15	74.1	136	287	2590	495	644	15	15	494
Benzo(k)fluoranthene	14	14	54.2	43.5	14	14	14	14	14	23.4	48.1	97.1	856	162	278	14	14	183
Benzo(g,h,i)perylene	24	24	73.3	71.3	24	24	24	24	24	24	83.8	142	1080	297	397	24	24	245
Chrysene	10	10	82.4	73.3	10	10	10	10	10	46.2	65.8	189	1630	397	622	10	10	418
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	35.3	211	68.3	88.5	0.023	0.023	59
Indeno(1,2,3-cd)pyrene	0.018	0.018	62	46.8	0.018	0.018	0.018	0.018	0.018	0.018	64.7	113	1260	236	318	0.018	0.018	190
Fluoranthene	0.017	0.017	117	133	0.017	0.017	0.017	0.017	0.017	96.8	94.7	357	4350	840	1490	0.017	0.017	884
Fluorene	10	10	10	10	10	10	10	10	10	10	10	15.4	296	43.6	82.3	10	10	74.7
Naphthalene	9	9	9	29	9	9	9	9	9	44.2	30.4	42.5	643	314	405	9	18.6	120
Phenanthrene	15	15	83.7	90.2	15	15	15	15	15	104	59.6	141	2060	483	876	15	15	575
Pyrene												0.282	3.19	0.651	1.13	0.015	0.015	0.747
PAH, Total Detected USEPA 16	0.118	0.118	0.845	0.862	0.118	0.118	0.118	0.118	0.118	0.493	0.862	2.15	22.6	4.98	7.77	0.118	0.118	4.99
Naphthalene-d8 % recovery**	105	101	114	101	101	86.1	112	99.5	103	109	107	93.3	87.1	93.6	93.6	94.7	90.6	88
Acenaphthene-d10 % recovery**	102	95.9	109	95.2	96.8	76.7	107	93.3	104	106	104	82	81.5	83.5	83.5	85.5	83.9	85.4
Phenanthrene-d10 % recovery**	96.3	95.3	106	94.1	94.6	71.3	102	88.5	100	105	102	85.4	86.8	85.1	84.7	85.6	90.8	91.8
Chrysene-d12 % recovery**	108	92.3	110	91.6	93.6	78.7	119	84.3	93.4	106	103	85.7	83.8	83.6	75.6	83.8	79.2	84.9
Perylene-d12 % recovery**	102	91.2	115	93	99.5	73.1	112	82.6	95.6	112	110	90.9	91.5	86	77.7	88.2	78.2	89.1
Total Aliphatics >C12-C44	0.1	4.78	7.3	19.8	2.96	0.1	4.26	0.1	2.19	12.2	2.96	102	84.5	63.6	85.4	0.1	3.33	116
Total Aromatics >EC12-EC44	0.1	37.4	57.8	9.21	0.1	0.1	20.7	0.1	0.37	5.25	12.2	44.3	107	55.8	126	0.1	51.1	145
Total Aliphatics & Aromatics >C5-C44												146	192	119	211	0.1	54.5	261
Metals - (Solid)																		
Iron	30400	26500	23200	130000	381000	28300	28700	43500	31500	37500	35500	23600	55400	101000	60200	37400	4300	29600
Manganese	420	207	187	24400	1010	295	200	837	963	779	446	897	6380	12100	4180	804	122	1770
Metals - (Liquid)																		
Calcium	-	-	-	198000	2730	-	-	-	-	-	-	10900	-	-	115000	-	-	-
Magnesium	-	-	-	24400	4870	-	-	-	-	-	-	3860	-	-	21600	-	-	-
Phenols																		
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0108	0.0114	0.01	0.01	0.01
Cresols	0.01	0.01	0.0344	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																		
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	0.154	0.021	-	-	-	-	-	-	0.0489	-	-	0.158	-	-	-
pH	-	-	-	11.5	10.6	-	-	7.82	-	-	-	7.4	10.9	11	11.1	7.64	7.78	11.1
Sulphate, Total	-	-	-	9460	<48	-	-	-	-	-	-							
Sulphur, Total	-	-	-	-	-	-	-	-	-	-	-	0.0695	-	-	0.2	-	-	-
Sulphate, Total potential	-	-	-	-	-	-	-	-	-	-	-	0.209	-	-	0.6	-	-	-
Sulphate, acid soluble (total)	-	-	-	0.946	0.02	-	-	-	-	-	-	0.0521	-	-	0.342	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	119	263	116	176	12	53.3	239	182	12	22.7	33.8	28.3	12	12	12	76.3	12	12
Asbestos																		
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	0.001	-	-	-
Date of Analysis	-	-	-	-	06/10/2017	-	-	-	-	-	-	09/04/2019	-	-	08/04/2019	-	-	-
Analysed By	-	-	-	-	Neville Mann	-	-	-	-	-	-	Lucy Caroe	-	-	Renata Bozhkov	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	0.001	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	None	-	-	None	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	N/A	-	-	N/A	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	0.001	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	Not Detected	-	-	-	-	-	-	Detected	-	-	Trace	-	-	-
Amosite (Brown) Asbestos	-	-	-	-	Not Detected	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	-	-	-	-	Not Detected	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	-	-
Fibrous Anthophyllite	-	-	-	-	Not Detected	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	-	-
Fibrous Tremolite	-	-	-	-	Not Detected	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	-	-
Fibrous Actinolite	-	-	-	-	Not Detected	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	-	-
Non-Asbestos Fibre	-	-	-	-	Not Detected	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	-	-
Comments	-	-	-	-	0	-	-	-	-	-	-	Loose fibres in soil	-	-	Loose fibres in soil.	-	-	-
Volatile Organic Compounds (VOCs)																		
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	107	107	95.2	101	104	113	105
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	99.2	99.3	94.1	98.4	99.1	91.4	100
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	95.3	94.2	81.8	91.8	98.3	79.2	97.2
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	-	-	-	-	-	-	-	-	-	-	-	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	-	-	-	-	-	-	-	-	-	-	-	0.121	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	0.13	1.35	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																		
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3DE2	3DE3	3DE3	3DE5	3DE5	3DE2V	3DE3V	3DE5V	3DF1	3DF1	3DF2	3DF2	3DF3	3DF3	3DF4	3DF4	3DF5	3DF5	3DF1V	3DF2V	3DF3V	3DF4V
Depth	1	0.5	1	0.5	1	1.4	2.6	2	0.4	1	0.5	1	0.3	0.5	0.1	0.5	0.5	1.5	1.4	1.4	1.35	1.6
Sampled Date	26/03/2019	26/03/2019	26/03/2019	25/03/2019	25/03/2019	26/03/2019	26/03/2019	25/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019	25/03/2019	25/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019
Carbon																						
Soil Organic Matter (SOM)	3.12	5.24	7.69	1.21	4.47	3.07	40.7	12	1.52	3.29	5.33	3.33	3.6	3.02	11	13.5	1.28	26.5	9.65	0.931	1.88	3
Metals (Solids)																						
Arsenic	8.11	16.7	14.6	7.44	15.6	12.3	2.9	15.1	9.42	8.2	10.3	8.45	14.3	8.73	24	12.2	10.3	11.1	20.9	10.4	13.2	23.8
Cadmium	0.514	0.466	2.33	0.518	1.79	0.274	0.108	1.18	0.677	0.452	2.64	2.83	0.516	0.266	15.3	4.44	2.83	4.72	0.873	0.298	0.219	0.328
Chromium	211	31.8	132	43.4	48.2	36.8	3.84	37.1	45.2	115	64.4	79.8	314	103	9	159	216	9	31.8	31.6	36.4	32.2
Copper	17.9	20.3	23.3	13.3	21.8	16.2	7.28	21.6	17.3	29.4	34	20.2	89.6	29.1	68.9	34.3	23.5	16.2	20.7	11.7	15.2	15.7
Lead	45.8	57	185	23.6	69.2	28.9	4.16	63.3	58.7	87.8	295	328	75.8	34.9	3120	800	227	586	51.6	30.7	27.1	33.9
Mercury	0.14	0.14	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4	0.14	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14
Nickel	13.7	19.2	26.4	17.2	29.6	33	7.33	24.1	15.3	13.7	29.7	19.6	44.9	12.5	52.7	28.2	22.1	22.3	25.9	39.2	35.4	29.4
Selenium	3.48	2.28	10	2.43	10	1	1	1	1.94	5.95	10	10	13.2	7.17	10	10	10	10	1	1	1	1
Vanadium	125	112	214	73.2	190	58.2	10.3	69.1	69.6	157	127	333	219	110	154	194	243	83.8	59.2	86.7	57.5	53.2
Zinc	174	188	488	97.1	188	117	13.5	257	162	259	897	977	116	123	7350	1960	528	1420	169	122	110	123
TPH Criteria Working Group (TPH CWG)																						
Benzene																						
Toluene																						
Ethylbenzene																						
sum of detected mpo xylene by GC																						
Aliphatics >C5-C6	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0719	0.02	0.02	0.02	0.01	0.328	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.0246	0.0559	0.0348	0.02	0.02	0.02	0.0344	0.0476	0.02	0.0947	0.0217	0.0585	0.02	0.0363	0.663	0.0384	0.02	0.021	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.0225	0.0616	0.0268	0.02	0.02	0.02	0.0344	0.0429	0.02	0.126	0.02	0.0449	0.02	0.0331	74.2	0.0256	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.0385	0.158	0.0268	0.02	0.02	0.02	0.0611	0.0464	0.02	0.167	0.0228	0.0394	0.02	0.0843	987	0.0304	0.02	0.02	0.02
Aliphatics >C12-C16	2.36	3	3.61	2.97	8.91	0.339	2.97	5.37	1.34	4.76	3.83	3.65	6.1	2.63	0.743	1.68	1.88	11.7	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	10.1	10.7	15	14.1	24.5	0.804	0.583	17.3	10.7	20.6	33.8	29.8	26.5	10.6	10.8	9.33	9.13	121	0.1	0.115	0.1	0.1
Aliphatics >C21-C35	69.3	54.3	70	99.2	114	2.1	12.5	39	187	122	185	147	252	76.1	30.1	37.7	70.8	53.5	2.13	1.13	0.1	0.1
Aliphatics >C35-C44	33.1	20.9	24.1	29.1	31.4	0.1	0.1	15.2	104	46.8	48.9	33.6	157	38.3	2.88	6.55	34.1	2.81	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	2.8	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0359	0.02	0.02	0.02	0.01	16.9	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.015	0.041	0.02	0.02	0.02	0.02	0.0233	0.029	0.02	0.0849	0.02	0.0299	0.02	0.0213	49.5	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.0257	0.106	0.02	0.02	0.02	0.02	0.0411	0.0313	0.02	0.111	0.02	0.0258	0.02	0.0566	658	0.0208	0.02	0.02	0.02
Aromatics >EC12-EC16	1.76	2.61	3.78	1.67	3.11	0.1	5.14	11.8	2.18	0.694	3.54	2.52	3.36	4.24	0.1	1.95	7.68	1010	0.174	0.1	0.1	0.1
Aromatics >EC16-EC21	13.2	12.9	17.9	12.2	15	0.1	5.56	33.9	12.2	7.83	24.9	20.7	11.1	13	7.2	8.57	44.7	2710	0.675	0.1	0.1	0.1
Aromatics >EC21-EC35	67.4	57.4	79.5	65.7	65	1.26	69.4	83.1	183	59.6	106	75.9	135	60.7	13.3	31.8	132	2330	19.6	0.5	3.72	5.54
Aromatics >EC35-EC44	46.9	27.1	34.5	33.7	35.7	0.417	19.1	27.5	148	43.3	46.2	27.7	106	33.1	0.709	9.96	55.3	419	2.02	2.41	0.855	0.733
Aromatics >EC40-EC44	20.4	10.1	12.8	13.3	15	0.1	4.58	10.5	57.8	18.7	17.7	10.3	41.9	12.1	0.1	2.99	20.5	124	0.158	1.01	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)																						
Acenaphthylene	120	254	294	343	144	12	12	12	60	20.8	208	84.9	50.4	68.5	17.5	136	57600	2100000	12	12	12	12
Acenaphthene	80	26.2	34.7	8	15.5	8	8	8	40	13.6	46.6	41.5	17.3	8	8	40	3450	115000	8	8	8	8
Anthracene	160	540	461	455	241	16	16	71.1	80	52.5	488	196	103	128	43.5	317	43300	1860000	16	16	16	16
Benz(a)anthracene	140	1230	1390	1640	505	14	14	118	70	262	1490	669	321	381	67.9	762	39200	1150000	68.4	14	14	14
Benzo(a)pyrene	150	1100	1230	1790	520	15	15	110	75	236	1310	610	281	310	39.1	570	31900	714000	72	15	15	15
Benzo(b)fluoranthene	150	1430	1930	2660	832	15	15	224	130	435	1950	995	420	410	87.4	746	46200	1110000	124	15	15	15
Benzo(k)fluoranthene	140	533	662	1110	278	14	14	67.8	70	139	631	330	149	179	20.5	274	18500	373000	36.1	14	14	14
Benzo(g,h,i)perylene	0.24	805	885	1430	407	24	24	91.8	120	217	976	457	235	250	24	442	19100	333000	66.4	24	24	24
Chrysene	0.1	1120	1280	1580	461	10	10	139	79.4	298	1440	660	338	373	71.1	713	37100	1090000	89	10	10	10
Dibenzo(a,h)anthracene	0.23	189	203	302	81.3	0.023	0.023	0.023	0.115	37.8	217	104	54.6	60.8	0.023	0.115	5770	109000	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	180	701	696	1280	438	0.018	0.018	102	90	192	760	324	183	196	0.018	405	19300	374000	48.7	0.018	0.018	0.018
Fluoranthene	0.17	2790	3310	2610	1060	0.017	0.017	326	142	434	3960	1850	701	914	269	2030	83900	2940000	163	0.017	0.017	0.017
Fluorene	0.1	148	150	122	98.7	10	10	62.3	50	18.6	148	88	36.6	42.4	17.7	102	51900	1890000	10	10	10	10
Naphthalene	90	406	588	354	293	9	32.5	123	45	51.1	295	237	195	256	106	410	119000	4680000	9	9	9	9
Phenanthrene	150	1280	1350	967	482	15	15	280	75	201	1930	799	446	548	200	836	104000	3810000	84.4	15	15	15
Pyrene	0.15	2.06	2.56	2.06	0.885	0.015	0.015	0.219	0.141	0.456	2.98	1.48	0.545	0.691	0.256	1.6	17.9	1950	0.126	0.015	0.015	0.015
PAH, Total Detected USEPA 16	1.18	14.6	17	18.7	6.74	0.118	0.118	1.93	0.59	3.07	18.8	8.92	4.08	4.81	1.2	9.34	697	24600	0.878	0.118	0.118	0.118
Naphthalene-d8 % recovery**	86.3	92.2	94.9	101	94.8	95	96.4	97.5	89.9	87.5	90.4	90	92.1	92.6	101	96.9	83.2	1100	93.5	93.5	94.7	95.3
Acenaphthene-d10 % recovery**	70.5	85.1	86.2	93.3	87.6	82.2	83.9	87.9	75	80.8	85.6	84.7	84.1	83.2	90.1	80	95.1	249	83.7	83.5	86	88.7
Phenanthrene-d10 % recovery**	79.8	87	83.7	97.5	91	85.3	84.6	89.7	80.5	85.7	90	88.9	89.1	87.2	93.6	72.4	93.3	97	88.5	85.1	84.2	87.2
Chrysene-d12 % recovery**	70.9	86.9	74.9	98.8	83.8	83.7	82.3	84.1	72.4	84.3	81.7	79.5	85.4	85.3	63.9	53.3	77.2	81.1	87.2	78.5	75.9	76.4
Perylene-d12 % recovery**	75.3	86.2	75.7	105	85.4	87.2	83.1	86.2	77.8	93.2	82.2	75.6	90.3	89.4	43.4	41.9	84.1	69.5	91.6	81.7	79.4	81.3
Total Aliphatics >C12-C44	115	88.9	113	145	179	3.24	16	76.9	303	194	272	214	441	128	44.6	55.3	116	189	2.13	1.25	0.1	0.1
Total Aromatics >EC12-EC44	129	100	136	113	119	1.68	99.2	156	346	111	181	127	255	111	21.2	52.3	240	6470	22.5	2.91	4.58	6.28
Total Aliphatics & Aromatics >C5-C44	244	189	249	259	298	5.01	115	233	648	306	453	341	698	239	65.9	108	356	8450	24.7	4.16	4.58	6.28
Metals - (Solid)																						
Iron	64100	89900	99400	38600	144000	30800	7030	25400	52900	67500	100000	149000	127000	60500	426000	189000	168000	232000	28000	40600	33200	35600
Manganese	9250	7490	9870	3440	7340	846	167	344	4670	11800	5000	8490	17000	10700	7700	11300	12700	3180	393	1360	304	318
Metals - (Liquid)																						
Calcium	136000	103000	-	103000	-	-	-	-	86600	-	-	114000	161000	-	-	97400	106000	-	-	-	-	-
Magnesium	32600	13600	-	16100	-	-	-	-	14900	-	-	14300	17200	-	-	10600	10500	-	-	-	-	-
Phenols																						
Phenol	0.011	0.0115	0.0113	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0348	0.0228	0.01	0.01	0.01	0.01	0.01	1.21	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0116	0.01	0.0109	0.0114	0.01	0.01	0.01	4.77	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	4.41	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0464	0.035	0.035	0.035	0.035	0.035	0.035	10.4	0.035	0.035	0.035	0.035
Inorganics																						
Soluble Sulphate 2:1 extract as SO4 BRE	0.0578	0.238	-	0.134	-	-	-	-	0.152	-	-	0.16	0.133	-	-	0.159	0.0433	-	-	-	-	-
pH	11	11.2	11.1	9.57	11.3	7.68	7.6	7.79	10.3	11.5	10.8	11.1	12.2	12	8.09	8.52	12.1	11	8.3	7.77	7.73	7.38
Sulphate, Total																						
Sulphur, Total	0.122	0.289	-	0.235	-	-	-	-	0.219	-	-	0.206	0.678	-	-	0.18	0.169	-	-	-	-	-
Sulphate, Total potential	0.366	0.867	-	0.705	-	-	-	-	0.657	-	-	0.618	2.03	-	-	0.54	0.507	-	-	-	-	-
Sulphate, acid soluble (total)	0.18	0.405	-	1.42	-	-	-	-	0.425	-	-	0.311	1.25	-	-	0.248	0.31	-	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1.39	1	1	1	14.2	4.69	1	4.16	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	112	32.6	162	12	12	12	12	12	12	12	12	12	12	179	70.4	71.2	12
Asbestos																						
Asbestos Quantification - Gravimetric - %	-	0.0838	-		-	-	-	-	-	-	-	0.001	0.001	-	-	-	0.001	-	-	-	-	-
Date of Analysis	09/04/19	09/04/19	-	08/04/2019	-	-	-	-	09/04/19	-	-	09/04/2019	08/04/2019	-	-	09/04/2019	08/04/2019	-	-	-	-	-
Analysed By	Andrzej Ferfecki	Andrzej Ferfecki	-	Renata Bozhkov	-	-	-	-	Andrzej Ferfecki	-	-	Lucy Caroe	Barbara Urbanek-Walsh	-	-	Lucy Caroe	Barbara Urbanek-Walsh	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	0.001	-		-	-	-	-	-	-	-	0.0012	0.001	-	-	-	0.001	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	None	-		-	-	-	-	-	-	-	None	None	-	-	-	None	-	-	-	-	-
Analysts Comments	-	N/C	-		-	-	-	-	-	-	-	N/C	N/C	-	-	-	N/A	-	-	-	-	-
Asbestos Quantification - Total - %	-	0.084	-		-	-	-	-	-	-	-	0.0019	0.001	-	-	-	0.001	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Detected	Detected	-	-	Not Detected	Trace	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	-	-
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	-	-
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	-	-	-	-
Comments	-	fibre bundles in soil	-	-	-	-	-	-	-	-	-	Fibre bundles in soil	Loose fibres in soil.	-	-	-	Loose fibres in soil.	-	-	-	-	-
Volatile Organic Compounds (VOCs)																						
Dibromofluoromethane**	105	92	95.7	102	101	105	114	109	106	107	99.5	105	103	104	100	90.8	102	104	108	105	105	111
Toluene-d8**	98.2	87.8	93.7	97.5	98.9	100	87.9	97	98.3	97.7	96.2	98.4	95.5	93.2	99.7	88	98.6	99.7	96.3	100	100	96.8
4-Bromofluorobenzene**	96	73.5	80.1	89.9	92	102	79.5	91.5	95.7	94.8	86.7	94.4	89.6	91.9	94.4	69.8	94.1	98.4	90.6	98.5	101	97.4
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	1.8	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	3.55	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.8	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	9.31	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.8	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.241	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.907	2790	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	15.7	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																						
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3DG1	3DG2	3DG2	3DG3	3DG4	3DG5	3DG5	3DG5	3DG6	3DG6	3DG1V	3DG2V	3DG3V	3DG4V	3DH1	3DH2	3DH3	3DH3	3DH4	3DH5	3DH6	3DH1V	3DH2V	3DH3V
Depth	0.5	0.4	1	0.5	0.5	0.5	1.4	2	0.5	1	1	1.9	0.9	1	0.5	0.5	0.5	1	0.5	0.5	0.5	1	1	1.5
Sampled Date	18/03/2019	26/03/2019	26/03/2019	19/03/2019	19/03/2019	19/03/2019	19/03/2019	19/03/2019	26/03/2019	26/03/2019	18/03/2019	26/03/2019	19/03/2019	19/03/2019	18/03/2019	18/03/2019	19/03/2019	19/03/2019	19/03/2019	21/03/2019	21/03/2019	18/03/2019	18/03/2019	19/03/2019
Carbon																								
Soil Organic Matter (SOM)	10.5	3	19.7	1.68	3.88	6.45	42.2	26.9	4.81	4.48	3.81	0.746	3.07	0.964	14.6	6.38	18.3	7.26	0.717	4.81	2.24	2.26	1.57	7.71
Metals (Solids)																								
Arsenic	9.22	6.5	9.95	13	8.93	18.5	24.8	11.3	16.3	8.09	11.8	9.02	8.72	12.9	10.7	9.81	22	10.8	7.06	10.3	9.5	13.4	13	13.5
Cadmium	1.06	0.507	2.7	0.486	6.09	8.94	5.07	4.74	3.5	3.88	0.236	0.22	2.88	0.254	1.32	1.19	0.2	0.332	0.666	1.11	1.8	0.392	0.364	0.229
Chromium	87	66.8	85.4	38.3	361	9	9	9	413	274	43.2	24.6	133	35.7	30.2	36.8	83.9	111	86.7	106	61.2	37.6	35.6	42.2
Copper	21.6	12.8	21.9	12.3	26.7	31.1	27	23.1	52.1	17.9	14.9	8.71	25.9	12.1	29.5	20.7	47.6	27.9	11	20.7	25.6	16.6	14.6	20
Lead	75.5	42.3	229	28.5	261	967	556	719	406	498	23.5	19.6	240	27.9	127	84.5	60.2	125	27.9	281	155	23.9	25.1	40
Mercury	0.14	0.14	1.4	0.14	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	0.14	1.4	1.4	0.14	1.4	0.14	0.14	0.14	0.14
Nickel	16.3	13.4	25.6	39.6	32	65.2	33.1	28.8	49.6	13.5	28.1	32.4	18.9	39.3	24	57.9	47.7	31.1	12.6	28.6	23.6	38.1	36.6	27.6
Selenium	2.95	1	10	1	10	10	10	10	19.2	12.8	1	1	10	1	1.71	1.77	10	10	3.56	10	4.55	1	1	1
Vanadium	117	207	125	60	152	311	122	171	441	1640	67.8	45.7	210	56.3	63.1	84.5	232	314	288	254	194	58.7	54.1	70.8
Zinc	275	123	604	124	827	2100	1500	1560	991	1130	132	93.1	718	121	413	270	183	373	98.9	750	600	108	107	143
TPH Criteria Working Group (TPH CWG)																								
Benzene																								
Toluene																								
Ethylbenzene																								
sum of detected mpo xylene by GC																								
Aliphatics >C5-C6	0.0499	0.02	0.0302	0.02	0.02	0.02	0.02	0.2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.0269	0.02	0.02	0.02	0.0592	0.02	0.02	0.02
Aliphatics >C6-C8	0.0557	0.0559	0.137	0.02	0.02	0.02	0.023	0.585	0.0319	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.115	0.02	0.02	0.02	0.0812	0.02	0.02	0.02
Aliphatics >C8-C10	0.0557	0.057	0.12	0.02	0.02	0.02	0.0387	60.4	0.0231	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.131	0.02	0.02	0.0127	0.4	0.02	0.02	0.02
Aliphatics >C10-C12	0.0557	0.0855	0.146	0.02	0.02	0.0269	0.092	767	0.022	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.868	0.02	0.02	0.02	0.129	0.02	0.02	0.02
Aliphatics >C12-C16	1.77	2.89	3.87	0.1	2.88	0.1	2.25	67.9	1.95	0.124	0.1	0.1	2.85	0.1	3.47	3.58	1.47	1.2	7.94	2.32	3.4	0.1	0.1	0.1
Aliphatics >C16-C21	9.84	18.4	25.8	0.1	29.6	0.1	10.5	668	13	8.59	0.1	0.1	19.6	0.1	16	12.7	6.34	6.49	23.7	14.4	24.2	0.1	0.1	0.1
Aliphatics >C21-C35	51.6	408	82.5	2.45	194	0.1	30.5	152	95.2	35.9	7.45	0.1	105	0.1	85	67.2	17.9	17.7	184	67.1	149	2.14	0.1	6.57
Aliphatics >C35-C44	17.2	276	30.9	0.1	53.7	0.1	1.7	5.27	34.1	5.32	0.1	0.1	33.6	0.1	23.6	19.9	5.69	0.618	49.5	16.6	45.4	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.0202	0.02	0.02	0.02	0.02	5.26	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.0224	0.02	0.02	0.02	0.02	20.3	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.0371	0.0376	0.0795	0.02	0.02	0.02	0.0254	40.3	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.0878	0.02	0.02	0.02	0.267	0.02	0.02	0.02
Aromatics >EC10-EC12	0.0371	0.057	0.0974	0.02	0.02	0.02	0.0617	512	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.579	0.02	0.02	0.02	0.0858	0.02	0.02	0.02
Aromatics >EC12-EC16	5.63	3.71	8.77	0.1	1.45	0.633	2.69	5280	1.4	1.75	1.08	0.1	2	0.1	6.08	8.98	6.71	6.16	2.58	1.56	1.74	0.1	0.1	0.1
Aromatics >EC16-EC21	45.4	23.1	72.6	0.1	15.2	8.06	8.69	9800	12	43.9	4.58	0.1	16.9	0.1	46	89	67.1	43.7	12.5	13.2	18.2	0.728	0.1	2.1
Aromatics >EC21-EC35	129	378	183	3.56	100	24.5	13	9010	49.6	112	25.4	0.1	85.6	0.1	142	138	148	160	75.7	59.6	110	5.1	0.823	30.4
Aromatics >EC35-EC44	50.5	414	61.6	0.1	59.8	6.56	0.442	1400	27.8	32.5	8.77	0.1	51.1	0.1	54.6	42	42.7	50.8	41.7	23.1	62	2.8	0.428	3.36
Aromatics >EC40-EC44	17.2	191	22.6	0.1	23.3	1.98	0.1	366	11.3	9.21	2.78	0.1	20.5	0.1	18.5	15.5	15.2	16.2	16.3	7.87	25.1	0.96	0.165	0.1
Polyaromatic Hydrocarbons (PAHs)																								
Acenaphthylene	1950	59.7	827	12	197	407	28.3	355000	25.9	340	313	12	56	12	2460	265	621	287	27.5	286	281	12	12	12
Acenaphthene	216	53.9	105	8	52	8	15.8	13300	27.9	21.3	19.9	8	27.7	8	93.5	48.8	8	130	8	47.2	60.2	8	8	13.5
Anthracene	5970	232	2050	16	478	1040	33.4	268000	97.6	855	1000	16	156	16	5900	547	2400	960	78.7	442	464	16	16	16
Benz(a)anthracene	11400	639	4410	14	1200	1580	39.2	185000	432	3320	1680	14	393	14	19600	1880	4820	2730	341	1550	1190	14	14	52.7
Benzo(a)pyrene	9500	450	3370	15	930	1280	22.2	125000	390	2810	1120	15	335	15	14300	1710	3960	2220	369	1500	1010	15	15	45.4
Benzo(b)fluoranthene	15600	683	4790	15	1240	2270	26.5	140000	685	4300	1900	15	643	15	23000	2620	6490	3510	589	2330	1500	15	15	99.5
Benzo(k)fluoranthene	5590	205	1670	14	500	894	14	60700	248	1730	651	14	238	14	8400	979	2330	1300	250	752	565	14	14	29.4
Benzo(g,h,i)perylene	5760	283	2160	24	700	790	24	65400	329	2170	647	24	265	24	7630	1110	2580	1490	288	1000	617	24	24	41
Chrysene	12500	618	3590	16.5	1210	1500	42.7	167000	487	3300	1560	10	428	10	18400	1890	4780	2350	327	1630	967	10	10	55.9
Dibenzo(a,h)anthracene	1760	79.8	560	0.023	182	236	0.023	20600	52	573	190	0.023	62.7	0.023	2530	297	715	371	59.1	222	145	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	5450	219	1950	0.018	588	779	0.018	65000	311	1930	645	0.018	211	0.018	7790	1010	2430	1340	238	1200	772	0.018	0.018	32.2
Fluoranthene	27200	1510	11500	38.6	2740	3090	112	580000	896	6220	4840	0.017	929	0.017	52100	3950	9770	5390	667	3410	2950	32.2	0.017	163
Fluorene	1920	103	960	10	191	53.7	29.3	280000	25.5	113	471	10	61.8	10	2050	197	573	356	10	147	378	10	10	20.8
Naphthalene	2010	133	828	11.7	201	9	6770	1170000	81.3	224	89.9	9	202	12.2	428	278	942	576	9	457	284	9	9	505
Phenanthrene	12900	892	6280	23.4	1410	1030	106	794000	479	2800	3880	15	491	15	11300	1600	4670	3040	306	1210	2190	15	15	101
Pyrene	18.4	1.09	7.94	0.0303	1.98	2.17	0.0773	341	0.783	5	3.02	0.015	0.793	0.015	32.8	2.8	7.42	4.02	0.549	2.89	2.23	0.0213	0.015	0.114
PAH, Total Detected USEPA 16	138	7.25	53	0.12	13.8	17.1	7.3	4630	5.35	35.7	22	0.118	5.29	0.118	209	21.2	54.5	30.1	4.09	19.1	15.6	0.118	0.118	1.27
Naphthalene-d8 % recovery**	96.3	92.5	87.9	101	111	96.5	86.1	99	88.7	92	95.4	92.8	98.6	114	95.4	97.7	97.6	94.5	96.8	94.7	99.8	97.6	95.1	93.7
Acenaphthene-d10 % recovery**	96.4	85.4	80.1	93.7	108	93.8	72.6	99.5	81.3	85.3	94.2	85.2	96.8	107	96	96.1	97.8	75.4	95.8	94.5	96.7	97.6	94.4	93.3
Phenanthrene-d10 % recovery**	96.3	84.9	87.9	94.6	110	101	55.9	93	81	85.6	98.4	90.4	101	116	97.6	98.8	102	100	101	103	102	99	95.8	101
Chrysene-d12 % recovery**	98.3	78.2	81.3	97.6	115	83.3	27.9	108	70.8	77.7	106	82.6	82.5	111	108	107	81.9	86	86.3	91.5	88.5	107	96.6	90.8
Perylene-d12 % recovery**	99.7	84.3	78.3	102	112	79	16.6	108	70.3	78.2	111	84.5	75.7	114	109	115	86.5	86.1	84.8	87.2	84.3	113	99	86.3
Total Aliphatics >C12-C44	80.4	705	143	2.45	281	0.1	44.9	894	144	50	7.45	0.1	161	0.1	128	103	31.4	26	265	100	222	2.14	0.1	6.57
Total Aromatics >EC12-EC44	230	818	326	3.56	177	39.7	24.8	25500	90.7	190	39.8	0.1	156	0.1	248	278	264	261	133	97.5	192	8.62	1.25	35.8
Total Aliphatics & Aromatics >C5-C44	311	1520	470	6.01	457	39.7	70	27800	235	240	47.3	0.1	316	0.1	377	381	297	287	398	198	415	10.8	1.25	42.4
Metals - (Solid)																								
Iron	76700	41100	73900	36500	117000	344000	261000	212000	205000	194000	39000	32300	83100	38300	55700	58700	300000	109000	67700	119000	79800	33300	32800	18900
Manganese	6350	2210	5930	323	8640	5240	6040	4380	31000	24500	635	946	13600	340	3340	3830	8540	7840	6650	8970	10800	327	294	348
Metals - (Liquid)																								
Calcium	-	140000	-	4330	133000	38600	45500	-	147000	-	-	-	-	-	-	-	94900	125000	139000	127000	167000	-	-	-
Magnesium	-	30600	-	10300	34900	5120	7130	-	11500	-	-	-	-	-	-	-	9910	14900	15400	14600	25000	-	-	-
Phenols																								
Phenol	0.0232	0.01	0.0336	0.01	0.0113	0.01	0.01	0.1	0.01	0.0109	0.01	0.01	0.01	0.01	0.01	0.0114	0.01	0.01	0.0114	0.069	0.01	0.01	0.01	0.01
Cresols	-	0.01	0.01	0.01	0.01	0.01	0.01	1.22	0.01	0.01	-	0.01	0.011	0.01	-	-	0.01	0.01	0.01	0.0115	0.01	-	-	0.01
Xylenols	-	0.015	0.015	0.015	0.015	0.015	0.015	0.434	0.015	0.015	-	0.015	0.015	0.015	-	-	0.015	0.015	0.015	0.015	0.015	-	-	0.015
Phenols, Total Detected monohydric	-	0.035	0.035	0.035	0.035	0.035	0.035	1.65	0.035	0.035	-	0.035	0.035	0.035	-	-	0.035	0.035	0.035	0.0575	0.035	-	-	0.035
Inorganics																								
Soluble Sulphate 2:1 extract as SO4 BRE	0.235	0.117	-	0.0325	0.2	0.025	0.147	-	0.105	-	-	-	-	-	0.189	0.138	0.173	0.235	0.241	0.2	0.233	-	-	-
pH	11.2	10.1	11.1	7.81	11.3	8.96	10.7	10.8	12.1	12.3	7.85	8.15	11.3	8.16	11.1	11.2	11.4	11.6	10.9	11.2	11.1	7.79	7.74	7.72
Sulphate, Total																								
Sulphur, Total	0.24	0.138	-	0.02	0.311	0.0819	0.217	-	0.219	-	-	-	-	-	0.258	0.183	0.247	0.31	0.242	0.226	0.318	-	-	-
Sulphate, Total potential	0.72	0.414	-	0.06	0.933	0.246	0.651	-	0.657	-	-	-	-	-	0.774	0.549	0.741	0.93	0.726	0.678	0.954	-	-	-
Sulphate, acid soluble (total)	0.417	0.199	-	0.02	0.429	0.0687	0.206	-	0.355	-	-	-	-	-	0.41	0.243	0.466	0.548	1.26	0.585	0.682	-	-	-
Cyanide, Total	1	1	1	1	3.51	1	9.28	1.25	2.52	1.83	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	-	12	12	164	12	12	12	12	12	12	-	17	12	101	-	-	12	12	12	12	12	-	-	187
Asbestos																								
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0065	-	-	-	0.0165	0.0053	-	-	-	-
Date of Analysis	22/03/2019	09/04/19	-	02/04/2019	02/04/2019	02/04/2019	02/04/19	-	09/04/2019	-	22/03/2019	-	-	-	22/03/2019	22/03/2019	02/04/2019	02/04/19	02/04/19	03/04/2019	05/04/19	22/03/2019	25/03/2019	-
Analysed By	Marcin Magdziarek	Andrzej Ferfecki	-	Marcin Magdziarek	James Richards	Marcin Magdziarek	Andrzej Ferfecki	-	Lucy Caroe	-	Lucy Caroe	-	-	-	Lucy Caroe	Lucy Caroe	James Richards	Andrzej Ferfecki	Andrzej Ferfecki	Marcin Magdziarek	Christian Hallam	Marcin Magdziarek	James Richards	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	0.0133	0.001	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None	-	-	-	None	None	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	-	-	-	PCOM analysis shows fibres typical of Amphibole asbestos.	N/C	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0065	-	-	-	0.0298	0.0058	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Detected	Not Detected	Not Detected	Not Detected	Detected	Detected	Not Detected	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-
Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Soil containing ACM debris	-	-	-	loose fibres in soil	Loose fibres in soil	-	-	-	-
Volatile Organic Compounds (VOCs)																								
Dibromofluoromethane**	110	108	96.8	106	105	103	116	105	104	102	114	107	102	103	104	104	97.7	116	105	101	106	115	117	108
Toluene-d8**	101	94.9	94.8	99.1	98.1	99.4	95.7	97.9	96.9	97.3	102	100	99.9	102	98.9	97.4	98.1	103	100	101	99.5	103	102	97.4
4-Bromofluorobenzene**	82.2	90.1	84.6	98.7	94.5	94.6	87.8	89.6	93.3	91.7	85.7	102	92.6	98.1	73.1	72.3	85.5	96.8	91.2	94.6	94.7	89.3	86.7	92
Methyl Tertiary Butyl Ether	0.2	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.18	0.09	0.09	0.09	0.09	0.09	0.09	7.03	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.14	0.07	0.07	0.07	0.07	0.07	0.07	28.3	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.14	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.08	0.04	0.04	0.04	0.04	0.04	0.04	1.15	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.2	0.1	0.1	0.1	0.1	0.1	0.1	61.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.2	0.1	0.1	0.1	0.1	0.1	0.1	17.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.26	0.169	0.31	0.13	0.13	0.13	0.228	15500	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.181	0.26	0.13	0.212	0.13	0.13	0.13	0.13
Sum of BTEX	0.8	0.4	0.4	0.4	0.4	0.4	0.4	116	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																								
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3DH4V	3DH5V	3DH6V	3DI1	3DI1	3DI2	3DI3	3DI4	3DI1V	3DI2V	3DI3V	3DI4V
Depth	1	1.1	1.6	0.5	1	0.5	0.5	0.5	1.5	1.2	1.8	1
Sampled Date	19/03/2019	21/03/2019	21/03/2019	13/03/2019	13/03/2019	18/03/2019	19/03/2019	19/03/2019	13/03/2019	18/03/2019	19/03/2019	19/03/2019
Carbon												
Soil Organic Matter (SOM)	2.16	2.19	6.48	10.6	33.4	4.07	9.93	4.91	1	3.76	8.98	2.53
Metals (Solids)												
Arsenic	9.27	9.79	11.2	7.74	13.1	11.4	20.7	10.9	18.3	11.7	15.8	14.5
Cadmium	0.02	0.02	0.37	1.41	2.99	1.21	1.92	1.4	0.28	0.489	0.808	0.02
Chromium	33.9	34	39.7	441	131	37.9	204	58.8	33.8	39.4	46.8	36.6
Copper	12.4	13.8	17.7	18.8	38.9	22.9	20.6	24.9	13	17.4	19.7	15.3
Lead	26.6	25.2	26.7	67.7	185	106	350	295	28	28.7	46	24.6
Mercury	0.14	0.14	0.14	1.4	1.4	0.14	1.4	1.4	0.14	0.14	0.14	0.14
Nickel	32.7	31	39.7	18.7	44.7	29	21.7	31.3	39.2	29.5	25.7	31.5
Selenium	1	1	1	10	10	2.88	10.5	10	1	1	1	1
Vanadium	53	54.2	59.3	509	218	186	229	206	55.5	63.4	79.5	59.9
Zinc	111	124	99.1	179	818	237	999	794	112	135	149	124
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.0296	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.0205	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.0365	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.1	0.1	0.1	5.22	1.76	3.45	1.91	3.98	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	0.1	0.1	0.1	21.8	9.35	14.2	22.9	23	0.339	0.1	0.1	0.1
Aliphatics >C21-C35	8.36	0.871	0.1	59.8	59.5	73.1	103	123	0.1	5.2	13	0.1
Aliphatics >C35-C44	0.1	0.1	0.1	23.3	15	18.1	31.2	30.6	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.0137	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.0239	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	0.1	0.1	0.1	9.78	1.14	2.66	2.73	4.01	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	0.1	0.1	0.1	67.2	7.64	15.9	29.9	29.1	0.169	1.13	2.77	0.1
Aromatics >EC21-EC35	7.86	5.34	2.38	205	51.8	75.7	120	108	2.93	18.4	44.4	2.8
Aromatics >EC35-EC44	1.11	0.348	0.246	65	20.5	32.4	51.8	43.7	1.1	5.25	6.54	0.1
Aromatics >EC40-EC44	0.1	0.1	0.1	21.3	7.61	12	19.9	16.6	0.256	1.7	0.733	0.1
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	12	12	12	956	154	217	255	296	12	12	27.6	12
Acenaphthene	8	8	8	130	21.3	36	70.3	70.1	8	8	8	8
Anthracene	16	16	16	1510	239	700	577	593	16	16	32.9	16
Benz(a)anthracene	14	14	14	6080	647	1570	2010	1630	14	29.5	143	14
Benzo(a)pyrene	15	15	15	5390	584	1290	1840	1540	15	25.6	143	15
Benzo(b)fluoranthene	15	15	15	7530	933	1840	3030	1790	15	40.6	152	15
Benzo(k)fluoranthene	14	14	14	4310	309	691	989	758	14	14	75.3	14
Benzo(g,h,i)perylene	24	24	24	3750	498	805	1300	1160	24	24	123	24
Chrysene	10	10	10	4790	693	1530	2080	1450	10	32.4	131	10
Dibenzo(a,h)anthracene	0.023	0.023	0.023	806	99.9	209	325	273	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	2390	355	723	1140	938	0.018	0.018	136	0.018
Fluoranthene	0.017	0.017	0.017	11700	1430	3300	4020	3790	0.017	61.5	282	0.017
Fluorene	10	10	10	547	149	152	177	274	10	10	16.9	10
Naphthalene	9	9	27.9	2100	221	217	574	404	9	40.6	75.6	9
Phenanthrene	15	15	15	4250	916	1090	1540	2040	15	44.8	127	15
Pyrene	0.015	0.015	0.015	9.51	1.2	2.32	3.28	2.81	0.015	0.0449	0.217	0.015
PAH, Total Detected USEPA 16	0.118	0.118	0.118	65.8	8.44	16.7	23.2	19.8	0.118	0.32	1.68	0.118
Naphthalene-d8 % recovery**	93.2	94	96.5	83.6	87.2	95.5	89.4	108	89.6	97.3	102	92
Acenaphthene-d10 % recovery**	91.1	90	94.9	73	81.4	94.9	89.7	101	80.1	96.7	94.5	92.5
Phenanthrene-d10 % recovery**	96.9	95.3	99.3	73.9	78.9	98.1	95.7	102	73.4	102	97.5	97.3
Chrysene-d12 % recovery**	90.6	84.9	89	104	84.2	99.1	78.3	98.6	81	107	98.6	84.3
Perylene-d12 % recovery**	87.2	101	84.9	95.8	86.6	102	77.3	101	80.4	110	104	79.1
Total Aliphatics >C12-C44	8.36	0.871	0.1	110	85.6	109	159	181	0.339	5.2	13	0.1
Total Aromatics >EC12-EC44	8.97	5.69	2.63	347	81.1	127	204	185	4.2	24.8	53.7	2.8
Total Aliphatics & Aromatics >C5-C44	17.3	6.56	2.63	457	167	236	363	366	4.54	30	66.7	2.8
Metals - (Solid)												
Iron	18600	23800	34700	91200	164000	117000	159000	118000	38300	23300	28400	23600
Manganese	438	464	467	17900	7770	7030	16000	6500	384	451	443	263
Metals - (Liquid)												
Calcium	-	-	-	-	-	-	164000	126000	-	-	-	-
Magnesium	-	-	-	-	-	-	11600	16300	-	-	-	-
Phenols												
Phenol	0.01	0.01	0.01	0.0114	0.0114	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	-	-	-	0.01	0.01	-	-	0.01	0.01
Xylenols	0.015	0.015	0.015	-	-	-	0.015	0.015	-	-	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	-	-	-	0.035	0.035	-	-	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	0.125	-	0.239	0.129	0.256	-	-	-	-
pH	7.75	7.43	7.64	11	11.2	11.2	10.9	10.9	7.95	8.09	7.62	7.32
Sulphate, Total												
Sulphur, Total	-	-	-	0.239	-	0.274	0.179	0.286	-	-	-	-
Sulphate, Total potential	-	-	-	0.717	-	0.822	0.537	0.858	-	-	-	-
Sulphate, acid soluble (total)	-	-	-	0.303	-	0.491	0.227	0.574	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	266	119	-	-	-	12	12	-	-	217	12
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	0.001	0.001	0.0033	-	-	-	-
Date of Analysis	-	-	-	21/03/2019	21/03/19	22/03/2019	02/04/2019	02/04/2019	-	22/03/2019	-	-
Analysed By	-	-	-	Renata Bozhkov	Andrzej Ferfecki	Renata Bozhkov	Marcin Magdziarek	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	0.001	0.001	0.001	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	None	None	None	-	-	-	-
Analysts Comments	-	-	-	-	-	N/A	N/C	N/A	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	0.001	0.001	0.0038	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	Not Detected	Not Detected	Detected	Detected	Detected	-	Not Detected	-	-
Amosite (Brown) Asbestos	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-
Comments	-	-	-	-	-	Loose fibres in soil.	Loose fibres in soil	Loose fibres in soil	-	-	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	101	111	107	99.6	107	115	103	101	121	116	104	104
Toluene-d8**	100	101	100	96.9	99.6	102	99.4	99.5	103	100	99	100
4-Bromofluorobenzene**	95.4	101	98.5	79.2	85.3	83.8	92.5	90.1	92.6	91.1	92.1	96.4
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.426	0.161	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3DJ1	3DJ1	3DJ1	3DJ2	3DJ2	3DJ3	3DJ4	3DJ4	3DJ1V	3DJ2V	3DJ3V	3DJ4V
Depth	0.5	1	1.6	0.5	2	0.5	0.5	1.1	2.4	3.3	2	2
Sampled Date	18/03/2019	18/03/2019	18/03/2019	19/03/2019	19/03/2019	19/03/2019	19/03/2019	19/03/2019	18/03/2019	19/03/2019	19/03/2019	19/03/2019
Carbon												
Soil Organic Matter (SOM)	20.3	62.8	2.62	27.4	12.3	11.8	6.79	4.33	3.33	3.1	4.14	7.41
Metals (Solids)												
Arsenic	7.9	8.97	10.9	3.64	9.05	6	21	35.8	10.1	12.4	11.1	12.7
Cadmium	1.27	0.189	0.143	0.613	0.381	0.2	5.52	14.9	0.489	0.02	0.02	0.02
Chromium	238	157	16.6	230	33	533	9	9	32.1	34.1	37.1	38.9
Copper	12.8	15.7	24.7	9.61	23.2	14	39.5	98.6	23.2	21.1	17.3	17.2
Lead	99.1	11.9	14.7	27.6	19.9	32.5	1500	3300	28.2	25.9	27.6	35.9
Mercury	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4	0.14	0.14	0.14	0.14
Nickel	11.7	9.03	40.1	6.94	24.2	14.5	54.8	80.2	34.2	31.9	26.4	24.9
Selenium	3.87	2.71	1	5.53	1.14	17.7	10	10	1	1	1	1
Vanadium	169	164	26.1	189	47.2	378	209	217	52	54.2	55.4	65.1
Zinc	408	103	63.7	87.1	64.4	82.4	3390	7120	129	130	125	125
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.0821	0.0921	0.01	0.0207	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.0744	0.17	0.01	0.0598	0.02	0.0362	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.0488	0.0888	0.01	0.0311	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.0344	0.0677	0.01	0.0253	0.02	0.0224	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	5.73	9.12	0.1	13.3	4.36	1.42	0.1	0.1	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	36.7	42	0.1	18.3	4.46	6.46	7.61	0.1	0.1	0.1	0.1	0.1
Aliphatics >C21-C35	403	220	0.1	47.5	7.17	75.4	23	0.1	5.9	0.1	6.53	3.6
Aliphatics >C35-C44	96	53.3	0.1	5.82	0.1	4.3	1.19	0.1	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.0444	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.0322	0.0588	0.01	0.0207	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.0222	0.0444	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	9.24	10.4	0.1	17.9	3.7	1.36	1.79	0.1	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	55.1	44.8	0.1	78.9	23.1	6.04	15	4.04	0.1	0.1	1.5	1.58
Aromatics >EC21-EC35	185	92.7	0.1	166	43.4	24	50.5	5.49	7.05	6.12	22.2	23
Aromatics >EC35-EC44	74.6	32.8	0.1	33.2	6.96	3.54	8.34	0.1	0.1	1.07	2.51	3.89
Aromatics >EC40-EC44	25.6	11.2	0.1	8.54	1.07	0.65	1.12	0.1	0.1	0.1	0.1	1.35
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	719	12	12	1990	2070	84.7	133	12	12	12	40.1	12
Acenaphthene	111	8	8	131	18900	8	8	8	8	8	8	8
Anthracene	1670	16	16	2900	46700	16	94.5	16	16	16	59.1	16
Benz(a)anthracene	3300	624	14	6500	152000	238	466	14	14	14	74.4	27
Benzo(a)pyrene	2900	559	15	5020	105000	282	420	15	15	15	54.8	15
Benzo(b)fluoranthene	4350	639	27.1	5650	137000	372	676	15	26.9	15	60.4	45.4
Benzo(k)fluoranthene	1670	627	14	2420	60300	113	175	14	14	14	27.2	14
Benzo(g,h,i)perylene	1900	346	24	3050	57500	149	315	24	24	24	40.4	24
Chrysene	3030	651	22.5	5150	127000	275	394	24.5	10	10	53	31.1
Dibenzo(a,h)anthracene	508	96.4	0.023	749	19800	39.8	62.5	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	2400	287	0.018	2750	54600	123	250	0.018	0.018	0.018	40	0.018
Fluoranthene	7800	2020	0.017	17500	275000	721	1210	108	37.7	0.017	260	74.1
Fluorene	649	97.7	10	1270	24500	33.5	31.5	10	10	10	74.3	10
Naphthalene	1740	9	17.1	4400	<0.45	522	173	57.7	9	14.9	173	43.1
Phenanthrene	4460	1640	37.3	8370	135000	688	431	150	15	15	328	67.2
Pyrene	5.76	1.45	0.015	12.5	184	0.473	0.915	0.158	0.0306	0.015	0.169	0.0536
PAH, Total Detected USEPA 16	43	9.04	0.118	80.4	1400	4.11	5.75	0.498	0.118	0.118	1.45	0.342
Naphthalene-d8 % recovery**	93.9	0	97.3	105	109	96.2	93.9	102	96.2	97.4	100	94.9
Acenaphthene-d10 % recovery**	99.4	58.4	95.2	86.2	99	94.2	83.3	94.7	95.8	97.5	94.4	94.1
Phenanthrene-d10 % recovery**	99.7	87.2	96.1	87.1	95.5	97.8	74.5	94.1	98	104	95.9	99.9
Chrysene-d12 % recovery**	86.7	75.6	98.4	87.9	110	84.5	56.6	85.8	106	98.5	91.7	90.1
Perylene-d12 % recovery**	86.8	61.9	103	76.4	109	79.8	45.3	78.6	114	94.7	95.1	87.2
Total Aliphatics >C12-C44	542	324	0.1	85	16	87.5	31.9	0.1	5.9	0.1	6.53	3.6
Total Aromatics >EC12-EC44	324	181	0.1	296	77.2	34.9	75.7	9.54	7.05	7.18	26.2	28.5
Total Aliphatics & Aromatics >C5-C44	865	505	0.1	381	93.2	122	108	9.54	12.9	7.18	32.8	32
Metals - (Solid)												
Iron	78000	80300	22600	66300	24000	133000	404000	669000	28700	21300	21700	19100
Manganese	9800	9070	451	11900	1680	27300	5970	11500	400	452	256	315
Metals - (Liquid)												
Calcium	-	-	-	101000	40200	211000	53000	53700	-	-	-	-
Magnesium	-	-	-	14800	6810	35500	5800	2300	-	-	-	-
Phenols												
Phenol	0.01	0.0111	0.0234	0.069	0.0113	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	-	-	-	0.0345	0.01	0.01	0.01	0.01	-	0.01	0.01	0.01
Xylenols	-	-	-	0.015	0.015	0.015	0.015	0.015	-	0.015	0.015	0.015
Phenols, Total Detected monohydric	-	-	-	0.104	0.035	0.035	0.035	0.035	-	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	0.089	-	0.0303	0.0464	0.031	0.0112	0.0405	0.597	-	-	-	-
pH	10.4	11.2	9.77	11.7	10.8	12.7	8.45	10.7	8.83	7.38	7.35	7.65
Sulphate, Total												
Sulphur, Total	0.155	-	0.103	0.125	0.138	0.144	0.175	0.293	-	-	-	-
Sulphate, Total potential	0.465	-	0.309	0.375	0.414	0.432	0.525	0.879	-	-	-	-
Sulphate, acid soluble (total)	0.201	-	0.0907	0.0927	0.237	0.247	0.117	0.683	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	6.41	1	1	1	1
Exchangeable Ammonia as N	-	-	-	12	12	12	12	12	-	212	235	171
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	22/03/2019	22/03/2019	25/03/2019	02/04/2019	02/04/2019	02/04/2019	02/04/19	02/04/19	22/03/2019	-	-	-
Analysed By	James Richards	Renata Bozhkov	James Richards	Marcin Magdziarek	Marcin Magdziarek	Marcin Magdziarek	Andrzej Ferfecki	Andrzej Ferfecki	James Richards	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Comments	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	108	109	122	115	91.1	86.5	106	102	125	103	104	103
Toluene-d8**	102	104	99.8	101	89.9	96.9	98	101	101	100	99.8	100
4-Bromofluorobenzene**	93.3	91.8	82.8	97.6	71	86.7	91.6	96.3	82.3	96.4	95.8	91.2
Methyl Tertiary Butyl Ether	2	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	1.8	1.8	0.09	1.8	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	1.4	1.4	0.07	1.4	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.8	0.8	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	2	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	2	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	2.6	2.6	0.13	2.6	0.361	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	8	8	0.4	8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3DK1	3DK1	3DK1	3DK2	3DK2	3DK4	3DK4	3DK1V	3DK2V	3DK4V
Depth	0.5	1.2	2	0.5	1.2	0.3	0.6	2.9	2.5	0.8
Sampled Date	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019	21/03/2019	21/03/2019	13/03/2019	13/03/2019	21/03/2019
Carbon										
Soil Organic Matter (SOM)	21.6	>100	9.34	16.7	60.9	18.6	4.36	2.22	2.76	1.9
Metals (Solids)										
Arsenic	6	6.89	8.4	5.8	6	4.69	11.1	11.6	12	13.2
Cadmium	1.11	0.31	0.256	0.287	0.758	0.482	0.959	0.443	0.343	0.02
Chromium	487	53.6	28.6	109	267	6.07	29.9	36.3	33.8	34.3
Copper	14	18.7	8.69	13.3	14	18.8	31.8	18.3	14	16.9
Lead	30	17.9	10.7	22.7	17.1	14.4	170	23.4	25.9	23.8
Mercury	1.4	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14
Nickel	8.96	8.75	11.2	10	7.19	25.1	31	29.4	27.7	44.1
Selenium	12.3	3.75	1.01	3.69	12.1	1	1.41	1	1	1
Vanadium	497	203	75.6	140	938	17.6	26.3	57.8	58.1	54.8
Zinc	86.9	21.2	24.9	75.2	30.2	143	314	127	114	130
TPH Criteria Working Group (TPH CWG)										
Benzene										
Toluene										
Ethylbenzene										
sum of detected mpo xylene by GC										
Aliphatics >C5-C6	0.0109	0.0422	0.0119	0.02	0.01	0.0452	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.0612	0.18	0.0474	0.0396	0.0231	0.115	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.0557	0.0522	0.0291	0.0237	0.01	0.0742	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.047	0.0189	0.0183	0.0203	0.01	0.0527	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	4.06	6.43	3.07	4.23	14.5	4.08	1.35	0.377	0.1	0.384
Aliphatics >C16-C21	15	11.1	19.7	17.1	17.1	6.52	3.02	1.16	0.1	0.134
Aliphatics >C21-C35	28	23.5	27.5	45.6	59.9	17.1	6.81	3.56	1.14	0.642
Aliphatics >C35-C44	6.31	4.97	6.93	10.8	13.9	1.99	0.1	1.14	0.932	0.1
Aromatics >EC5-EC7	0.01	0.11	0.014	0.02	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.01	0.0599	0.0151	0.02	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.0372	0.0344	0.0194	0.02	0.01	0.0495	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.0306	0.0122	0.0119	0.02	0.01	0.0355	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	7.93	16.3	3.48	8.02	12	4.65	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	36.8	35.6	11.4	55.3	31.4	13.5	0.1	0.1	0.1	0.1
Aromatics >EC21-EC35	74.7	55.9	25.7	267	72.3	37.7	3.5	4.18	3	3.21
Aromatics >EC35-EC44	18.1	14.8	8.16	66.5	20.7	10.8	0.1	1.96	0.561	0.1
Aromatics >EC40-EC44	5.51	4.83	2.87	19.1	6.73	3.5	0.1	0.737	0.1	0.249
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	2020	85.9	14.5	419	146	26.4	12	12	12	12
Acenaphthene	2850	363	31.7	115	60.2	10.7	8	8	8	8
Anthracene	7410	272	42.8	1560	277	41.9	16	16	16	16
Benz(a)anthracene	5870	516	140	5990	689	109	14	14	14	14
Benzo(a)pyrene	5140	323	135	4950	451	91.9	15	15	15	15
Benzo(b)fluoranthene	7330	455	207	7730	642	196	17.4	15	15	15
Benzo(k)fluoranthene	2310	149	73.2	2280	282	51.3	14	14	14	14
Benzo(g,h,i)perylene	3800	206	111	3620	259	76.8	24	24	24	24
Chrysene	6780	650	186	5250	811	180	25.2	10	10	10
Dibenzo(a,h)anthracene	784	63.5	0.023	1000	80.7	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	3050	128	69.9	2880	212	50.5	0.018	0.018	0.018	0.018
Fluoranthene	17600	1450	284	11100	1720	251	23.9	0.017	0.017	0.017
Fluorene	4060	725	50.1	498	195	59.8	10	10	10	10
Naphthalene	5530	2350	245	1260	894	321	34.1	9	9	9
Phenanthrene	20600	2410	271	5610	1860	444	66	15	15	15
Pyrene	12.7	1.09	0.23	8.19	1.22	0.193	0.0181	0.015	0.015	0.015
PAH, Total Detected USEPA 16	108	11.2	2.09	62.4	9.8	2.1	0.185	0.118	0.118	0.118
Naphthalene-d8 % recovery**	88.6	98.7	91.2	86.7	90.9	92.3	95.9	86.9	95.5	96.6
Acenaphthene-d10 % recovery**	90	97	82.4	85.2	89.7	87.3	89.6	85.2	100	95
Phenanthrene-d10 % recovery**	89.5	92.6	77.2	81.4	86.7	88.7	89.1	83.6	102	100
Chrysene-d12 % recovery**	87.8	77	84.1	84.9	78.4	74.8	74.3	84.4	95.8	90.4
Perylene-d12 % recovery**	81	56.7	80.4	78.3	62	77.6	83.4	84.1	88.2	86.5
Total Aliphatics >C12-C44	53.3	46	57.2	77.7	105	29.7	11.2	6.24	2.07	1.16
Total Aromatics >EC12-EC44	138	123	48.7	397	136	66.7	3.5	6.14	3.56	3.21
Total Aliphatics & Aromatics >C5-C44	191	169	106	474	242	96.7	14.7	12.4	5.64	4.37
Metals - (Solid)										
Iron	108000	37200	24900	53800	79600	31100	26000	37700	38600	31700
Manganese	23000	4820	2220	7470	20800	897	796	523	680	493
Metals - (Liquid)										
Calcium	-	-	-	-	-	37600	22600	-	-	-
Magnesium	-	-	-	-	-	2390	9100	-	-	-
Phenols										
Phenol	0.0219	0.0222	0.0108	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	-	-	-	-	-	0.01	0.01	-	-	0.0133
Xylenols	-	-	-	-	-	0.015	0.015	-	-	0.015
Phenols, Total Detected monohydric	-	-	-	-	-	0.035	0.035	-	-	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE	0.043	-	0.0588	0.0957	-	0.0111	0.0154	-	-	-
pH	11.8	12.6	11.6	11.3	12	8.52	8.27	6.79	7.93	7.49
Sulphate, Total										
Sulphur, Total	0.254	-	0.153	0.191	-	0.0976	0.0837	-	-	-
Sulphate, Total potential	0.762	-	0.459	0.573	-	0.293	0.251	-	-	-
Sulphate, acid soluble (total)	0.353	-	0.215	0.461	-	0.033	0.107	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	-	-	-	-	-	12	12	-	-	129
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	0.001	-	-	-	-	-	-	-
Date of Analysis	21/03/2019	21/03/2019	21/03/2019	21/03/19	20/03/19	04/04/19	05/04/19	-	-	-
Analysed By	Barbara Urbanek-Walsh	James Richards	Lucy Caroe	Andrzej Ferfecki	Christian Hallam	Christian Hallam	Christian Hallam	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	0.001	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	None	-	-	-	-	-	-	-
Analysts Comments	-	-	N/C	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	0.001	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Trace	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-
Comments	-	-	Loose fibres in soil	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	77.4	101	101	86.5	104	100	109	121	113	115
Toluene-d8**	93.7	97.7	93.1	95.7	97.4	99.9	99.3	101	102	101
4-Bromofluorobenzene**	70.3	93.6	71.1	72.1	90	96.5	86.5	85.8	93.5	102
Methyl Tertiary Butyl Ether	0.2	2	0.1	0.2	2	2	0.1	0.1	0.1	0.1
Benzene	0.18	1.8	0.13	0.18	1.8	1.8	0.09	0.09	0.09	0.09
Toluene	0.14	1.4	0.128	0.14	1.4	1.4	0.07	0.07	0.07	0.07
Ethylbenzene	0.08	0.8	0.04	0.08	0.8	0.8	0.04	0.04	0.04	0.04
p/m-Xylene	0.2	2	0.1	0.2	2	2	0.1	0.1	0.1	0.1
o-Xylene	0.2	2	0.1	0.2	2	2	0.1	0.1	0.1	0.1
Naphthalene	1.4	2.6	0.141	0.26	2.6	2.6	0.13	0.13	0.13	0.13
Sum of BTEX	0.8	8	0.4	0.8	8	8	0.4	0.4	0.4	0.4
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-

Sample ID	3DL1	3DL1	3DL2	3DL2	3DL4	3DL4	3DL1V	3DL2V	3DM1	3DM1	3DM2	3DM2
Depth	0.3	0.8	0.5	1	0.5	1.2	2.8	2.8	0.5	1.2	0.5	1
Sampled Date	13/03/2019	13/03/2019	13/03/2019	13/03/2019	21/03/2019	21/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019	13/03/2019
Carbon												
Soil Organic Matter (SOM)	17.9	0.35	33.8	3.33	35.2	2.86	2.45	8.5	92.1	11.5	9.52	55.5
Metals (Solids)												
Arsenic	6	6	9.58	6	6	14.6	11.7	16.1	6	6	6.59	1.97
Cadmium	1.56	0.979	1.72	1.03	1.35	0.387	0.424	0.605	0.488	0.367	1.5	0.258
Chromium	264	412	268	596	433	20.1	37.7	43.5	322	386	325	223
Copper	18.4	14	22.3	14	148	8.71	16.9	21.2	14	14	14	7.33
Lead	61.2	8.98	99.2	15	21.8	7	26.4	42.7	5.15	0.763	107	8.83
Mercury	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	1.4	1.4	1.4	0.14
Nickel	29.1	4.24	17.7	11	10	6.77	39	26.1	8.13	6.22	12.5	3.48
Selenium	10	15.3	10	12.2	11.7	5.46	1	1	10	15.4	10.4	4.67
Vanadium	302	1530	274	503	360	71.6	60.3	74.4	241	1750	503	152
Zinc	163	24.2	243	94.4	184	31.7	116	132	133	28.9	247	35
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.0505	0.02	0.0154	0.01	0.0372	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.271	0.02	0.0638	0.0306	0.0733	0.02	0.02	0.02	0.0209	0.02	0.02	0.0667
Aliphatics >C8-C10	0.342	0.02	0.0572	0.0186	0.0897	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.285	0.02	0.12	0.0284	0.0667	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	5.32	0.955	2.54	3.52	5.4	2.32	0.1	0.1	27.6	6.1	2.21	16
Aliphatics >C16-C21	17.1	5.32	7.5	7.4	7.41	4.89	0.1	0.1	111	21.2	11.3	18.5
Aliphatics >C21-C35	65.4	31.3	15	25	48	14.2	0.1	5.37	158	120	47.9	39.1
Aliphatics >C35-C44	13	14	2.81	3.3	2.63	3.62	0.1	0.1	25.2	31.9	14.3	4.65
Aromatics >EC5-EC7	0.0296	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.0373	0.02	0.011	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.228	0.02	0.0385	0.012	0.0602	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.19	0.02	0.0803	0.0186	0.0438	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	7.35	0.967	7.4	6.43	5.34	2.14	0.625	0.1	17.4	3.64	4.53	14.7
Aromatics >EC16-EC21	26.7	10.1	51.3	23.8	15.3	11.6	1.02	0.1	56.5	11.4	31.1	28.4
Aromatics >EC21-EC35	76.3	34.1	108	70.1	38.1	30.1	7.45	24.1	93.6	51.1	79.3	59
Aromatics >EC35-EC44	21.4	12	22.5	18	8.52	5.9	2.35	2.11	28.3	19.2	23.2	15.5
Aromatics >EC40-EC44	6.61	3.7	6.52	5.98	2.41	1.36	0.952	0.1	10.9	6.52	7.73	5
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	162	38.6	1550	3300	142	58.6	12	12	166	34.8	340	89.6
Acenaphthene	36.3	79.6	457	1990	17.5	11.2	8	8	40.5	53.9	29.6	8
Anthracene	294	203	2370	6840	305	103	16	16	327	75.6	592	126
Benz(a)anthracene	785	777	4380	12000	544	218	14	28.7	770	468	1610	222
Benzo(a)pyrene	703	688	3720	9090	395	212	15	15	528	508	1290	107
Benzo(b)fluoranthene	1110	1130	4280	10500	652	250	15	26.6	650	643	2230	280
Benzo(k)fluoranthene	317	420	1650	3950	215	101	14	14	231	170	738	68.3
Benzo(g,h,i)perylene	574	532	2630	6420	227	146	24	24	318	498	958	84.2
Chrysene	751	885	3400	8870	470	232	10	32.5	885	578	1640	327
Dibenzo(a,h)anthracene	125	82.1	582	1270	71.4	35.5	0.023	0.023	81	83	212	0.023
Indeno(1,2,3-cd)pyrene	416	426	2040	4490	271	115	0.018	0.018	214	294	753	74.1
Fluoranthene	1760	1820	11200	34600	1260	569	0.017	55.5	1990	1010	3270	583
Fluorene	169	49.6	1750	6390	95.2	62.4	10	10	175	48.9	213	10
Naphthalene	1110	99.1	12600	41500	1120	404	13.1	23.3	917	297	2390	885
Phenanthrene	1210	1670	8130	28200	1280	478	15	32.4	1630	772	1780	991
Pyrene	1.28	1.34	8.09	21.9	0.937	0.417	0.015	0.0422	1.49	0.834	2.71	0.466
PAH, Total Detected USEPA 16	10.8	10.2	68.8	201	8	3.42	0.118	0.241	10.4	6.37	20.8	4.3
Naphthalene-d8 % recovery**	91	103	92.1	96	97	93.3	104	86.8	90.8	95.4	89.1	99.6
Acenaphthene-d10 % recovery**	87.1	97.5	90.7	82	95.9	86.2	95	87.6	93.6	91.7	84.5	100
Phenanthrene-d10 % recovery**	81.8	96.4	91.4	79.2	99.1	88.7	96	83.2	94.9	93.4	76.2	99
Chrysene-d12 % recovery**	85.8	88.4	98.8	109	87.1	78.2	85.2	84.6	93.7	105	81.7	85.5
Perylene-d12 % recovery**	79.1	83.7	87.6	82	78.8	87.8	81.8	83.1	74.8	97.9	79.1	65.4
Total Aliphatics >C12-C44	101	51.5	27.8	39.2	63.4	25	0.1	5.37	322	180	75.8	78.2
Total Aromatics >EC12-EC44	132	57.2	189	118	67.2	49.8	11.4	26.2	196	85.4	138	118
Total Aliphatics & Aromatics >C5-C44	234	109	218	158	131	74.8	11.4	31.6	518	265	214	196
Metals - (Solid)												
Iron	109000	141000	107000	139000	123000	48200	34900	27600	84600	103000	104000	41000
Manganese	13500	32900	16400	27300	22300	7310	298	274	12200	21700	19800	9380
Metals - (Liquid)												
Calcium	-	-	-	-	186000	-	-	-	-	-	-	-
Magnesium	-	-	-	-	34800	-	-	-	-	-	-	-
Phenols												
Phenol	0.011	0.01	0.022	0.0219	0.0109	0.01	0.01	0.01	0.011	0.011	0.01	0.0109
Cresols	-	-	-	-	0.01	0.01	-	-	-	-	-	-
Xylenols	-	-	-	-	0.015	0.015	-	-	-	-	-	-
Phenols, Total Detected monohydric	-	-	-	-	0.035	0.035	-	-	-	-	-	-
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.0105	0.059	-	0.0107	-	-	-	0.0569	-	-	0.0499
pH	12.2	12.8	11.1	12.6	12.7	11.7	7.84	7.13	11.9	12.7	11.6	11.9
Sulphate, Total												
Sulphur, Total	-	0.156	0.265	-	0.128	-	-	-	0.044	-	-	0.13
Sulphate, Total potential	-	0.468	0.795	-	0.384	-	-	-	0.132	-	-	0.39
Sulphate, acid soluble (total)	-	0.188	0.361	-	0.182	-	-	-	0.15	-	-	0.157
Cyanide, Total	1	1	1.61	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	-	-	-	-	12	12	-	-	-	-	-	-
Asbestos												
Asbestos Quantification - Gravimetric - %	0.001	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	21/03/2019	21/03/2019	21/03/2019	21/03/2019	05/04/19	-	-	-	20/03/19	20/03/19	21/03/19	21/03/19
Analysed By	James Richards	Lucy Caroe	Lucy Caroe	Barbara Urbanek-Walsh	Christian Hallam	-	-	-	Christian Hallam	Lucy Caroe	Andrzej Ferfecki	Andrzej Ferfecki
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	None	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	N/A	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	0.001	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Detected	Not Detected	Not Detected
Comments	Fibre bundles in soil	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	103	79	98.7	97.5	81.3	97.1	119	119	103	101	107	101
Toluene-d8**	96.6	102	99.1	94.7	88.1	96.9	101	102	97.7	97.3	95.3	95.3
4-Bromofluorobenzene**	75.4	95.2	79.9	74	70.3	82.4	90	88.3	86.4	83.3	76.9	80.5
Methyl Tertiary Butyl Ether	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	2	0.2	0.1	2
Benzene	0.09	0.09	0.18	0.09	0.09	0.09	0.09	0.09	1.8	0.18	0.09	1.8
Toluene	0.07	0.07	0.14	0.07	0.07	0.07	0.07	0.07	1.4	0.14	0.07	1.4
Ethylbenzene	0.04	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.8	0.08	0.04	0.8
p/m-Xylene	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	2	0.2	0.1	2
o-Xylene	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	2	0.2	0.1	2
Naphthalene	0.712	0.13	4.38	1.07	0.273	0.13	0.13	0.13	2.6	0.26	0.602	2.6
Sum of BTEX	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4	8	0.8	0.4	8
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3DM4	3DM1V	3DM2V	3DM4V	TPAC13	TPAC13	TPAC13	TPAD10	TPAD10	TPAD10	TPAD11	TPAD11
Depth	0.5	3	2.7	2.7	0.5	1.5	2.4	1	2	2.5	0.5	1.5
Sampled Date	21/03/2019	13/03/2019	13/03/2019	21/03/2019	########	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Carbon												
Soil Organic Matter (SOM)	62.1	3.64	5.28	1.84	5.36	1.61	6.93	0.919	1.47	24.3	2.69	1.66
Metals (Solids)												
Arsenic	5.35	12.2	13.6	17.3	11.8	11.4	10.5	6	9.88	12.4	12.3	13.4
Cadmium	0.861	0.391	0.467	0.484	5.29	0.2	0.557	0.591	0.2	0.0479	4.89	0.989
Chromium	132	40.8	40.7	33.7	20.2	9	24.5	9	574	24.5	143	83.9
Copper	15.6	19.6	16.1	10.2	37.9	14	39.4	22.1	55.1	15.2	38.8	34.2
Lead	73.8	25.9	33.3	31.8	289	50	327	21.7	110	36	120	195
Mercury	0.14	0.14	0.14	0.14	5.11	1.4	0.937	3.54	1.4	0.972	6.24	1.69
Nickel	10.2	37.9	28.5	32.4	37.2	9.32	20.1	17.9	28.5	22.7	36.9	24.2
Selenium	3.53	1	1	1	10	10	1	10	13.3	1	11.2	10
Vanadium	76.8	66.4	67.5	57.7	98.1	83.5	53.5	168	213	54.7	299	187
Zinc	202	118	119	101	790	131	364	62.8	287	154	384	561
TPH Criteria Working Group (TPH CWG)												
Benzene					0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene					0.025	0.008	0.0189	0.008	0.008	0.008	0.008	0.008
Ethylbenzene					0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC					0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.0209	0.02	0.02	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.091	0.02	0.02	0.02	0.04	0.0497	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.08	0.02	0.02	0.02	0.04	0.167	0.0554	0.04	0.04	0.04	0.04	0.0807
Aliphatics >C10-C12	0.0947	0.02	0.02	0.02	0.04	0.472	0.04	0.04	0.04	0.04	0.04	0.234
Aliphatics >C12-C16	14	0.1	0.1	0.1	0.581	18.2	0.1	2.65	7.01	0.1	2.92	15.6
Aliphatics >C16-C21	31.3	0.1	1.19	0.1	5.99	34.5	0.748	10.1	16.6	0.1	9.86	30.5
Aliphatics >C21-C35	53.8	2.03	7.94	0.1	34.2	62.6	25.5	39.5	53.6	7.05	59.2	77.3
Aliphatics >C35-C44	8.9	0.1	0.1	0.1	7.04	12.1	11.1	6.22	12.9	0.1	23.9	32
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.0529	0.02	0.02	0.02	0.04	0.111	0.0403	0.04	0.04	0.04	0.04	0.0534
Aromatics >EC10-EC12	0.064	0.02	0.02	0.02	0.04	0.315	0.04	0.04	0.04	0.04	0.04	0.156
Aromatics >EC12-EC16	17.4	0.642	196	0.1	1.97	4.49	0.916	0.579	3.23	0.1	1.23	4.61
Aromatics >EC16-EC21	70.1	1.68	413	0.1	10	13.1	2.66	3.09	9.69	0.1	7.6	19.8
Aromatics >EC21-EC35	113	7.54	224	1.74	47	30.9	43.9	21.5	34.9	27.2	44.5	73.7
Aromatics >EC35-EC44	26.6	1.21	15.5	0.1	18.9	14.7	41.8	9.08	14.2	3.37	32.1	47.1
Aromatics >EC40-EC44	8.61	0.1	5.38	0.1	7.38	6.26	18	3.18	5.29	0.1	14.4	19.7
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	882	12	12	20.2	9260	12	82.5	12	84.3	12	70.8	112
Acenaphthene	114	8	8	8	413	29.1	8	10.9	33.1	8	20.5	61.3
Anthracene	1320	16	16	27.9	6670	38.6	160	16	228	16	125	234
Benz(a)anthracene	2180	14	36.7	89.1	17300	113	521	121	782	28.4	349	759
Benzo(a)pyrene	1480	15	29.9	97.2	15400	90.6	547	105	671	38.4	335	843
Benzo(b)fluoranthene	2250	15	31.3	116	19900	163	984	154	951	44.4	483	860
Benzo(k)fluoranthene	889	14	14	30.3	7540	59.9	317	62.5	345	20.8	211	439
Benzo(g,h,i)perylene	835	24	36.3	63.5	11400	86.1	571	89.8	446	40.3	290	594
Chrysene	1840	10	40.8	86.8	9570	115	616	108	676	32.6	343	793
Dibenzo(a,h)anthracene	246	0.023	0.023	0.023	2400	0.023	135	0.023	134	0.023	77.6	149
Indeno(1,2,3-cd)pyrene	1090	0.018	0.018	49.5	9870	63.7	452	73.3	407	27	241	500
Fluoranthene	6090	0.017	87.4	218	69700	188	831	163	1400	46.6	661	1420
Fluorene	816	10	10	13.9	7040	29.2	33	10	76.7	10	68.1	119
Naphthalene	5120	9	11.4	75.8	4370	72.9	142	42.6	228	13.8	260	279
Phenanthrene	5640	15	41.2	120	68200	144	342	71.7	654	40.2	478	736
Pyrene	4.24	0.015	0.0695	0.168								
PAH, Total Detected USEPA 16	35	0.118	0.384	1.18	311	1.38	6.35	1.16	8.14	0.368	4.51	9.12
Naphthalene-d8 % recovery**	91.6	88	98.8	93	93.5	95.2	92	101	107	112	85.2	101
Acenaphthene-d10 % recovery**	93.7	83.2	96.3	87.4	91.6	93.1	88.7	97.7	103	106	79.7	94.5
Phenanthrene-d10 % recovery**	95.2	74.2	96.8	92	91.5	90.1	86.8	95.3	100	103	78.3	92.8
Chrysene-d12 % recovery**	77.7	79.9	106	81.8	103	92.8	87.6	99.3	106	94.8	79.3	92.4
Perylene-d12 % recovery**	70.2	78.6	101	98.5	105	95.4	91.3	109	113	113	82.4	106
Total Aliphatics >C12-C44	108	2.03	9.14	0.1	47.8	127	37.4	58.5	90.2	7.05	96	155
Total Aromatics >EC12-EC44	227	11.1	849	1.74	77.9	63.2	89.3	34.3	61.9	30.5	85.4	145
Total Aliphatics & Aromatics >C5-C44	336	13.1	858	1.74								
Metals - (Solid)												
Iron	30300	34400	31900	43000	106000	171000	44500	232000	188000	41400	207000	195000
Manganese	6550	382	289	585	3300	7380	2610	5830	17200	652	10300	10900
Metals - (Liquid)												
Calcium	63300	-	-	-	-	124000	-	-	188000	-	-	137000
Magnesium	7150	-	-	-	-	12700	-	-	7940	-	-	13300
Phenols												
Phenol	0.01	0.01	0.01	0.01	0.0238	0.01	0.01	0.01	0.131	0.01	0.322	0.147
Cresols	0.01	-	-	0.01	0.0714	0.01	0.01	0.01	0.01	0.01	0.023	0.0105
Xylenols	0.015	-	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	-	-	0.035	0.0952	0.035	0.035	0.035	0.131	0.035	0.345	0.157
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	0.114	-	-	-	-	0.155	-	-	0.114	-	-	0.162
pH	8.71	8.79	7.25	8.22	10.2	11	7.8	11.1	11.1	7.23	11.4	11.3
Sulphate, Total					-	-	-	-	-	-	-	-
Sulphur, Total	0.107	-	-	-	-	0.265	-	-	0.294	-	-	0.0563
Sulphate, Total potential	0.321	-	-	-	-	0.795	-	-	0.882	-	-	0.169
Sulphate, acid soluble (total)	0.0928	-	-	-	-	0.979	-	-	0.322	-	-	0.258
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	-	-	137	38.2	12	31.7	12	12	242	12	12
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	04/04/2019	-	-	-	-	22/12/2017	-	-	22/12/2017	-	-	22/12/2017
Analysed By	James Richards	-	-	-	-	James Richards	-	-	Barbara Urbanek-Walsh	-	-	Eva Guerra
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Amosite (Brown) Asbestos	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Fibrous Anthophyllite	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Fibrous Tremolite	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Fibrous Actinolite	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Non-Asbestos Fibre	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Comments	-	-	-	-	-	0	-	-	0	-	-	0
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	93.4	122	117	116	-	-	-	-	-	-	-	-
Toluene-d8**	98.2	101	100	102	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	82.6	91.1	87.1	103	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-	-
Benzene	0.09	0.09	0.09	0.09	-	-	-	-	-	-	-	-
Toluene	0.07	0.07	0.07	0.07	-	-	-	-	-	-	-	-
Ethylbenzene	0.04	0.04	0.04	0.04	-	-	-	-	-	-	-	-
p/m-Xylene	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-	-
o-Xylene	0.1	0.1	0.1	0.1	-	-	-	-	-	-	-	-
Naphthalene	0.29	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	-	-	-	-	-	-	-	-
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TPAD11	TPAD12	TPAD12	TPAD12	TPAD12	TPAD13	TPAE10	TPAE10	TPAE10	TPAE11	TPAE11	TPAE12
Depth	2.7	0.9	1.5	2.3	2.7	0.3	1	2	3	0.5	1.5	0.5
Sampled Date	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Carbon												
Soil Organic Matter (SOM)	5.1	4.6	2.84	3.5	1.39	5.45	1.84	1.93	1.04	0.934	6.53	4.57
Metals (Solids)												
Arsenic	8.73	8.73	10.2	6.61	10.1	6.14	6.75	8.96	9.56	6.89	6	8.36
Cadmium	0.0993	1.79	0.205	0.02	0.02	0.482	0.22	0.2	0.02	0.2	0.2	1.05
Chromium	12.5	35.5	94.1	136	28.1	69	94.3	352	23	454	487	63.1
Copper	24	29	30.7	20.5	11.7	21.8	19.9	27.2	7.8	25	29.7	30.9
Lead	33.6	355	57.4	20.7	24.8	65.4	36.9	57.5	21.8	36.6	33.8	109
Mercury	0.729	1.4	1.4	0.14	0.896	1.42	1.4	1.4	0.707	1.4	1.4	2.02
Nickel	22.8	26.9	22.9	17.9	36.5	18.4	15.1	21.7	32.5	16.6	9.53	27.9
Selenium	1	10	10	3.42	1.6	10	10	11.9	1.32	21.4	16.3	10
Vanadium	30	102	133	159	64.3	176	163	278	52.4	472	394	201
Zinc	96.9	963	183	67.9	111	185	99.2	110	98.6	116	55.4	338
TPH Criteria Working Group (TPH CWG)												
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.0686	0.019	0.008	0.032	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.0409	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.108	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.0594	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	1.21	2.71	14.6	1.2	1.02	1.11	3.85	0.268	1.08	0.683	1.34	3.65
Aliphatics >C16-C21	1.39	10.8	34.7	2.98	1.49	6.99	20.5	5.36	2.06	5.73	6.13	14.5
Aliphatics >C21-C35	15	47.9	126	19.3	5.44	34.3	109	51.8	6.42	45.2	52	59.2
Aliphatics >C35-C44	0.595	11.8	41.7	8.05	0.762	10.2	39.6	15.2	0.978	7.86	7.9	23.9
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.0686	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.0818	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	1.41	2.77	3.33	1.03	0.182	1.87	1.73	0.673	0.318	0.696	0.921	3.5
Aromatics >EC16-EC21	4.87	12.9	14.2	4.04	0.831	14.6	15.3	6.77	0.678	10.5	12.9	30.5
Aromatics >EC21-EC35	59.2	59.5	80.9	36.5	4.6	66.9	102	58.5	3.52	60.1	69.4	115
Aromatics >EC35-EC44	14.4	23.5	58.8	24.6	0.774	23.6	52.1	27.2	0.995	18.2	22.9	50.2
Aromatics >EC40-EC44	5.38	8.98	25.3	10.4	0.1	8.44	20.8	10.8	0.1	6.13	8.48	20.4
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	12	70.2	32.7	31.7	12	86.8	32.9	26.8	12	14.4	12.2	835
Acenaphthene	8	46.7	31.6	12.2	8	16.3	44.5	63.6	8	110	62.6	70.6
Anthracene	25.3	168	63.4	45.4	16	157	127	173	16	219	143	1550
Benz(a)anthracene	147	696	372	284	20.6	757	1010	1520	83.9	2470	2080	6340
Benzo(a)pyrene	178	720	383	322	29.6	744	1080	1650	106	2380	2060	6290
Benzo(b)fluoranthene	259	996	541	382	30.3	1170	1280	2060	124	3160	2730	8790
Benzo(k)fluoranthene	90.4	368	228	163	14	462	560	830	60.5	1360	1200	3150
Benzo(g,h,i)perylene	150	515	291	220	24	601	737	1130	101	1810	1490	4310
Chrysene	146	650	399	270	23	782	959	1460	54.3	2530	2150	5260
Dibenzo(a,h)anthracene	46.6	146	69.1	64.3	0.023	158	199	292	0.023	460	378	1210
Indeno(1,2,3-cd)pyrene	119	447	229	189	0.018	499	616	920	81.3	1460	1250	4100
Fluoranthene	194	1170	515	388	34.2	939	1320	1900	74	4140	3370	11200
Fluorene	10	90.5	28.6	28.2	10	39.9	38	42.3	10	37.5	18.8	453
Naphthalene	32.6	235	93.5	122	9	141	108	126	30.8	115	39.6	1280
Phenanthrene	122	696	271	214	23.1	409	586	807	62.6	2100	1140	4390
Pyrene												
PAH, Total Detected USEPA 16	1.66	7.96	4.12	3.11	0.19	7.98	9.93	14.8	0.885	25.8	20.9	67.4
Naphthalene-d8 % recovery**	96.2	99.1	97.7	101	103	95.3	102	101	118	106	92	104
Acenaphthene-d10 % recovery**	94.8	94.7	93.5	98.5	101	92.9	97.9	97.2	115	103	87.6	101
Phenanthrene-d10 % recovery**	92.7	91.7	91	96	96.6	91.5	96.8	95.8	112	102	87.2	99.6
Chrysene-d12 % recovery**	92.4	93.7	90.8	94.1	97.2	93.8	98.6	98.2	116	106	91.4	105
Perylene-d12 % recovery**	97	100	104	101	104	98	106	107	126	114	102	113
Total Aliphatics >C12-C44	18.2	73.2	218	31.5	8.7	52.6	173	72.7	10.5	59.4	67.3	101
Total Aromatics >EC12-EC44	79.9	98.7	157	66.1	6.39	107	171	93.2	5.51	89.5	106	199
Total Aliphatics & Aromatics >C5-C44												
Metals - (Solid)												
Iron	28300	130000	162000	71700	41400	75000	147000	204000	37000	185000	174000	167000
Manganese	858	4360	10800	8930	690	4090	11000	17800	1150	36500	30500	10400
Metals - (Liquid)												
Calcium	31500	70600	-	90700	-	146000	-	157000	-	-	239000	-
Magnesium	11300	10000	-	12700	-	32500	-	12700	-	-	7350	-
Phenols												
Phenol	0.01	0.0357	0.0314	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.0132	0.0714	0.01	0.0107	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.0213	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.107	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	0.0756	0.069	-	0.0447	-	0.158	-	0.19	-	-	0.0308	-
pH	7.75	10.1	11.4	8.6	7.53	11.4	9.68	11.6	8.46	12.6	12.6	11.2
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.0813	0.121	-	0.0922	-	0.2	-	0.226	-	-	0.286	-
Sulphate, Total potential	0.244	0.363	-	0.277	-	0.6	-	0.678	-	-	0.858	-
Sulphate, acid soluble (total)	0.0481	0.212	-	0.107	-	0.371	-	0.361	-	-	0.322	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	26.9	12	12	157	12	12	12	113	12	12	12
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	0.001	-
Date of Analysis	22/12/2017	22/12/2017	-	22/12/2017	-	22/12/2017	-	22/12/2017	-	-	22/12/2017	-
Analysed By	Barbara Urbanek-Walsh	Eva Guerra	-	James Richards	-	Eva Guerra	-	Barbara Urbanek-Walsh	-	-	Barbara Urbanek-Walsh	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	0.001	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	None	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	N/C	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	0.001	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Comments	0	0	-	0	-	0	-	0	-	-	Fibre bundles in soil.	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.013	0.13	0.13
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TPAE12	TPAE12	TPAE13	TPAE13	TPAE13	TPAF9	TPAF10	TPAF12	TPAF12	TPAF13	TPAF13	TPAF13
Depth	1.5	1.8	0.7	1.1	2	0.2	0.5	0.3	1	0.4	2	3.1
Sampled Date	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017
Carbon												
Soil Organic Matter (SOM)	1.01	0.864	1.38	2.12	7.33	5.81	1.71	1.41	1.13	8.72	2.14	7.84
Metals (Solids)												
Arsenic	6	13.4	6	6	17.6	16.6	6	12.8	6	6	6	7.83
Cadmium	0.2	0.2	0.2	0.2	0.222	1.23	0.2	0.2	0.2	0.2	1.04	0.197
Chromium	558	173	390	733	28.4	14.4	207	9	353	770	796	18.6
Copper	16.7	45.3	19.6	19.2	18.6	50.9	23.3	29.2	20.4	14	26.5	12.3
Lead	16	17.9	33	60.9	47.9	240	96.9	41.6	23.7	19.4	348	27.8
Mercury	1.4	1.4	1.4	1.4	0.791	1.4	1.4	2.61	1.4	1.4	1.4	0.488
Nickel	5.48	13.8	7.26	11.2	25.1	32.3	12.6	5.6	4.38	3.4	10.2	13
Selenium	14.9	15.9	10	16.4	1.48	10	14	10	12.9	19.3	17.2	1
Vanadium	492	255	336	538	56.9	87.1	353	42.7	331	617	685	35.8
Zinc	72	54.7	92.1	168	315	678	107	161	59.8	57.4	917	75.2
TPH Criteria Working Group (TPH CWG)												
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.008	0.008	0.008	0.008	0.008	0.0176	0.008	0.008	0.008	0.008	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.0454	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.0706	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.463	3.89	0.1	0.741	0.632	6.32	4.59	0.1	0.862	1.42	0.597	0.1
Aliphatics >C16-C21	5.37	11.9	2.49	5.18	2.81	54.5	20.4	1.74	7.82	11.2	4.95	0.1
Aliphatics >C21-C35	45.9	61.1	24	43.8	7.02	162	158	19.8	62.2	75.4	46.1	3.93
Aliphatics >C35-C44	10.9	27	5.32	17.5	0.1	39	34	9.88	15.5	8.96	4.83	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.0504	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.0466	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	1.78	0.706	1.24	0.1	4.82	2.13	0.613	0.649	0.729	0.543	0.1
Aromatics >EC16-EC21	2.09	7.23	2.3	4.99	0.705	37.8	18	1.28	4.09	4.83	4.29	0.1
Aromatics >EC21-EC35	15	35.2	14.4	28.5	39.1	139	134	7.09	27.6	23.8	20.9	44.8
Aromatics >EC35-EC44	6.49	13.6	7.39	16.7	6.41	62.1	43.7	1.7	11.2	8.85	4.9	6.9
Aromatics >EC40-EC44	2.64	5.26	3	7.02	1.6	25.1	16	0.1	4.54	3.32	1.32	2.08
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	12	12	71.8	26.4	21.7	695	29	12	12	26.3	12	12
Acenaphthene	21.3	27.6	13.2	23	8	109	153	8	80.4	14.5	11.5	8
Anthracene	29.6	67.1	169	54	16	1210	564	16	72.9	59.2	30.1	16
Benz(a)anthracene	220	639	601	336	127	4570	3870	14	540	255	139	85.1
Benzo(a)pyrene	214	661	558	362	123	4520	4890	20	630	218	108	97.1
Benzo(b)fluoranthene	342	899	914	557	174	6820	6530	35	1040	407	202	152
Benzo(k)fluoranthene	151	363	342	207	77.7	2460	2370	14	493	165	67.2	59.6
Benzo(g,h,i)perylene	208	503	439	304	108	3420	3080	24	539	193	103	93.2
Chrysene	221	624	564	327	130	3870	3910	19.6	619	258	151	81.3
Dibenzo(a,h)anthracene	48.5	125	126	77.5	40.7	945	767	0.023	137	52.3	29.3	0.023
Indeno(1,2,3-cd)pyrene	180	401	392	267	96.1	3030	2370	0.018	457	164	80.4	73.4
Fluoranthene	368	936	1050	541	183	8250	5130	30.7	822	423	266	119
Fluorene	11.7	19.1	48.5	21.2	17.6	445	97.7	10	34.5	15.6	10	10
Naphthalene	32.7	31.2	112	69.3	42.7	3340	136	9	44.6	226	57.8	33.6
Phenanthrene	289	390	470	246	141	3280	2770	26	527	317	237	104
Pyrene												
PAH, Total Detected USEPA 16	2.63	6.47	6.68	3.88	1.41	53.1	41.5	0.157	6.73	3.13	1.69	0.99
Naphthalene-d8 % recovery**	102	102	93.2	101	115	98.5	102	95.1	90.2	91.9	98.7	109
Acenaphthene-d10 % recovery**	98.5	99.2	92.6	96.6	118	95.8	100	92.1	87	90.4	95.6	108
Phenanthrene-d10 % recovery**	97.4	97.8	90.8	94.9	115	94.2	98.3	90.2	86.2	88.4	94.3	105
Chrysene-d12 % recovery**	97.8	98.4	92.7	94.6	118	103	105	87.3	90.1	90.4	95.8	106
Perylene-d12 % recovery**	106	106	98.2	102	125	106	122	87.8	92.5	92.5	94.7	113
Total Aliphatics >C12-C44	62.6	104	31.8	67.1	10.5	261	217	31.4	86.3	97	56.5	3.93
Total Aromatics >EC12-EC44	23.5	57.9	24.8	51.4	46.2	244	198	10.7	43.6	38.2	30.6	51.7
Total Aliphatics & Aromatics >C5-C44												
Metals - (Solid)												
Iron	144000	333000	117000	149000	32100	191000	219000	230000	157000	201000	22200	116000
Manganese	30100	20000	19800	37000	316	20300	5190	16600	36800	32400	277	4200
Metals - (Liquid)												
Calcium	264000	-	-	216000	-	111000	196000	-	180000	-	222000	-
Magnesium	27800	-	-	16200	-	10800	10400	-	8430	-	13100	-
Phenols												
Phenol	0.01	0.01	0.01	0.0112	0.01	0.01	0.01	0.01	0.0106	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	0.011	-	-	0.0774	-	0.0962	0.136	-	0.004	-	0.0404	-
pH	12.7	12.6	11.2	12.2	6.8	9.45	11.8	11.1	12.7	12.7	12.7	7.27
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.218	-	-	0.361	-	0.147	0.358	-	0.0691	-	0.215	-
Sulphate, Total potential	0.654	-	-	1.08	-	0.441	1.07	-	0.207	-	0.645	-
Sulphate, acid soluble (total)	0.517	-	-	0.561	-	0.209	0.623	-	0.145	-	0.407	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	269	12	12	12	12	12	12	243
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	0.001	0.001	-	-	-	-	-
Date of Analysis	22/12/2017	-	-	22/12/2017	-	22/12/2017	22/12/2017	-	22/12/2017	-	22/12/2017	-
Analysed By	James Richards	-	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	James Richards	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	0.001	0.001	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	None	None	-	-	-	-	-
Analysts Comments	-	-	-	-	-	N/C	N/C	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	0.001	0.001	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	Not Detected	-	Detected	Detected	-	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Comments	0	-	-	0	-	Loose fibres in soil.	Loose fibres in soil.	-	0	-	0	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.518	0.13	0.013	0.13	0.13	0.13	0.013
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TPAG10	TPAG11	TPAG11	TPAG11	TPAG12	TPAG12	TPAG13	TP3BC401	TP3BC402	TP3BC403	TP3BC404
Depth	0.5	0.4	1.3	2	0.5	0.8	0.3	0.5	1	2	3
Sampled Date	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	11/12/2017	02/05/2018	02/05/2018	02/05/2018	02/05/2018
Carbon											
Soil Organic Matter (SOM)	13.6	1.66	5.6	0.931	3.41	1.35	2.81	4.45	7.83	3.15	8.72
Metals (Solids)											
Arsenic	6	4.27	6	6	6	191	6	4.57	5.74	5.27	4.37
Cadmium	0.2	0.02	0.2	0.2	0.2	0.2	0.2	0.0732	0.706	0.156	0.431
Chromium	115	10.2	283	9	169	775	9	30.5	47	18.5	50.5
Copper	14	1.4	14	14	20.7	123	22	1.4	9.19	2.18	1.4
Lead	20.3	5.31	8.24	14.9	71.5	84.2	86.8	6.73	31.6	17.6	1.59
Mercury	1.4	1.01	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14
Nickel	5.22	2.84	2	3.39	22	18.2	18.5	3.76	7.42	4.95	5.57
Selenium	10	1	10	10	10	15.7	10.3	6.44	3.64	4.57	4.14
Vanadium	136	22.7	259	66.1	293	504	117	112	92.6	46.5	265
Zinc	55.1	36.7	19.2	25	209	755	236	43.8	166	70.4	41.1
TPH Criteria Working Group (TPH CWG)											
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04				
Toluene	0.008	0.008	0.008	0.008	0.008	0.008	0.008				
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012				
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009				
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0837	0.0541	0.04	0.0613
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0487	0.0443	0.04	0.0613
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0604	0.0497	0.0533	0.0452
Aliphatics >C12-C16	2.53	3.62	6.07	1.53	0.655	1.65	1.76	2.04	4.93	3.8	5.13
Aliphatics >C16-C21	14	15.7	15.4	5.7	4.69	11.3	12.2	21.3	35.5	19	98.5
Aliphatics >C21-C35	98.3	363	283	158	31	136	100	28	76	46.4	57
Aliphatics >C35-C44	17	238	187	88.9	8.19	30.9	25	6.73	30.9	15.3	8.53
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0508	0.0519	0.04	0.0667
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0402	0.04	0.04	0.04
Aromatics >EC12-EC16	1.56	3.69	4.36	2.71	0.392	1.35	1.26	7.09	8.03	7.66	2.34
Aromatics >EC16-EC21	6.37	12.2	15.7	9.33	4.72	3.91	8.31	34.2	47.4	31.7	33
Aromatics >EC21-EC35	40.6	289	247	148	25.8	33.4	45.6	92.2	143	89	47.2
Aromatics >EC35-EC44	14.3	243	198	114	13.3	12.6	16.6	31	72.9	37.2	13.4
Aromatics >EC40-EC44	5.27	96.7	81.3	46.3	5.45	5.01	6.41	11.1	28.7	14.5	4.71
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	12	12	60	12	148	12	65	1880	1720	605	404
Acenaphthene	14	59.2	40	14.5	29.7	8	14.1	198	151	69.8	48.5
Anthracene	33.4	83.2	80	16	231	16	164	1640	2210	519	349
Benz(a)anthracene	318	186	240	109	1310	91.8	430	4810	5180	1540	762
Benzo(a)pyrene	320	140	189	91.1	1410	75.5	409	4950	5120	1570	867
Benzo(b)fluoranthene	472	236	316	171	1900	134	639	8030	7920	2530	1610
Benzo(k)fluoranthene	207	99.1	124	74.4	719	39.6	281	3230	2770	855	479
Benzo(g,h,i)perylene	290	136	176	89.6	1020	74.5	343	4210	4200	1300	1070
Chrysene	345	205	259	152	1140	86.1	508	4890	4160	1550	601
Dibenzo(a,h)anthracene	55.2	44	0.115	25.4	299	0.023	88.8	963	1100	304	239
Indeno(1,2,3-cd)pyrene	216	104	143	63.8	914	59.3	277	4440	3660	1400	897
Fluoranthene	465	549	781	416	1810	139	810	9630	11200	2760	1410
Fluorene	13	10	50	10	79.6	10	33.5	1050	933	313	190
Naphthalene	67.2	17	45	16.2	385	16.9	197	5600	4470	2620	2370
Phenanthrene	213	866	594	175	770	81.6	421	6340	5480	1780	1080
Pyrene											
PAH, Total Detected USEPA 16	3.47	3.18	3.4	1.72	13.6	0.908	5.34	69	68.5	21.8	13.5
Naphthalene-d8 % recovery**	100	103	99.9	99.2	101	90.9	78.6	93.4	91.9	87.4	91
Acenaphthene-d10 % recovery**	96.7	98.7	93.5	93.1	97.7	90.3	69	101	92.4	98.5	90.3
Phenanthrene-d10 % recovery**	95.5	98	93.5	91	96	88.8	68.2	98.6	89.2	104	88
Chrysene-d12 % recovery**	96.3	99.3	87.7	92	97.6	91.9	68.3	101	90.1	109	86.6
Perylene-d12 % recovery**	103	111	95.5	109	106	95.6	69	98.6	89.1	96.2	83
Total Aliphatics >C12-C44	132	620	491	254	44.5	180	139	58.1	147	84.5	169
Total Aromatics >EC12-EC44	62.8	548	465	274	44.2	51.3	71.8	165	271	166	95.9
Total Aliphatics & Aromatics >C5-C44											
Metals - (Solid)											
Iron	153000	18000	64700	185000	135000	122000	248000	32400	53600	24200	69800
Manganese	10100	6010	17700	8330	12200	25900	8480	7430	693	4840	9170
Metals - (Liquid)											
Calcium	186000	215000	-	128000	-	267000	71900	218000	-	168000	-
Magnesium	18400	26200	-	10800	-	30200	7190	32700	-	26700	-
Phenols											
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0108	0.0107	0.0108
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0107	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE	0.144	0.322	-	0.177	-	0.0222	0.139	0.627	-	0.908	-
pH	12	11.4	12.1	11.8	10.3	12.7	11.4	9.62	10.2	10.1	8.33
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.314	0.494	-	0.339	-	0.352	0.123	0.885	-	1.03	-
Sulphate, Total potential	0.942	1.48	-	1.02	-	1.06	0.369	2.66	-	3.09	-
Sulphate, acid soluble (total)	0.534	1.02	-	0.694	-	0.358	0.194	2.35	-	2.85	-
Cyanide, Total	1	1	1	1	1	1	1	1	1.07	1	1.08
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12
Asbestos											
Asbestos Quantification - Gravimetric - %	0.001	-	-	0.001	-	-	-	-	-	-	-
Date of Analysis	22/12/2017	22/12/2017	-	22/12/2017	-	22/12/2017	22/12/2017	15/05/2018	-	15/05/2018	-
Analysed By	Barbara Urbanek-Walsh	James Richards	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	James Richards	Barbara Urbanek-Walsh	-	James Richards	-
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	0.001	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	None	-	-	None	-	-	-	-	-	-	-
Analysts Comments	N/C	-	-	N/C	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	0.001	-	-	0.001	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	Not Detected	-	Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Comments	Fibre bundles in soil.	0	-	Fibre bundles in soil.	-	0	0	0	-	0	-
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	-	-	-	-	-	-	-	99.8	100	94.9	98.6
Toluene-d8**	-	-	-	-	-	-	-	92.8	93.5	96.1	92.3
4-Bromofluorobenzene**	-	-	-	-	-	-	-	79.4	81.4	84.3	79.7
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	0.01	0.1	0.2	0.1
Benzene	-	-	-	-	-	-	-	0.009	0.09	0.18	0.09
Toluene	-	-	-	-	-	-	-	0.007	0.07	0.14	0.07
Ethylbenzene	-	-	-	-	-	-	-	0.004	0.04	0.08	0.04
p/m-Xylene	-	-	-	-	-	-	-	0.01	0.1	0.2	0.1
o-Xylene	-	-	-	-	-	-	-	0.01	0.1	0.2	0.1
Naphthalene	0.13	0.13	0.013	0.13	0.13	0.13	0.13	0.576	1.05	1.08	0.359
Sum of BTEX	-	-	-	-	-	-	-	0.04	0.4	0.8	0.4
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Determinand	TP3BC501	TP3BC502	TP3BC503	TP3BC504	TP3BC601	TP3BC602	TP3BC603	TP3BC604	TP3BC701	TP3BC702	TP3BC703	TP3BC704	TP3BC801	TP3BC802	TP3BC803	TP3BC804	TP3BC4V	TP3BC5V	TP3BC6V	TP3BC7V	TP3BC8V
Depth	0.4	0.8	1.5	2	0.5	1.5	2	3	0.3	0.8	1.2	1.8	0.3	0.8	1.2	1.7	3.4	2.5	3.2	2	1.9
Sampled Date	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	02/05/2018	01/05/2018	02/05/2018	01/05/2018	01/05/2018
Carbon																					
Soil Organic Matter (SOM)	14.2	13.4	9.21	14	1.24	0.46	0.572	0.493	2.22	0.56	0.602	1.63	0.872	1.88	1.01	1.08	3.65	4.72	7.55	6.65	2.84
Metals (Solids)																					
Arsenic	13.3	22.1	21.2	24.7	6.1	40.4	92.6	77.4	7.02	9.04	46.6	16.8	14.9	4.24	7.28	8.47	11	12.9	18.1	17.1	12.2
Cadmium	0.2	5.63	5.04	4.75	0.02	0.2	1.58	1.57	0.2	0.2	3.43	3.22	0.274	0.02	0.137	0.368	0.471	0.603	0.915	0.592	0.548
Chromium	9	9	9	9	754	371	150	277	324	387	9	8.63	77.5	2.07	73.9	11.4	32.5	32.7	29.9	36.2	36.5
Copper	18.3	35.2	45.9	37	3.35	14	1.4	1.4	14	27.3	116	15.2	9.19	1.4	2.27	2.44	13.9	16	19.4	14.8	13.2
Lead	97	2260	1960	1680	13	26.4	17	14.3	28.7	45.2	45.4	93.5	59.7	0.7	13.1	1.52	28.9	38.7	59.2	45.9	35.4
Mercury	1.4	1.4	1.4	1.4	0.14	1.4	0.14	0.14	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	28.1	30.9	32.6	38.2	5.82	44.8	75.1	58	21.8	22.2	19.3	27.1	16.9	2.8	8.21	4.34	25.8	23.1	31	23.7	33.7
Selenium	10	10	10	10	11.8	10	1	1.95	12	15.1	10	1.24	2.58	4.65	4.26	3.43	1	1	1	1	1
Vanadium	164	181	144	137	432	360	357	407	1090	395	142	31.1	156	9.69	105	33.6	51.3	56.7	54.6	59.7	60.9
Zinc	286	5130	4470	3780	26.5	92.3	183	140	82.6	75.4	120	192	198	12.1	52	22.5	108	119	207	117	126
TPH Criteria Working Group (TPH CWG)																					
Benzene																					
Toluene																					
Ethylbenzene																					
sum of detected mpo xylene by GC																					
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.0419	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0755	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.169	0.04	0.04
Aliphatics >C10-C12	0.04	0.0445	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.126	0.04	0.04
Aliphatics >C12-C16	4.21	4.75	5.01	2.05	3.62	2.06	0.59	1.75	0.437	0.264	0.82	1.56	1.17	0.1	0.234	0.1	0.535	0.1	0.614	0.187	0.927
Aliphatics >C16-C21	22.7	31.9	46.4	17.3	10.7	5.47	2.83	3.3	3.69	2.93	4.46	2.15	6.51	0.1	2.79	0.719	1.47	0.1	0.521	0.1	0.1
Aliphatics >C21-C35	50.7	87.4	134	51.3	50	28.4	42.5	22.5	38.5	24.8	37.1	5.64	46.3	1.65	17.9	9.66	4.69	0.1	11.1	0.1	2.36
Aliphatics >C35-C44	20.8	16.9	21.7	7.13	8.85	3.21	0.944	4.73	8.09	3.53	5.8	1.06	29.8	0.1	7.1	2.07	0.1	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.0508	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0844	0.04	0.04
Aromatics >EC12-EC16	6.83	3.88	34.9	2.4	3.88	2.15	0.1	0.1	0.946	0.578	0.251	0.984	0.322	0.198	0.425	0.25	0.449	0.1	0.823	0.1	0.803
Aromatics >EC16-EC21	49.5	24.4	310	17	12.7	4.36	0.689	0.1	4.12	3.31	1.81	2.92	2.02	0.1	2.28	1.16	1.56	0.1	2.76	0.1	0.1
Aromatics >EC21-EC35	136	36.3	507	36.7	45.8	14.8	13.5	1.93	22.5	18.7	14.1	11.8	19.8	3.41	10.8	6.59	21.3	9.68	39.7	16	10.6
Aromatics >EC35-EC44	45	5.61	88.9	3.15	11.2	3.67	1.14	0.1	11.4	8.46	7.44	4.54	28.8	5.33	10.4	3.2	2.09	0.648	7.87	0.777	1.28
Aromatics >EC40-EC44	14.8	1.63	27	0.1	4.61	1.54	0.129	0.1	4.51	8.81	2.66	2.09	13.9	2.51	4.16	1.18	0.1	0.1	1.52	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)																					
Acenaphthylene	1440	16.4	68.9	12	12	12	12	12	45.6	12	12	12	12.6	12	12	12	12	12	12	12	12
Acenaphthene	153	34.4	40.9	15.6	48.2	8	8	8	17.5	8	8	8	8	8	8	8	8	8	8	8	8
Anthracene	1890	118	415	99.8	54.5	16	16	16	84.7	16	16	16	28.3	16	16	16	16	16	16	16	16
Benz(a)anthracene	5840	49.9	355	57.9	214	47.8	18	14	313	113	65.3	14	95.4	14	74.4	36.1	14	14	54.9	14	14
Benzo(a)pyrene	5560	20.7	256	36.6	171	44.9	15	15	324	111	67.3	16.7	92.2	15	75.5	31.9	15	15	53.6	15	15
Benzo(b)fluoranthene	8360	37.6	436	69.2	273	105	19.9	15	480	188	122	32.5	148	15	132	55.6	15	15	15	29.6	15
Benzo(k)fluoranthene	2940	14	129	14	97.4	30.5	14	14	194	99.9	45.4	14	53.5	14	56.1	20.2	14	14	37.6	14	14
Benzo(g,h,i)perylene	4030	24	174	24	131	47.6	24	24	288	98.5	70.9	24	88.6	24	66.2	27.1	24	24	42.3	24	24
Chrysene	4370	53.3	419	66.5	408	76.6	30.3	11.9	275	143	90.1	10	102	10	95.5	37.6	10	10	75.3	17.5	10
Dibenzo(a,h)anthracene	1070	0.023	44.4	0.023	31.2	0.023	0.023	0.023	66.2	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	3530	0.018	128	0.018	90.8	33	0.018	0.018	221	84	58.2	0.018	64.3	0.018	66.7	29	0.018	0.018	43.8	0.018	0.018
Fluoranthene	11500	313	1280	304	466	103	26.4	19.4	551	199	90.8	34.1	192	0.017	130	66.8	0.017	0.017	112	33.8	0.017
Fluorene	930	110	183	80.3	19	10	10	10	35.6	10	10	10	12.6	10	10	10	10	10	10	10	10
Naphthalene	3240	202	320	120	146	40.1	14.5	12	200	23.3	12.4	9	61.4	9	41.9	21.3	9	9	9	9	9
Phenanthrene	5140	449	948	356	564	90.4	30.3	29	325	65.4	47.4	61.8	130	15	75	39.7	15	15	59.8	15	15
Pyrene																					
PAH, Total Detected USEPA 16	69.6	1.87	6.46	1.59	3.15	0.702	0.171	0.118	3.87	1.33	0.753	0.173	1.26	0.118	0.937	0.418	0.118	0.118	0.566	0.118	0.118
Naphthalene-d8 % recovery**	89.2	103	85	104	86.9	90.2	93.3	87.1	95.4	87.7	91.9	88.7	94.9	90.3	89.2	92.7	90.8	88.3	92	89.5	82.9
Acenaphthene-d10 % recovery**	88.7	100	83.3	105	85.8	86.8	95.4	85	93.5	86.4	95.6	92.1	92	94.7	93.7	95.7	88.9	87.8	99.7	87.8	81.7
Phenanthrene-d10 % recovery**	86.8	88.9	74.8	101	86.9	87.1	88.2	84.1	90.9	85.7	88.9	87.8	90.1	89	89.9	89.9	86.7	85.5	96.3	87	80.1
Chrysene-d12 % recovery**	86.7	47.8	36	71.7	101	96.5	90	92.5	87	82.4	86.4	96.5	82.7	96.6	95.2	106	76.1	77.3	113	90.4	71.5
Perylene-d12 % recovery**	84.3	25.3	23.1	55	101	96.4	88.1	93	89.8	79.1	87	95.7	84	95.2	97.1	110	75.2	77.9	116	92.5	71.3
Total Aliphatics >C12-C44	98.5	141	207	77.8	73.2	39.2	46.9	32.3	50.7	31.5	48.2	10.4	83.8	1.65	28	12.4	6.7	0.1	12.2	0.187	3.29
Total Aromatics >EC12-EC44	237	70.2	940	59.3	73.6	25	15.4	1.93	39	31.1	23.6	20.2	51	8.94	23.8	11.2	25.4	10.3	51.1	16.8	12.7
Total Aliphatics & Aromatics >C5-C44																					
Metals - (Solid)																					
Iron	255000	308000	287000	295000	137000	168000	214000	214000	190000	186000	287000	49500	150000	18200	65900	36200	32100	30600	26700	26600	33600
Manganese	6030	9130	6220	5800	29900	9970	2640	9670	27300	32800	10900	2300	8560	3280	5420	3660	208	199	427	170	402
Metals - (Liquid)																					
Calcium	81000	-	57400	-	218000	-	174000	-	186000	-	73700	-	190000	-	201000	-	-	-	-	-	-
Magnesium	11200	-	4990	-	16500	-	5380	-	14600	-	5780	-	25400	-	35300	-	-	-	-	-	-
Phenols																					
Phenol	0.01	0.01	0.01	0.01	0.0103	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																					
Soluble Sulphate 2:1 extract as SO4 BRE	0.131	-	0.521	-	0.0151	-	0.158	-	0.0639	-	0.13	-	0.276	-	0.343	-	-	-	-	-	-
pH	10.3	10.5	9.92	8.37	12.5	12.3	9.71	11.7	11.2	11.7	11	8.38	11.5	11.3	11.4	11.3	7.78	10.7	7.97	7.13	7.9
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.198	-	0.231	-	0.113	-	0.0822	-	0.144	-	0.104	-	0.489	-	0.26	-	-	-	-	-	-
Sulphate, Total potential	0.594	-	0.693	-	0.339	-	0.247	-	0.432	-	0.312	-	1.47	-	0.78	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.197	-	0.194	-	0.305	-	0.0478	-	0.195	-	0.119	-	0.426	-	0.911	-	-	-	-	-	-
Cyanide, Total	1	9.21	9.46	7.29	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	15.9	65.5	114	12	12	12	12	12	12	12	12	12	12	12	12	228	319	385	323	217
Asbestos																					
Asbestos Quantification - Gravimetric - %	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	-	-	-	-	-
Analysed By	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-
Comments	0	-	Loose fibres in soil.	-	0	-	0	-	0	-	0	-	0	-	0	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																					
Dibromofluoromethane**	108	105	104	97.2	79.1	104	107	110	106	109	106	113	104	106	107	105	106	111	104	104	117
Toluene-d8**	95.8	99.1	95.5	105	96.1	97.2	100	103	98.2	99	98.2	99.6	95.5	99	99.3	98.9	97.1	99.8	98.6	100	98.5
4-Bromofluorobenzene**	79	89.9	93.4	88.2	92.4	99.1	97	96.1	92.7	102	99	92.6	102	96.7	96.4	94.5	99.3	91.5	95.4	92.2	97.6
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.01	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.009	0.09	0.009	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.007	0.07	0.007	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.004	0.04	0.004	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.01	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.01	0.1	0.1
Naphthalene	0.282	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-	-	0.013	-	-
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.04	0.4	0.04	0.4	0.4
Subcontracted: Inorganics																					
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	TP3BD401	TP3BD402	TP3BD403	TP3BD404	TP3BD501	TP3BD502	TP3BD503	TP3BD504	TP3BD601	TP3BD602	TP3BD603	TP3BD604	TP3BD701	TP3BD702	TP3BD703	TP3BD704	TP3BD801	TP3BD802	TP3BD803	TP3BD804	TP3BD4V	TP3BD5V	TP3BD6V	TP3BD7V	TP3BD8V	TP3BE6	TP3BE6
Depth	0.5	1	2	3	0.3	0.8	1.5	2	0.5	1	2	3	0.3	0.8	1.5	2.3	0.3	1	1.5	1.8	3.4	2.3	3.2	2.5	1.9	0.5	1
Sampled Date	02/05/2018	02/05/2018	02/05/2018	02/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	01/05/2018	02/05/2018	01/05/2018	02/05/2018	01/05/2018	01/05/2018	15/05/2018	15/05/2018
Carbon																											
Soil Organic Matter (SOM)	4.57	7.98	7.48	9.79	37.4	22.6	15.6	7.91	0.559	0.391	0.35	0.35	0.448	0.583	0.465	1.04	3.48	3.93	2.29	1.23	2.71	7.52	4.47	6.67	1.95	1.52	1.27
Metals (Solids)																											
Arsenic	24	13.6	31.4	10.5	10.7	13.7	9.23	11.6	101	118	68	108	3.61	7.9	30.9	8.11	14.2	14.4	20.1	7.32	12.9	19.7	13.5	16.9	13.5	10.5	16.3
Cadmium	0.2	0.2	0.2	3.97	0.2	0.2	0.2	0.554	1.94	0.2	0.2	0.731	0.802	0.02	0.2	0.629	0.02	0.2	2.92	0.862	0.589	0.918	0.568	0.723	0.464	0.2	0.2
Chromium	9	9	9	0.9	14.5	31.3	80.7	99.6	255	216	212	303	369	386	34.1	11.1	394	254	80.2	26.6	31.1	33.8	43.9	40.8	32.2	801	203
Copper	32	16.3	39.9	23	21	28.1	22.1	23.3	14	14	14	14	1.4	10.4	14.2	12.4	19.1	24.4	34.7	10.9	13.2	17.5	16.2	17	13	17.7	14
Lead	167	79.2	112	84.7	98.1	45.2	108	110	26.7	19.5	17.8	19.8	6.85	14.4	78	19.2	22.1	109	224	95.1	42.6	97	32.3	46	25.7	35.5	25.6
Mercury	1.4	1.4	1.4	0.14	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4
Nickel	43.1	26.9	46.2	22.8	31.4	23.8	23.2	24.6	104	113	99.4	114	5.18	5.94	17.6	28.3	22.6	25.6	39.5	8.8	32.4	25.9	28.7	25.2	31.9	12.4	21.6
Selenium	10	10	10	1	10	10	10	10	10	10	10	10	8.57	14.1	10	1	4.75	10	10	3.97	1	1	1	1	1	18.5	10
Vanadium	128	106	146	106	121	111	400	151	495	487	376	470	394	400	144	23	239	278	132	59	54.7	65.6	56.3	71.9	55.2	528	215
Zinc	675	269	383	405	240	127	290	331	200	217	178	208	52.3	26.2	210	76.9	82.1	212	226	135	150	247	199	131	107	117	72.6
TPH Criteria Working Group (TPH CWG)																											
Benzene																											
Toluene																											
Ethylbenzene																											
sum of detected mpo xylene by GC																											
Aliphatics >C5-C6	0.04	0.0466	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.143	0.0533	0.04	0.04	0.0683	0.0627	0.0688	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0422	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.104	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0558	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.194	0.04	0.0858	0.04	0.0616	0.0844	0.121	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.114	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	1.18	4.73	3.08	2.36	13.4	6.59	5.89	7.85	1.16	0.119	0.1	1.05	0.34	0.1	2.4	0.571	2.1	1.15	1.94	1.94	0.1	0.295	0.1	0.525	0.789	1.98	2.31
Aliphatics >C16-C21	9.03	20.8	13.2	12.7	53.2	30.4	30.3	20.3	8.43	2.67	0.596	2.72	4.35	0.74	7.62	0.797	17	10.7	16.2	11.2	0.1	0.1	0.1	0.1	0.361	10.4	11.1
Aliphatics >C21-C35	43.1	79.4	52	50.9	114	97.9	57.1	79.3	122	33.7	6.32	9.97	62.2	13.8	71.5	2.91	125	83.7	123	86.1	5.65	9.75	0.692	4.48	0.999	71.3	74.9
Aliphatics >C35-C44	19.7	30.3	21.5	21.6	42.5	34.8	14.4	25.3	12.7	2.32	0.1	0.936	8.05	3.87	9.39	0.1	40.1	25.8	50.3	38.9	1.93	0.1	0.622	0.1	0.1	23	18.5
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.112	0.0566	0.04	0.04	0.047	0.0604	0.0555	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.13	0.04	0.0572	0.04	0.0403	0.0559	0.081	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0762	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	1.62	6.23	3.5	2.44	133	16.2	15.1	7.86	0.1	0.488	0.1	0.1	0.444	0.1	0.793	0.486	0.1	1.14	1.1	1	0.1	0.468	0.1	0.244	0.146	0.679	1.09
Aromatics >EC16-EC21	12.8	35.7	20.4	21.3	719	137	121	188	2.5	1.1	0.1	0.1	2.05	0.82	2.15	1.53	0.544	5.68	8.47	9.14	1.16	1.77	0.33	0.192	0.1	5.93	5.91
Aromatics >EC21-EC35	43	108	62.8	57.5	1310	374	317	296	40	9.55	3.14	0.1	20.3	9.21	21.1	5.55	11.1	33.5	56	44.1	13.6	52.7	18.6	48.7	3.31	33	30.5
Aromatics >EC35-EC44	15.6	41.8	24.4	17.2	428	112	85.8	9.51	8.98	1.29	1.31	0.1	5.73	5.49	3.93	3.49	3.45	20.7	37.2	24.2	5.64	6.55	1.43	6.01	1.03	17.3	12.6
Aromatics >EC40-EC44	5.91	15.9	9.04	5.58	166	33.1	24	2.94	3.26	0.1	0.876	0.1	1.9	2.63	0.972	1.45	0.876	9.06	15.9	9.48	1.21	1.55	0.1	1.17	0.233	6.97	4.71
Polyaromatic Hydrocarbons (PAHs)																											
Acenaphthylene	160	371	333	238	57800	10200	5100	1300	12	12	12	12	12	12	12	12	18.2	23.6	12	18.7	12	12	12	12	12	32.7	52.2
Acenaphthene	17.2	53.6	42.8	30.7	4650	919	496	197	8	8	8	8	8	26.8	8	8	23.6	14.7	13.7	13.2	8	8	8	8	8	28.5	18.7
Anthracene	491	596	552	479	81600	13200	6990	1830	16	16	16	16	16	92.4	40.5	16	52.7	43.1	35.3	30.4	16	16	16	16	16	104	103
Benz(a)anthracene	1150	1310	1770	1300	106000	26900	14500	3320	67.8	14	14	14	63.5	1010	61.5	14	211	167	171	201	19.7	56.8	14	14	14	321	240
Benzo(a)pyrene	1150	1260	1710	1250	96800	19000	14400	2950	47.6	15	15	15	77.4	1070	57.6	15	160	164	103	175	15	54	15	15	15	280	218
Benzo(b)fluoranthene	1890	2060	2710	1980	135000	37600	19100	4760	95.9	15	15	15	104	1670	98.2	18.6	313	326	249	363	24.3	94.1	15	35.5	15	567	394
Benzo(k)fluoranthene	558	689	972	630	53300	11200	10900	1760	40.4	14	14	14	41.1	597	35.4	14	109	135	105	126	14	29.2	14	14	14	207	133
Benzo(g,h,i)perylene	989	898	1360	1030	63300	17500	9230	2060	36.5	24	24	24	64.8	675	57	24	140	163	112	152	24	59.9	24	24	24	226	169
Chrysene	981	1400	1440	1280	98200	24500	14400	3310	97.8	12.8	10	10	69.2	1130	67.2	19	265	254	217	279	26.3	52.7	10	28	10	430	301
Dibenzo(a,h)anthracene	221	206	340	249	16600	4610	2370	541	0.023	0.023	0.023	0.023	0.023	167	0.023	0.023	34.5	42	27.9	38.4	0.023	0.023	0.023	0.023	0.023	45.2	33.2
Indeno(1,2,3-cd)pyrene	789	1010	1120	850	68200	17900	9890	2340	34.2	0.018	0.018	0.018	49.1	714	39.9	0.018	143	159	87.9	157	0.018	38	0.018	0.018	0.018	236	173
Fluoranthene	2180	2960	3300	2720	322000	70800	35900	7530	142	24.4	0.017	0.017	98.8	1320	121	17.7	451	300	507	458	46.3	129	0.017	44.5	0.017	736	651
Fluorene	145	294	256	159	81600	10100	3380	1150	10	10	10	10	10	10	10	10	26.1	19.2	12.9	14.8	10	10	10	10	10	46.2	61.4
Naphthalene	406	926	934	668	36200	9180	6910	2390	27.1	9	9	9	22.6	15.3	15.4	9	112	140	41.4	54.1	14.9	18	9	9	9	151	181
Phenanthrene	967	1700	1550	1200	316000	45000	16400	5560	103	21.4	15	15	52.4	366	73.1	42.3	264	210	305	225	26.4	71.3	15	26.5	15	450	530
Pyrene																											
PAH, Total Detected USEPA 16	14.2	18.1	21.3	16.4	1750	371	196	46.5	0.825	0.118	0.118	0.118	0.731	10	0.771	0.118	2.74	2.45	2.41	2.69	0.202	0.702	0.118	0.172	0.118	4.39	3.71
Naphthalene-d8 % recovery**	90.8	93.4	93.3	90.4	94.1	90.2	89.9	92.3	86.7	85.5	92.8	92.4	91.4	90.8	95	88.7	88.2	90.9	90.8	90.4	76.4	92	83.9	87.1	89	97.8	97.8
Acenaphthene-d10 % recovery**	88.6	94.9	92.4	89.3	108	98.7	92.2	97.4	94	91.7	90.3	93.4	91.4	93.4	92.4	86.8	97.5	96	88.5	95	83.5	91.6	85.3	95.2	92.5	107	106
Phenanthrene-d10 % recovery**	85.8	93.2	89.3	86.3	98.5	96	93.2	91.5	95.5	90.8	90.4	87.7	91	92.7	91.8	88.9	97.3	96.2	88.3	92.7	90.9	90.2	89.2	97.9	86.4	110	110
Chrysene-d12 % recovery**	79.7	88.6	86	79.4	85.4	101	96.9	91.2	102	75.2	85.1	91.9	88.3	91.6	87.3	84.4	93.6	103	85.6	101	105	80.4	92.1	105	100	96.7	96.4
Perylene-d12 % recovery**	76.8	83.5	84.5	77.7	87.1	97.5	95.4	94.4	89	72.5	92.2	88.8	94.3	88.5	91	75.1	84.6	96.9	87.5	101	93.2	80.1	88.9	94.9	108	90.9	89.5
Total Aliphatics >C12-C44	73	135	89.8	87.6	223	170	108	133	145	38.8	6.91	14.7	75	18.4	90.9	4.28	184	121	192	138	7.58	10	1.31	5	2.15	107	107
Total Aromatics >EC12-EC44	73	191	111	98.4	2590	640	539	501	51.5	12.4	4.45	0.1	28.5	15.5	28	11.1	15.1	61	103	78.4	20.4	61.4	20.4	55.1	4.49	56.9	50
Total Aliphatics & Aromatics >C5-C44																											
Metals - (Solid)																											
Iron	343000	240000	328000	374000	154000	145000	147000	94000	199000	244000	189000	210000	162000	182000	257000	39900	173000	161000	207000	62400	43700	35900	30700	30400	36300	175000	390000
Manganese	5610	6490	4900	5950	4200	6350	9630	7570	5190	3420	4160	4160	29100	41700	11300	1610	13700	16100	10700	6790	695	352	273	347	525	28100	12700
Metals - (Liquid)																											
Calcium	46300	-	56300	-	78100	-	139000	-	181000	-	221000	-	208000	-	83700	-	155000	-	151000	-	-	-	-	-	-	222000	87800
Magnesium	7010	-	8780	-	11200	-	10700	-	7700	-	5180	-	40500	-	10000	-	15000	-	18800	-	-	-	-	-	-	21700	8960
Phenols																											
Phenol	0.01	0.01	0.01	0.01	0.01	0.0224	0.0114	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0106	0.0105
Cresols	0.01	0.01	0.01	0.01	0.0112	0.0224	0.0228	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.0448	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																											
Soluble Sulphate 2:1 extract as SO4 BRE	0.239	-	0.216	-	0.144	-	0.185	-	0.227	-	0.11	-	0.0149	-	0.0928	-	0.258	-	0.316	-	-	-	-	-	-	0.004	-
pH	10.7	9.57	10.6	10.3	10.3	10.4	10.7	11.1	10.5	9.93	9.04	8.6	12.6	12.2	11.6	8.24	11.5	11.3	11.3	11.8	7.62	7.46	7.07	6.97	7.5	12.6	11.2
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.167	-	0.172	-	0.64	-	0.273	-	0.142	-	0.049	-	0.15	-	0.171	-	0.43	-	0.324	-	-	-	-	-	-	0.169	-
Sulphate, Total potential	0.501	-	0.516	-	1.92	-	0.819	-	0.426	-	0.147	-	0.45	-	0.513	-	1.29	-	0.972	-	-	-	-	-	-	0.507	-
Sulphate, acid soluble (total)	0.224	-	0.279	-	1.14	-	0.467	-	0.107	-	0.043	-	0.272	-	0.132	-	0.535	-	0.588	-	-	-	-	-	-	0.295	-
Cyanide, Total	1	1	1	1	4.36	5.23	3.13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2.62	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	16.6	12	12	12	12	12	12	12	12	12	163	279	282	334	159	12	12
Asbestos																											
Asbestos Quantification - Gravimetric - %	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Date of Analysis	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	15/05/2018	-	16/05/2018	-	15/05/2018	-	15/05/2018	-	-	-	-	-	-	22/05/2018	-
Analysed By	Marcin Magdziarek	-	James Richards	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	James Richards	-	Barbara Urbanek-Walsh	-	-	-	-	-	-	Barbara Urbanek-Walsh	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Additional Asbestos Components (Using TM048)	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None	-
Analysts Comments	-	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	-
Asbestos Quantification - Total - %	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	Detected	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	Not Detected	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	Not Detected	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	Not Detected	-
Comments	0	-	0	-	Loose fibres in soil	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	-	-	-	-	-	Loose fibres in soil.	-
Volatile Organic Compounds (VOCs)																											
Dibromofluoromethane**	108	96.2	101	103	83.6	85.7	90.5	96.6	113	110	107	117	111	106	112	114	104	121	115	111	104	107	113	106	106	102	101
Toluene-d8**	97.9	94.3	97.6	96	89.7	91.4	93.9	96.7	97.5	98	98	98.5	99.1	97.5	98.1	99.8	98.5	99.5	96.5	97.3	98.5	99.5	97.5	98.5	99.5	94.8	96.7
4-Bromofluorobenzene**	97.9	80.1	95	90.6	68.1	79.4	73.2	81.5	98.9	100	98.3	96.1	98.6	97.8	103	93.1	94.4	97.1	97.3	97.5	100	92.3	99.2	93.7	96.3	92	97.2
Methyl Tertiary Butyl Ether	0.01	0.1	0.01	0.01	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.009	0.09	0.009	0.009	0.18	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.009	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.007	0.07	0.007	0.007	0.14	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.007	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.004	0.04	0.004	0.004	0.08	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.004	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.01	0.1	0.01	0.01	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.01	0.1	0.01	0.01	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.013	1.21	0.183	2.96	2.21	3.54	1.05	1.22	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-	-	0.13	-	-	0.198	0.13
Sum of BTEX	0.04	0.4	0.04	0.04	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.04	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																											
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	TP3BE6	TP3BE7	TP3BE7	TP3BE7	TP3BE8	TP3BE8	TP3BE401	TP3BE402	TP3BE403	TP3BE404	TP3BE501	TP3BE502	TP3BE4V	TP3BE5V	TP3BE8V
Depth	1.5	0.5	1.2	1.8	1	2	0.5	1	2	3	1	2	4	2.5	2.2
Sampled Date	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	02/05/2018	02/05/2018	02/05/2018	02/05/2018	02/05/2018	02/05/2018	02/05/2018	02/05/2018	15/05/2018
Carbon															
Soil Organic Matter (SOM)	1.04	1.21	0.667	1.43	2.45	3.22	5.67	2.91	10.2	9.98	5.05	4.38	4	8.36	1.25
Metals (Solids)															
Arsenic	91.9	7.41	19.8	13.9	16	13	15.1	5.41	20.1	30.4	13.3	9.5	13.3	22.4	12.6
Cadmium	2.31	0.2	0.2	1.39	0.2	0.2	2.08	4	2.45	3.76	0.328	0.02	0.245	0.93	0.132
Chromium	189	559	119	425	143	103	0.9	0.9	9	9	138	223	36.5	54.2	32.1
Copper	14	15.7	44.2	42.7	16.3	30.2	21	19.2	23.3	164	20	9.01	15.8	21.7	10.5
Lead	82.7	21	410	820	40.5	52.7	46.3	89.5	1050	1880	101	28	49	53	30.2
Mercury	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.166	1.4	1.55	1.4	0.14	0.14	0.14	0.14
Nickel	86.7	11.8	19.9	26.2	28.3	37.2	20.2	21.5	29.4	31.9	23.5	9.98	30.8	33	40.2
Selenium	10	15.3	18	25.9	10	10	1	1	10	10	10	7.9	1	1	1
Vanadium	414	763	125	1110	305	202	84.2	31.4	105	105	228	352	57.1	106	62.5
Zinc	312	119	172	274	129	113	199	306	2340	4290	340	90.3	149	170	128
TPH Criteria Working Group (TPH CWG)															
Benzene															
Toluene															
Ethylbenzene															
sum of detected mpo xylene by GC															
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0439	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0715	0.101	0.04	0.115	0.0655	0.04	0.0521	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.299	0.337	0.0537	0.0626	0.04	0.04	0.0664	0.04
Aliphatics >C10-C12	0.134	0.04	0.04	0.04	0.04	0.04	0.04	165	194	0.076	0.0845	0.756	0.0658	0.0537	0.04
Aliphatics >C12-C16	27.7	0.827	3.37	7.43	1.19	1.16	0.1	33.2	14.4	2.18	6	2.92	0.1	0.63	0.1
Aliphatics >C16-C21	37.2	5.04	18.6	31.8	10.1	5.62	6.73	979	410	16.3	23.7	19.6	0.1	0.643	0.1
Aliphatics >C21-C35	60.5	64.8	145	167	83.4	36.6	16.6	164	120	70	140	39.8	0.1	3.85	0.1
Aliphatics >C35-C44	7.22	5.02	24.2	45.7	33.6	15.4	1.7	14.3	17.8	14.7	105	6.5	0.1	1.88	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.116	0.0952	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.13	0.107	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.325	0.35	0.0445	0.0747	0.04	0.04	0.0442	0.04
Aromatics >EC10-EC12	0.0899	0.04	0.04	0.04	0.04	0.04	0.04	110	130	0.0511	0.056	0.504	0.0429	0.04	0.04
Aromatics >EC12-EC16	2.65	0.1	0.308	1.97	1.4	0.924	0.468	25.2	19.2	1.43	5.01	2.67	0.1	0.1	0.1
Aromatics >EC16-EC21	8.02	1.86	6.58	15.8	6.69	4.19	8.09	316	166	11.5	26.1	25.5	0.1	0.343	0.1
Aromatics >EC21-EC35	17.5	15.5	39.7	71.9	41.2	22	23.2	97.5	91.6	20.2	116	94	6.7	42	3.3
Aromatics >EC35-EC44	4.26	4.64	14.2	30.8	30.2	17.9	6.24	14.9	16.2	5.71	75	30.2	0.1	53	0.916
Aromatics >EC40-EC44	1.42	1.47	5.36	12.9	12.7	7.65	1.8	4.98	6.24	2.17	31.7	9.8	0.1	26	0.1
Polyaromatic Hydrocarbons (PAHs)															
Acenaphthylene	12	31.1	12	16.5	33.3	12	163	5070	2080	12	336	1000	12	12	12
Acenaphthene	11.3	17.6	24.2	32.6	42.2	21.7	51	310	245	30.7	106	107	8	8	8
Anthracene	36	67.3	159	89.9	88.4	23.4	228	2050	1080	97.5	606	1160	16	16	16
Benz(a)anthracene	53.5	290	377	692	319	97.1	760	976	501	47	1520	3680	14	26.2	14
Benzo(a)pyrene	40.8	319	274	649	341	88.1	742	831	338	28	1540	3990	15	25	15
Benzo(b)fluoranthene	73.8	573	576	953	566	115	1110	1450	568	65.8	1930	5530	15	51	15
Benzo(k)fluoranthene	24.8	182	186	402	194	52.4	426	509	261	18.4	751	2060	14	14	14
Benzo(g,h,i)perylene	32.5	310	227	568	261	85.5	482	623	328	24	1170	2760	24	24	24
Chrysene	52.9	344	420	751	352	107	774	1040	541	43.8	1320	3740	10	39.4	10
Dibenzo(a,h)anthracene	0.023	67.8	62.4	132	62.9	0.023	117	161	0.23	0.023	309	735	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	24.6	328	188	448	218	60.8	535	702	261	0.018	974	3320	0.018	0.018	0.018
Fluoranthene	146	535	1040	1590	600	253	1570	3290	1870	271	3200	7710	0.017	53.7	0.017
Fluorene	20.3	40.7	23.5	19.5	33	10	149	3320	1450	79.2	341	648	10	10	10
Naphthalene	48.7	79	35.9	67.6	150	90.6	1470	372000	1550000	472	1330	3100	35.4	27.9	9
Phenanthrene	137	306	689	667	397	180	727	11700	5360	370	2020	3820	15	28.8	15
Pyrene															
PAH, Total Detected USEPA 16	0.819	3.92	5.12	8.39	4.16	1.37	10.5	407	1570	1.92	19.8	49	0.118	0.296	0.118
Naphthalene-d8 % recovery**	107	103	104	104	106	98	89	96.8	102	93.6	94	92.9	91	93.7	103
Acenaphthene-d10 % recovery**	104	104	101	102	104	95.1	93.1	102	107	90.3	93.2	98.9	95.5	96.4	99.7
Phenanthrene-d10 % recovery**	103	104	100	100	108	92.2	85	99.4	105	83.2	92.4	96.9	88.7	92.8	104
Chrysene-d12 % recovery**	88.3	91.7	92.3	100	111	83.8	74.7	110	68.8	53.3	90.6	97.1	89.8	106	101
Perylene-d12 % recovery**	82.5	97.2	92.3	105	112	82.5	71.1	108	41.1	40.1	98.9	96.3	86.8	106	103
Total Aliphatics >C12-C44	133	75.6	191	252	128	58.9	25	1190	562	103	274	68.8	0.1	7.01	0.1
Total Aromatics >EC12-EC44	32.5	22	60.8	121	79.5	45	38	454	293	38.9	222	152	6.7	95.3	4.22
Total Aliphatics & Aromatics >C5-C44															
Metals - (Solid)															
Iron	211000	173000	599000	235000	168000	109000	223000	413000	316000	350000	103000	166000	37600	48800	35000
Manganese	5340	47100	42100	40900	15100	6640	4480	5520	7350	8530	9990	22500	257	289	383
Metals - (Liquid)															
Calcium	155000	222000	117000	217000	153000	76900	65300	-	49500	-	146000	-	-	-	-
Magnesium	9150	38200	13100	15000	23100	15000	7700	-	5240	-	9240	-	-	-	-
Phenols															
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0439	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.011	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.033	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0549	0.035	0.035	0.035	0.035
Inorganics															
Soluble Sulphate 2:1 extract as SO4 BRE	0.315	0.0235	-	0.0162	0.19	0.147	0.206	-	0.224	-	0.548	-	-	-	-
pH	11	12.6	12.1	12.6	11.7	11	10.3	8.51	8.89	11.1	10.9	11.2	7.82	7.23	7.41
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.178	0.211	-	0.276	0.314	0.166	0.156	-	0.13	-	0.294	-	-	-	-
Sulphate, Total potential	0.534	0.633	-	0.828	0.942	0.498	0.468	-	0.39	-	0.882	-	-	-	-
Sulphate, acid soluble (total)	0.25	0.305	-	0.458	0.469	0.246	0.209	-	0.117	-	0.565	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	4.03	1.73	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	29.6	12	12	246	321	170
Asbestos															
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	22/05/2018	21/05/2018	-	22/05/2018	21/05/2018	22/05/2018	15/05/2018	-	15/05/2018	-	15/05/2018	-	-	-	-
Analysed By	Marcin Magdziarek	Andrzej Ferfecki	-	Andrzej Ferfecki	Lucy Caroe	James Richards	James Richards	-	James Richards	-	James Richards	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Comments	0	0	-	0	0	0	0	-	0	-	0	-	-	-	-
Volatile Organic Compounds (VOCs)															
Dibromofluoromethane**	120	104	104	104	105	106	110	107	97.1	96.9	102	97.4	111	108	107
Toluene-d8**	97.5	99.1	97.8	99.1	98.5	98.6	96.6	93.5	97.8	98.3	94.8	96.2	97.7	95.5	97.7
4-Bromofluorobenzene**	99.3	97.2	99.3	102	94.7	95.7	92.6	82.7	90.3	96.4	84.4	85.8	96.1	87.8	99.2
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.009	0.0689	0.009	0.009	0.009	0.009	0.009	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.007	0.067	0.0862	0.007	0.007	0.007	0.007	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.0668	0.0353	0.01	0.01	0.01	0.01	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.0341	0.01	0.01	0.01	0.01	0.01	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.439	2.6	2.6	0.638	1.21	13.7	-	-	-
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.04	0.237	0.122	0.04	0.04	0.04	0.04	0.4	0.4
Subcontracted: Inorganics															
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3BF1	TP3BF1	TP3BF1	TP3BF1	TP3BF2	TP3BF2	TP3BF2	TP3BF2	TP3BF3	TP3BF3	TP3BF3	TP3BF4	TP3BF4	TP3BF4	TP3BF4	TP3BF5
Depth	0.5	1	2	3	0.5	1	1.8	2.3	0.5	1	2	0.5	1	2	2.5	0.5
Sampled Date	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Carbon																
Soil Organic Matter (SOM)	12	17.2	6.05	0.821	21.6	3.55	3.41	4.53	6.86	6.02	2.48	11.3	28.8	12.6	14.4	3.67
Metals (Solids)																
Arsenic	9.81	9.97	30.4	8.09	12.7	7.89	15.5	24.8	16	15	12.6	15.7	17.8	20.4	32.1	14.7
Cadmium	0.2	0.231	0.2	0.2	0.28	0.2	0.265	0.2	0.2	0.2	0.2	0.206	1.42	3.53	8.97	0.2
Chromium	310	129	472	879	196	419	507	602	50.4	11	269	9	17.3	9	9	174
Copper	14.5	14.3	82.2	25.4	37.2	14	42.3	110	16.9	14	24.4	22.3	24	19.5	37.2	17.9
Lead	46.4	20.5	31.6	14.4	93.3	35.8	45.3	39.4	38.1	43	18.7	170	430	952	2280	63.7
Mercury	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.65	1.4
Nickel	12.4	11.6	97.8	19.7	33.7	9.24	33.9	73	19.6	23.1	12.6	31.6	26.1	22.1	35.7	41.8
Selenium	18.7	11.5	14.8	36	15.6	30.7	19.7	25.7	10	10	13	10	10	10	10	10
Vanadium	1340	496	1110	1440	1100	2880	677	753	224	87.7	374	52.2	158	67.4	198	196
Zinc	342	97.5	114	41.3	183	52	337	87.7	64.9	95	49.5	393	986	2210	5280	180
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0404	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.0511	0.0407	0.04	0.04	0.04	0.04	0.04	0.046	0.04	0.103	0.04	0.04	0.0599	0.04	0.04	0.04
Aliphatics >C8-C10	0.11	0.04	0.04	0.0449	0.04	0.04	0.04	0.092	0.04	0.0818	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.165	0.0682	0.092	0.606	0.04	0.04	0.0552	0.147	0.04	0.0499	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	20.7	14.3	5.65	1.26	11.6	0.1	3.56	5	2.29	20.4	0.743	2.92	4.83	2.64	0.1	1.51
Aliphatics >C16-C21	86.7	49.1	27.2	3.17	17.5	2.88	15.6	15.6	6.27	55.7	2.7	18.8	28.4	19.3	8.39	10.9
Aliphatics >C21-C35	356	802	164	16.6	40.2	17.6	114	126	29.6	90.4	14.9	89	62.7	44.4	28.5	138
Aliphatics >C35-C44	371	913	172	8.4	7.62	2.11	58.5	68.9	3.43	11.5	1.41	32.3	9.53	7.13	1.93	48.4
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.043	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.0888	0.04	0.04	0.04	0.04	0.04	0.04	0.0667	0.04	0.0977	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.11	0.0451	0.0614	0.405	0.04	0.04	0.04	0.0978	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	20.1	17.1	7.28	1.25	26	1.17	2.53	2.37	2.74	41.4	1.34	4.2	20.8	3.3	0.1	1.8
Aromatics >EC16-EC21	115	93.9	49.9	8.71	213	8.69	20.3	25.7	10	116	5.13	27.5	130	26.4	6.62	15.8
Aromatics >EC21-EC35	776	1810	411	36.4	453	35.8	110	146	33.4	220	16.9	85.7	320	53.4	13.4	85.6
Aromatics >EC35-EC44	602	1580	321	16.2	92.5	12.1	46.2	52.7	11.3	52.8	5.31	28.3	80	10.1	0.963	54.6
Aromatics >EC40-EC44	260	724	142	6.71	21.4	3.97	16.4	16.8	3.73	16.1	1.56	9.22	22.4	3.31	0.1	21.6
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	1500	1620	51800	4100	2980	204	122	77.6	416	719	176	487	2580	117	29.8	120
Acenaphthene	1900	870	3310	192	154	47.3	168	157	43.4	90.6	53.2	41.9	141	41.6	40.5	35.9
Anthracene	5700	6690	51300	2420	5060	315	362	315	500	894	174	1110	3450	425	212	200
Benz(a)anthracene	10200	13500	57600	5260	11500	989	1900	2530	1270	1550	390	2780	10100	1320	142	543
Benzo(a)pyrene	9150	13000	56900	5490	9890	1020	2380	3310	1090	1280	359	2600	9610	952	98.9	601
Benzo(b)fluoranthene	13300	14400	66000	6610	16000	1460	3070	3240	1510	2130	548	3170	14700	1570	173	943
Benzo(k)fluoranthene	4150	6220	26900	2580	6200	569	1240	1590	601	768	193	1300	5530	483	54.8	296
Benzo(g,h,i)perylene	6590	8400	48100	4540	6000	689	1520	2120	797	871	241	2000	7180	541	69.5	468
Chrysene	8460	12400	56900	4270	10200	1050	2020	2420	1040	1580	448	2260	9640	1260	127	640
Dibenzo(a,h)anthracene	1460	1930	10200	894	1540	128	266	491	218	222	45.4	522	1960	135	0.023	95.9
Indeno(1,2,3-cd)pyrene	5420	7030	38000	3590	6610	706	1510	1710	673	944	243	1680	6270	744	46	462
Fluoranthene	32900	38500	269000	18400	32700	2160	2980	3260	2860	3990	963	6060	22500	2780	627	1090
Fluorene	2980	3550	39000	2820	1940	127	129	99.1	316	628	149	335	1360	159	156	82.4
Naphthalene	2000	2340	37400	5230	4050	593	721	403	1370	2880	1080	1210	6570	434	308	344
Phenanthrene	27400	35700	275000	19700	14400	1090	1390	1340	2040	3390	772	2250	9640	1650	738	613
Pyrene																
PAH, Total Detected USEPA 16	157	192	1280	99.6	154	12.9	22.7	26.3	16.8	24.7	6.61	32.2	128	14.8	3.58	7.43
Naphthalene-d8 % recovery**	103	94.1	95.5	91	90.6	95.7	93.6	90.2	95	96.6	95.9	90.9	105	89.9	89.8	97.8
Acenaphthene-d10 % recovery**	101	97.5	97.9	94.2	98.7	105	103	94.1	92.1	105	104	99.7	103	87.1	90.4	106
Phenanthrene-d10 % recovery**	101	98.6	102	94.8	104	110	108	94.7	90.2	108	110	102	107	88.3	79.5	109
Chrysene-d12 % recovery**	90.7	110	122	107	84.2	97.8	92.7	102	90.3	89.3	93.5	107	108	79.8	42	94.7
Perylene-d12 % recovery**	91.1	119	131	108	78.5	87.1	86.8	104	87	75.2	83.2	101	110	70.1	23.1	86.2
Total Aliphatics >C12-C44	835	1780	369	29.5	76.9	22.6	191	216	41.6	178	19.8	143	106	73.5	38.8	199
Total Aromatics >EC12-EC44	1510	3500	789	62.6	785	57.7	179	227	57.5	430	28.7	146	551	93.2	21	158
Total Aliphatics & Aromatics >C5-C44																
Metals - (Solid)																
Iron	100000	63700	314000	166000	134000	166000	215000	376000	340000	170000	248000	390000	237000	207000	618000	153000
Manganese	27000	13600	25500	38800	21700	>50000	36100	45000	14300	5010	21600	6210	5100	5560	11600	11400
Metals - (Liquid)																
Calcium	205000	167000	159000	226000	-	223000	165000	165000	92800	146000	149000	47600	76900	103000	53800	148000
Magnesium	24400	18100	7020	8940	6350	7490	7410	4930	5000	3980	8690	5450	7580	14600	4930	12700
Phenols																
Phenol	0.01	0.011	0.01	0.0115	0.01	0.01	0.01	0.0115	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.011	0.01	0.01	0.0112	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	0.159	-	0.167	-	-	0.124	-	0.0365	0.108	-	0.162	0.141	-	0.326	-	-
pH	11.6	12	11.5	12.6	10.9	11.9	12.3	10.5	11.4	11.2	11.4	11	9.45	10.8	11	10.6
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.599	-	0.752	-	-	0.358	-	0.299	0.208	-	0.301	0.106	-	0.281	-	-
Sulphate, Total potential	1.8	-	2.26	-	-	1.07	-	0.897	0.624	-	0.903	0.318	-	0.843	-	-
Sulphate, acid soluble (total)	0.763	-	0.865	-	-	0.609	-	0.602	0.307	-	0.561	0.132	-	0.283	-	-
Cyanide, Total	8.48	3.31	2.44	1	1	1	1.63	1	1	1	1	1	1.22	2.9	7.85	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-
Date of Analysis	22/05/2018	-	22/05/2018	-	-	22/05/2018	-	22/05/2018	21/05/2018	-	21/05/2018	22/05/2018	-	22/05/2018	-	-
Analysed By	James Richards	-	Barbara Urbanek-Walsh	-	-	Barbara Urbanek-Walsh	-	Lucy Caroe	Andrzej Ferfecki	-	Lucy Caroe	James Richards	-	Lucy Caroe	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	None	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	N/A	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	-	-
Comments	0	-	0	-	-	0	-	Loose fibres in soil	0	-	0	0	-	0	-	-
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	107	116	110	106	103	105	103	102	96.1	92.4	108	101	91.4	86.6	70.2	103
Toluene-d8**	93	81.6	95.7	97.6	98.6	98.6	98.6	96.1	95.1	93	94.6	95	91.8	94.4	96.4	97.7
4-Bromofluorobenzene**	86.4	70	89.6	97.2	94.4	93.7	93.5	95.6	83	76.3	90.7	86.3	80.5	87.1	88.5	86.7
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	1.8	0.09	0.09	0.09	1.8	0.18	0.18	0.09	0.18	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	1.4	0.07	0.07	0.07	1.4	0.14	0.14	0.07	0.14	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.8	0.04	0.04	0.04	0.8	0.08	0.08	0.04	0.08	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	2	0.2	0.2	0.1	0.2	0.1	0.1	0.1
Naphthalene	0.289	1.15	0.758	0.591	3.26	0.13	0.13	0.13	4.82	0.673	0.418	0.239	0.815	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	8	0.4	0.4	0.4	8	0.8	0.8	0.4	0.8	0.4	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3BF5	TP3BF5	TP3BF5	TP3BF6	TP3BF6	TP3BF6	TP3BF6	TP3BF7	TP3BF7	TP3BF7	TP3BF7	TP3BF8	TP3BF8	TP3BF8	TP3BF1V	TP3BF2V	TP3BF3V	TP3BF4V	TP3BF5V	TP3BF7V
Depth	1	1.5	2	0.3	0.7	1	1.5	0.5	1.2	1.7	2.3	0.5	1	1.5	3.1	2.7	2.2	2.7	2.4	2.7
Sampled Date	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018	15/05/2018
Carbon																				
Soil Organic Matter (SOM)	0.655	2.95	12.2	2.45	2.43	0.471	0.543	1.07	0.352	1.78	1.84	0.988	2.02	1.38	5.31	4.41	1.33	2.84	1.16	2.24
Metals (Solids)																				
Arsenic	6.12	10.2	35.9	9.39	15.1	125	92.3	10.1	15.3	22	12.1	17	11.8	12.4	14.3	12.1	10.2	14.6	13.7	12.1
Cadmium	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.275	0.156	0.38	0.02	0.02	0.02	0.02
Chromium	204	108	219	581	170	388	217	498	261	42.2	264	168	55.4	24.9	38.9	26.9	34.2	32.4	28.8	31.9
Copper	14	14	20.4	14	14	14	14	14	14.1	29.9	15.8	14	18.6	21.5	18	14	13.4	20.3	12.1	12.8
Lead	8.37	61.4	93.3	15.9	23.7	23.6	37.1	25.7	39	45.2	29.9	24.4	30.2	58.9	38.8	29.9	27.4	33.8	27.6	26.3
Mercury	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.14	1.4	0.14	0.14	0.14	0.14
Nickel	6.1	16.8	40.9	8.34	14.6	119	92.2	14.3	18.3	28.9	20.8	22.6	13.9	40.4	27.3	23.9	40.5	38.3	41.6	35
Selenium	13.6	10	11.7	15.5	10	10	10	15.6	15.1	10	14.9	10	10	10	1.03	10	1	1	1	1
Vanadium	201	192	279	436	192	639	436	654	742	130	449	230	125	40.3	74	45.3	63.1	63.4	59.5	61.2
Zinc	31.6	177	254	44.3	55.5	246	193	138	94.4	122	65.3	77.7	105	157	137	90.7	125	146	118	105
TPH Criteria Working Group (TPH CWG)																				
Benzene																				
Toluene																				
Ethylbenzene																				
sum of detected mpo xylene by GC																				
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.0522	0.04	0.04	0.04	0.0433	0.04	0.0547	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.0978	0.118	0.04	0.04	0.04	0.04	0.04	0.0449	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.0827	0.354	0.917	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.1	0.521	1.1	1.23	2.08	4.15	4.66	1.78	5.74	2.84	2.09	1.74	2.13	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	1.45	9.52	16.6	6.37	8.88	18.6	13.3	9.13	13	5.37	4.86	7.63	10.5	2.23	0.1	0.1	0.1	0.1	0.1	0.1
Aliphatics >C21-C35	11.5	42.6	79.8	47.4	71.3	123	78.5	77.3	54.1	19.9	20.4	52.5	66.9	11.4	2.63	5.06	0.1	0.1	0.1	0.1
Aliphatics >C35-C44	2.97	11.9	24.4	13.3	13.7	11.6	12.3	11.1	7.35	3.66	2.67	19.4	31.6	2.81	0.1	0.1	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.0656	0.0844	0.04	0.04	0.04	0.04	0.04	0.047	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.0548	0.236	0.611	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	1.26	1.16	0.942	2.13	0.1	1.33	0.893	0.893	0.966	0.1	0.395	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	1.42	10	11.7	8.26	13.6	5.2	4.56	10.4	5.14	2.51	2.63	3.45	3.01	1.17	0.1	0.1	0.1	0.1	0.1	0.1
Aromatics >EC21-EC35	4.39	31.1	41.2	38.6	59.1	45.4	29.5	41.4	32.3	10.3	11.9	23.4	28.8	8.83	15.8	17.2	2.82	8	3.17	0.1
Aromatics >EC35-EC44	1.04	12.4	23.5	11.7	15	3.97	7.96	13.8	11	3.3	2.14	18	33.5	7.61	2.1	1.61	0.1	0.617	0.523	0.1
Aromatics >EC40-EC44	0.1	4.13	9.54	3.98	5.72	0.1	2.87	4.96	4.24	1.05	0.1	7.95	16.6	3.26	0.1	0.1	0.1	0.1	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)																				
Acenaphthylene	29	629	88.4	41.7	66.8	12	12	23.1	15.8	12	12	12	13.6	12	12	12	12	12	12	12
Acenaphthene	8	125	40	54.1	154	8	8	31.2	39.6	8	8	15.4	13.6	8	8	8	8	8	8	8
Anthracene	38.1	965	145	135	259	16	16	92.1	97	25.2	22	19.3	32.9	16	16	16	16	16	16	16
Benz(a)anthracene	105	1620	336	554	998	16.8	46.1	503	474	96.5	49.1	84	95.5	35.8	14	14	14	14	14	14
Benzo(a)pyrene	102	1460	319	515	928	15	40.1	549	494	99.6	45.6	91.6	85.6	34.8	15	15	15	15	15	15
Benzo(b)fluoranthene	178	2170	590	815	1300	19.4	54.6	928	833	175	96.7	134	154	51.6	15	15	15	15	15	15
Benzo(k)fluoranthene	59.8	800	207	268	544	14	20.6	392	334	55.8	30.8	54.3	50.9	19.3	14	14	14	14	14	14
Benzo(g,h,i)perylene	83.5	1020	254	368	611	24	34.2	453	416	82.7	46	104	78.7	27.8	24	24	24	24	24	24
Chrysene	115	1730	438	701	1170	17.1	41.5	622	583	100	64.1	92.4	86	40.3	10	10	10	10	10	10
Dibenzo(a,h)anthracene	0.023	213	0.115	86.1	121	0.023	0.023	76.1	64.9	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	85.4	1030	241	354	594	0.018	23.4	438	404	65.2	33.6	67.8	58.9	21.1	0.018	0.018	0.018	0.018	0.018	0.018
Fluoranthene	236	4380	730	1140	1790	27.3	76.1	967	866	185	118	161	172	77.2	0.017	0.017	26.5	0.017	0.017	0.017
Fluorene	30.3	675	68.4	50.2	135	10	10	38.8	34.1	10	10	10	13.8	10	10	10	10	10	10	10
Naphthalene	98	1290	328	151	332	9	14	109	167	48.3	38.3	32.9	51.4	12	9	9	20.9	284	9	9
Phenanthrene	142	3510	479	667	1330	23.8	45.6	465	422	122	82.8	104	129	68.7	15	15	15	15	15	15
Pyrene																				
PAH, Total Detected USEPA 16	1.49	24.8	4.82	6.91	11.9	0.131	0.464	6.51	6.03	1.22	0.721	1.11	1.19	0.451	0.118	0.118	0.118	0.284	0.118	0.118
Naphthalene-d8 % recovery**	98.9	155	110	93.8	97	92.6	108	95.4	94.6	106	107	103	103	102	103	93.4	85.8	83.2	94.6	89.7
Acenaphthene-d10 % recovery**	110	164	113	104	108	97	108	103	103	103	105	98.2	101	101	102	98	91.2	89.5	94.1	94
Phenanthrene-d10 % recovery**	113	171	111	107	109	95.1	106	107	108	101	102	95.8	97.6	99.1	102	99.1	97.7	100	96.1	93.6
Chrysene-d12 % recovery**	99.4	158	96.6	90.7	95.6	109	106	97.9	98.6	86.4	87.9	90.4	83	93.7	89.5	105	91.6	93	98.8	99.3
Perylene-d12 % recovery**	92.7	144	78.5	82.8	90.2	112	112	88.3	88	83.6	84.5	86.9	79.6	95.9	88.3	105	84.7	84.6	87.8	98.2
Total Aliphatics >C12-C44	15.9	64.5	122	68.3	95.9	158	109	99.2	80.2	31.8	30	81.3	111	16.5	2.63	5.06	0.1	0.1	0.1	0.1
Total Aromatics >EC12-EC44	6.86	54.8	77.6	59.5	89.9	54.6	43.4	66.5	49.3	17.1	16.7	45.2	65.3	17.6	17.9	18.9	2.82	8.62	3.69	0.1
Total Aliphatics & Aromatics >C5-C44																				
Metals - (Solid)																				
Iron	83900	114000	281000	187000	296000	265000	197000	212000	244000	183000	138000	126000	99600	47800	28700	-	39000	41000	36300	33700
Manganese	17800	13700	18400	23700	11200	11700	4560	24200	24300	8580	23100	10400	6760	2240	437	-	746	777	955	391
Metals - (Liquid)																				
Calcium	225000	189000	131000	199000	87400	188000	174000	170000	168000	68800	166000	174000	178000	33300	-	5870	-	-	-	-
Magnesium	26700	23100	7410	15600	6970	5410	10400	26500	16600	11700	10300	35400	33000	10900	-	7930	-	-	-	-
Phenols																				
Phenol	0.01	0.01	0.01	0.01	0.0215	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																				
Soluble Sulphate 2:1 extract as SO4 BRE	0.049	-	0.0974	0.028	-	0.106	-	-	0.0144	-	0.0526	0.211	-	0.0712	-	-	-	-	-	-
pH	10.9	11.1	10.8	11.8	11.9	8.77	9	12.7	12.3	11.4	11.5	11.3	10.8	7.72	7.5	7.65	7.83	7.55	7.96	7.37
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.628	-	0.199	0.197	-	0.0942	-	-	0.201	-	0.161	0.404	-	0.0731	-	-	-	-	-	-
Sulphate, Total potential	1.88	-	0.597	0.591	-	0.283	-	-	0.603	-	0.483	1.21	-	0.219	-	-	-	-	-	-
Sulphate, acid soluble (total)	1.81	-	0.213	0.419	-	0.0788	-	-	0.281	-	0.207	1.16	-	0.0732	-	-	-	-	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12	12	12	37.5	376	341	311	172	119	178
Asbestos																				
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	22/05/2018	-	22/05/2018	22/05/2018	-	22/05/2018	-	-	22/05/2018	-	22/05/2018	22/05/2018	-	22/05/2018	-	-	-	-	-	-
Analysed By	Barbara Urbanek-Walsh	-	Lucy Caroe	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	-	-	Lucy Caroe	-	James Richards	Lucy Caroe	-	Andrzej Ferfecki	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-
Comments	0	-	0	0	-	0	-	-	0	-	0	0	-	0	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																				
Dibromofluoromethane**	104	99.4	107	107	104	112	104	112	104	115	115	103	104	109	112	109	108	106	104	109
Toluene-d8**	99.5	96.5	98.6	98.8	97	93.1	97.9	97.6	98.9	98.6	98.2	99.4	98.5	97.4	93.7	96.9	97.1	97.9	98.9	98.5
4-Bromofluorobenzene**	94.9	87.8	93.3	91.9	97.3	96.3	99	96.7	97.8	89.7	95.2	95.4	93.2	91.7	94.1	94.7	95.9	100	93.8	95.7
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.338	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	-	-	-	-	-	-
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																				
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	TP3BF8V	TP3BA2	TP3BA2	TP3BA2	TP3BA3	TP3BA3	TP3BA3	TP3BA2V	TP3BA3V	TP3BB2	TP3BB3	TP3BB3	TP3BB4
Depth	2	0.4	0.5	1.5	0.5	1.2	2	2.1	3.9	0.7	0.5	1.2	0.5
Sampled Date	15/05/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018
Carbon													
Soil Organic Matter (SOM)	4.14	76.5	27.4	6.76	19.7	63.8	2.76	2.72	0.772	6.22	5.97	14.3	7.64
Metals (Solids)													
Arsenic	12.3	5.32	6	4.2	6.89	11.3	13.3	10.9	8.31	6	14.5	10.4	13
Cadmium	0.143	0.467	0.2	0.02	0.2	0.02	2.24	0.02	0.02	0.2	0.627	0.02	0.2
Chromium	34.7	45.6	468	309	300	152	15.1	33.2	22.8	96.5	126	159	67.9
Copper	15.7	27.6	31.6	11.4	28.9	28.7	197	14.2	7.78	15.2	20.6	11.6	27.6
Lead	31.1	11.1	11.7	9.08	69.6	16.7	561	26.6	15.5	69.7	84.3	32.5	57.7
Mercury	0.14	0.14	1.4	0.14	1.4	0.14	1.4	0.14	0.14	1.4	1.4	0.14	1.4
Nickel	26.9	19.6	13.4	5.46	19.6	16.2	24.1	28.5	28.5	6.86	27.5	21.3	40.4
Selenium	1	2.89	18.6	10.1	10	5	10	1	1	10	10	3.08	10
Vanadium	60.9	121	1680	1050	308	238	25.1	52.1	40	134	210	243	341
Zinc	122	89.6	59.5	52.8	228	63.9	1280	111	86	161	245	124	166
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.04	0.01	0.01	0.01	0.0322	0.0173	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.04	0.01	0.01	0.0314	0.153	0.0667	0.0164	0.0186	0.0141	0.01	0.0181	0.01	0.01
Aliphatics >C8-C10	0.04	0.01	0.01	0.0202	0.142	0.0736	0.012	0.012	0.01	0.01	0.0249	0.01	0.01
Aliphatics >C10-C12	0.04	0.01	0.01	0.0728	19.8	0.305	0.0394	0.01	0.01	0.01	0.0475	0.01	0.01
Aliphatics >C12-C16	0.1	26.5	1.04	2.62	0.74	12.3	7.11	0.1	0.1	3.07	1.1	0.717	1.89
Aliphatics >C16-C21	0.1	35.2	5.81	1.63	12.7	23.3	22.1	0.1	0.1	14.3	7.69	4.2	13.2
Aliphatics >C21-C35	0.1	93.6	20.1	12.8	47.6	66.9	59.8	0.1	2.83	44.7	29.3	22.1	27.8
Aliphatics >C35-C44	0.1	19.4	4.3	2.58	81.5	10.3	14.4	0.1	0.357	12.4	9.7	4.85	6.3
Aromatics >EC5-EC7	0.04	0.01	0.01	0.01	0.15	0.0345	0.01	0.01	0.01	0.01	0.0113	0.01	0.01
Aromatics >EC7-EC8	0.04	0.01	0.01	0.01	0.0433	0.0161	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.04	0.01	0.01	0.0134	0.0944	0.0483	0.01	0.01	0.01	0.01	0.0158	0.01	0.01
Aromatics >EC10-EC12	0.04	0.01	0.01	0.0482	13.2	0.202	0.0263	0.01	0.01	0.01	0.0316	0.01	0.01
Aromatics >EC12-EC16	0.1	82.8	4.77	6.39	12.8	34.9	2.17	0.1	0.1	4.87	2.56	0.135	10.5
Aromatics >EC16-EC21	0.1	745	26.3	23.4	104	240	24.9	0.1	0.1	35.3	20.8	15.8	58.9
Aromatics >EC21-EC35	8.84	1230	65.4	59	246	424	104	8.35	2.75	115	61.8	47.6	150
Aromatics >EC35-EC44	1.02	242	15.9	19.6	74.3	98.2	35.7	1.06	0.598	33.1	20.9	17.4	35.5
Aromatics >EC40-EC44	0.1	68.3	4.43	6.72	29.9	31.1	12	0.1	0.1	10.1	7.09	6.37	9.67
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	133000	712	1090	6850	6090	213	12	12	592	449	546	4360
Acenaphthene	8	7580	104	125	309	524	285	8	8	125	73.4	127	298
Anthracene	16	114000	827	1310	16000	7830	625	16	16	1610	863	1210	6620
Benz(a)anthracene	14	186000	1820	3580	31700	15300	3050	14	14	4960	2290	2790	11700
Benzo(a)pyrene	15	131000	1880	3150	23100	12500	3520	15	15	3920	2060	2650	11600
Benzo(b)fluoranthene	15	197000	2110	4490	36600	16800	4820	15	15	6290	2870	3830	14800
Benzo(k)fluoranthene	14	62700	1060	1500	15700	7020	1890	14	14	2540	1140	1470	5330
Benzo(g,h,i)perylene	24	73500	1140	1810	13100	8060	2530	24	24	2400	1440	1790	8200
Chrysene	10	117000	1730	3050	24800	13900	2820	10	10	4500	2240	2710	10300
Dibenzo(a,h)anthracene	0.023	20000	265	449	3850	2430	596	0.023	0.023	666	367	440	1840
Indeno(1,2,3-cd)pyrene	0.018	72500	1250	1590	12300	8260	2040	0.018	0.018	2280	1720	2170	9060
Fluoranthene	0.017	578000	4710	8490	82200	44600	5330	0.017	0.017	10700	5940	7270	29600
Fluorene	10	141000	411	565	3260	3200	252	10	10	376	329	475	3530
Naphthalene	9	<0.45	2360	2650	17400	34600	2000	9	9	898	1650	2020	6870
Phenanthrene	15	607000	3110	5290	40900	30100	2540	15	15	4340	2670	4170	22600
Pyrene		384	3.63	6.18	60.5	29.9	4.86	0.015	0.015	7.79	4.64	5.35	23
PAH, Total Detected USEPA 16	0.118	2830	27.1	45.3	388	241	37.4	0.118	0.118	54	30.8	39	170
Naphthalene-d8 % recovery**	86.3	93.5	95.7	85.3	84.3	91.2	91.8	75.1	81.8	79	87.6	96.4	98.7
Acenaphthene-d10 % recovery**	89.4	115	84.1	90.1	90	88.2	88.7	77.4	77.6	79.9	81.5	85.8	94.9
Phenanthrene-d10 % recovery**	92.9	115	80.8	94.9	95.3	89.4	97.5	73.9	87.1	81.7	85.5	80.8	93.9
Chrysene-d12 % recovery**	92.1	94.5	80.5	94	85.7	84.7	95.1	87.1	88.7	89.9	79.8	76.9	93.6
Perylene-d12 % recovery**	83	102	79.5	83	73.4	84.9	97.1	77.3	84.1	74.8	76.3	76.9	93.7
Total Aliphatics >C12-C44	0.1	175	31.3	19.7	143	113	103	0.1	3.19	74.5	47.8	31.9	49.1
Total Aromatics >EC12-EC44	9.87	2300	112	108	437	797	167	9.41	3.34	188	106	80.9	255
Total Aliphatics & Aromatics >C5-C44		2470	144	128	613	910	271	9.41	6.55	263	154	113	304
Metals - (Solid)													
Iron	30400	14400	148000	112000	122000	35200	15600	23500	24800	55600	108000	110000	143000
Manganese	243	2950	30600	32200	27500	9130	290	317	900	20400	8250	8990	20600
Metals - (Liquid)													
Calcium	-	-	201000	-	-	130000	-	78400	-	208000	-	-	-
Magnesium	-	-	8130	-	-	3280	-	7180	-	43700	-	-	-
Phenols													
Phenol	0.01	0.0108	0.01	0.01	0.01	0.01	0.023	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.0217	0.01	0.01	0.01	0.0209	0.0115	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.0313	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.0522	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	-												
pH	7.3												
Sulphate, Total	-												
Sulphur, Total	-												
Sulphate, Total potential	-												
Sulphate, acid soluble (total)	-												
Cyanide, Total	1												
Exchangeable Ammonia as N	290												
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	18/07/2018	-	-	16/07/2018	-	18/07/2018	-	18/07/2018	-	-	-
Analysed By	-	-	Andrzej Ferfecki	-	-	Lucy Caroe	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-												
Analysts Comments	-												
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Amosite (Brown) Asbestos	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Fibrous Anthophyllite	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Fibrous Tremolite	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Fibrous Actinolite	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Non-Asbestos Fibre	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Comments	-	-	0	-	-	0	-	0	-	0	-	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	114	91.5	81.6	98	101	97.8	92.1	94.6	96.6	105	99.9	103	102
Toluene-d8**	98.8	90.9	87.8	99.4	96.1	96.3	95.6	90.9	96.5	95.5	98.7	98.3	97.2
4-Bromofluorobenzene**	96.5	81.1	73.3	103	100	99.9	88	77.9	98.4	89.9	104	103	103
Methyl Tertiary Butyl Ether	0.1	0.2	0.01	0.1	0.1	2	0.1	0.01	0.1	0.01	0.1	0.1	0.1
Benzene	0.09	0.18	0.009	0.09	0.09	1.8	0.09	0.009	0.09	0.009	0.09	0.09	0.09
Toluene	0.07	0.14	0.007	0.07	0.07	1.4	0.07	0.007	0.07	0.007	0.07	0.07	0.07
Ethylbenzene	0.04	0.08	0.004	0.04	0.04	0.8	0.04	0.004	0.04	0.004	0.04	0.04	0.04
p/m-Xylene	0.1	0.2	0.01	0.1	0.1	2	0.1	0.01	0.1	0.01	0.1	0.1	0.1
o-Xylene	0.1	0.2	0.01	0.1	0.1	2	0.1	0.01	0.1	0.01	0.1	0.1	0.1
Naphthalene	-	0.474	0.17	0.13	0.13	2.6	0.13	0.013	0.225	0.013	0.13	0.13	0.13
Sum of BTEX	0.4	0.8	0.04	0.4	0.4	8	0.4	0.04	0.4	0.04	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3BB4	TP3BB4	TP3BB4	TP3BB5	TP3BB5	TP3BB5	TP3BB8	TP3BB8	TP3BB8	TP3BB2V	TP3BB3V	TP3BB4V	TP3BB5V
Depth	1	1.5	2.5	0.8	1.5	2	0.5	1	1.5	2.1	2.1	3	2.9
Sampled Date	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018
Carbon													
Soil Organic Matter (SOM)	15.6	2.93	4.81	1.88	25.7	11.3	4.67	2.1	2.19	0.795	3.64	4.1	2.55
Metals (Solids)													
Arsenic	6.82	13.2	20.3	8.97	6	25.3	6	9.15	4.47	9.36	10.6	12.5	11.7
Cadmium	0.02	0.2	0.2	0.2	0.2	2.76	0.2	0.02	0.02	0.02	0.02	0.28	0.02
Chromium	217	9	9	595	375	9	386	104	76.9	22	33.3	34.9	30.8
Copper	28.7	14	18.9	36	14	21.8	21.1	14.2	13	7.39	15	15.5	12.7
Lead	0.7	7	47.5	22.2	31.2	1050	34.8	20.9	47.1	19.3	28	34.2	27.6
Mercury	0.14	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	12.8	5.15	23.2	22.1	12.6	21.4	12.3	20	4.95	27.5	24.9	28.8	35
Selenium	6.99	10	10	11.9	11.5	10	10	1	4.08	1	1	1	1
Vanadium	1130	26.7	179	581	373	284	688	311	117	41.2	53.8	56.8	52.4
Zinc	36.9	29.3	227	87.7	112	2420	117	125	146	83.5	116	170	120
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0145	0.01
Aliphatics >C6-C8	0.01	0.02	0.0226	0.0213	0.01	0.01	0.01	0.01	0.01	0.01	0.0188	0.0348	0.0253
Aliphatics >C8-C10	0.01	0.0169	0.0147	0.0117	0.01	0.01	0.01	0.01	0.01	0.01	0.0161	0.0247	0.02
Aliphatics >C10-C12	0.01	0.0232	0.026	0.0245	0.01	0.01	0.01	0.01	0.01	0.01	0.0121	0.0203	0.0106
Aliphatics >C12-C16	8.44	0.526	4.91	1.97	3.96	2.86	0.489	2.09	2.62	0.1	0.1	1.65	0.1
Aliphatics >C16-C21	12.2	11.5	16.6	13	3.27	22.2	3.88	8.75	0.887	0.1	0.288	0.1	0.1
Aliphatics >C21-C35	46.1	14.1	76.1	147	71.8	80	26.8	50.9	16	0.1	4.2	4.38	0.23
Aliphatics >C35-C44	11.6	2.14	48.4	49.9	70	3.82	6.31	9.38	2.4	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.0116	0.0102	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0107	0.016	0.0133
Aromatics >EC10-EC12	0.01	0.0158	0.017	0.016	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0145	0.01
Aromatics >EC12-EC16	12	3.98	0.1	3.63	6.38	4.14	1.38	2.69	1.36	0.1	0.422	1.41	0.1
Aromatics >EC16-EC21	38.3	68	4.46	20.3	21.7	22.4	4.01	10.6	1.57	0.1	1.1	0.436	0.1
Aromatics >EC21-EC35	96.1	184	12.4	124	72.9	51.1	18.6	54.5	5.71	1.04	22.6	4.15	8.48
Aromatics >EC35-EC44	37.1	54.1	1.33	84.6	97.2	9.02	8.6	30	0.444	0.453	2.95	0.1	1.49
Aromatics >EC40-EC44	13.8	17.9	0.1	34.5	48.7	2.49	3.08	12.3	0.1	0.1	0.326	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	1980	249	137	358	103	93.9	32.6	113	12	12	12	12	12
Acenaphthene	291	73.3	35.5	67.3	113	91.1	34.7	32.5	8	8	8	8	8
Anthracene	4290	566	149	521	255	302	108	206	27.9	16	16	16	16
Benz(a)anthracene	6770	1390	278	1700	378	479	385	654	71.5	14	14	21.3	14
Benzo(a)pyrene	5990	1480	286	1750	250	295	417	611	59.7	15	15	15	15
Benzo(b)fluoranthene	9220	1310	436	2330	479	548	602	1030	104	15	15	34.6	15
Benzo(k)fluoranthene	3070	672	149	1050	136	191	259	310	35.9	14	14	14	14
Benzo(g,h,i)perylene	3620	1010	225	1360	181	190	285	512	53.7	24	24	24	24
Chrysene	6750	1220	299	1650	495	542	422	677	71.7	10	10	24.8	10
Dibenzo(a,h)anthracene	868	214	53.6	346	52.1	40.8	63.7	122	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	3910	1040	203	1610	167	180	215	407	40.9	0.018	0.018	0.018	0.018
Fluoranthene	20300	2860	674	3780	1160	1530	732	1250	162	0.017	0.017	51.2	24.2
Fluorene	2410	288	122	210	274	266	36.8	63	10	10	10	14.6	10
Naphthalene	4140	935	544	1050	824	393	141	461	69.4	9	9	35.1	9
Phenanthrene	17100	1970	541	1980	1550	1580	419	704	97.8	15	15	46.6	15
Pyrene	15.1	2.43	0.579	3.01	0.858	1.35	0.699	1.08	0.137	0.015	0.015	0.0401	0.015
PAH, Total Detected USEPA 16	106	17.7	4.71	22.8	7.27	8.06	4.85	8.23	0.933	0.118	0.118	0.268	0.118
Naphthalene-d8 % recovery**	105	87.6	97.9	96.9	101	85.2	87.7	95.8	79.2	83.6	108	85.6	75.3
Acenaphthene-d10 % recovery**	94.1	91.9	97.6	93.8	105	84.3	88.5	94	81	82.4	93	88.8	70.4
Phenanthrene-d10 % recovery**	93	92.7	90.2	93.4	99.5	78.8	93.9	107	82	83.2	93.9	92.9	83.7
Chrysene-d12 % recovery**	88.5	88	84.7	89.3	85.7	48.1	94.1	99.1	79.1	91.2	84.6	86.4	89.5
Perylene-d12 % recovery**	81.7	83.2	79.9	91.2	70.3	34.8	83.5	95.4	74.4	84.2	84	88.5	82
Total Aliphatics >C12-C44	78.3	28.3	146	211	149	109	37.5	71.1	21.9	0.1	4.49	6.03	0.23
Total Aromatics >EC12-EC44	183	311	18.2	233	198	86.7	32.6	97.8	9.09	1.49	27.1	6	9.97
Total Aliphatics & Aromatics >C5-C44	262	339	164	444	347	196	70.1	169	31	1.49	31.6	12.2	10.3
Metals - (Solid)													
Iron	157000	142000	379000	242000	127000	333000	116000	184000	139000	28100	21800	19200	22600
Manganese	28500	1050	5440	28500	1140	8320	10500	11500	7400	592	229	240	472
Metals - (Liquid)													
Calcium	-	-	75300	-	193000	-	201000	-	53700	-	172000	-	217000
Magnesium	-	-	13300	-	36900	-	35600	-	7050	-	19200	-	15800
Phenols													
Phenol	0.01	0.01	0.01	0.02	0.0105	0.01	0.0107	0.0107	0.0119	0.476	0.05	0.0108	0.05
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.0107	0.0107	0.01	0.014	0.05	0.01	0.05
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.075	0.015	0.075
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.49	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	08/06/2018	-	08/06/2018	-	08/06/2018	-	08/06/2018	-	11/06/2018	-	11/06/2018
Analysed By	-	-	James Richards	-	James Richards	-	James Richards	-	James Richards	-	Lucy Caroe	-	Barbara Urbanek-Walsh
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected
Amosite (Brown) Asbestos	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Tremolite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Actinolite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Comments	-	-	0	-	0	-	0	-	0	-	0	-	Loose fibres in soil.
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	96.7	104	107	105	106	111	95.8	101	113	110	105	104	95.1
Toluene-d8**	97.7	97.9	99.8	99.2	94.7	98.6	95.7	98.9	98.9	98	95.1	97.4	95.9
4-Bromofluorobenzene**	92.2	103	103	87.7	95.8	96.9	87.7	91	98.4	93.8	88.5	89.6	84.4
Methyl Tertiary Butyl Ether	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.009	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.007	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.004	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.013	0.13	0.13	0.745	0.283	4.17	0.537	14.2	0.13	0.315	0.392	0.13	1.38
Sum of BTEX	0.04	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3BB8V	TP3BC1	TP3BC1	TP3BC1	TP3BC1	TP3BC2	TP3BC2	TP3BC2	TP3BC2	TP3BC3	TP3BC3	TP3BC3	TP3BC3
Depth	1.9	0.5	1	2	3	0.3	1	2	3.5	0.5	1	2	3
Sampled Date	04/07/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018
Carbon													
Soil Organic Matter (SOM)	3.41	2.69	3.31	1.57	5.02	5.36	9.09	3.05	3.84	5.91	1.34	4.81	5.53
Metals (Solids)													
Arsenic	8.87	15.5	6	43.7	7.2	2.07	2.25	9.71	8.56	9.35	6	2.74	5.49
Cadmium	0.02	1.11	0.907	1.18	0.407	0.471	0.716	0.474	0.566	1.21	0.674	0.631	0.359
Chromium	31.6	0.9	401	279	132	374	337	15.7	26.4	335	409	293	79.1
Copper	11.4	17.5	14	85.9	26.8	6.22	8.84	13.6	14.2	20	14	11.9	11
Lead	23.1	36.4	29.3	58	20.2	17.7	6.8	21.4	22.2	42.9	14.7	9.53	14.2
Mercury	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14
Nickel	22	19.1	13.2	11.7	10.7	4.11	1.9	17.2	26.1	28.9	2.83	2.58	12.6
Selenium	1	2.32	11.3	13	5.39	7.54	12	1.48	1.99	10	18.2	10.6	5.11
Vanadium	47	129	374	932	161	281	1940	97.8	124	647	2010	1580	341
Zinc	101	121	237	139	48.4	69.7	16.2	72.2	92.4	134	28	28.6	53.8
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.0221	0.04	0.04	0.04	0.108	0.04	0.0944	0.04	0.04	0.04	0.04	0.04	0.0445
Aliphatics >C8-C10	0.0179	0.04	0.04	0.101	0.123	0.04	0.124	0.04	0.07	0.04	0.04	0.04	0.184
Aliphatics >C10-C12	0.011	0.04	0.089	0.193	0.311	0.04	1.19	0.04	0.0952	0.04	0.04	0.0828	1.12
Aliphatics >C12-C16	0.1	0.1	1.37	37.1	9.24	4.69	3.52	6.12	9.61	9.33	21	7.07	24.9
Aliphatics >C16-C21	0.425	6.74	5.87	166	52.5	57.6	7.54	17.8	28.5	226	581	182	69.8
Aliphatics >C21-C35	3.35	50.6	53.3	1610	263	111	25.2	156	213	128	212	74.7	180
Aliphatics >C35-C44	0.1	20.4	6.68	482	73.1	16.1	3.06	64.3	29.9	23.7	14.7	5.41	55.7
Aromatics >EC5-EC7	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.011	0.04	0.04	0.0746	0.0889	0.04	0.12	0.04	0.0462	0.04	0.04	0.04	0.144
Aromatics >EC10-EC12	0.01	0.04	0.06	0.129	0.207	0.04	0.791	0.04	0.063	0.04	0.04	0.0555	0.749
Aromatics >EC12-EC16	0.1	0.1	11	9.83	3.91	17.4	12.7	1.13	4.88	5.24	8.04	7.74	9.3
Aromatics >EC16-EC21	0.582	6.45	51.3	59.5	29.2	80.4	61	5.53	24.7	69	162	89	57
Aromatics >EC21-EC35	14.3	38.8	106	400	114	234	93.1	39.3	103	97.5	133	90	125
Aromatics >EC35-EC44	2.31	20.5	28	180	38.6	59.9	26	23.2	25.2	24.3	24.6	21.4	55.2
Aromatics >EC40-EC44	0.1	7.63	10.4	57.8	12	17.6	8.33	8.43	7.53	8.18	7.84	8.08	22.2
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	181	5140	45.6	275	3180	2710	14.9	138	763	350	1010	62.3
Acenaphthene	8	22.9	609	172	69.4	254	244	8	55.9	71.5	134	112	460
Anthracene	16	245	10900	745	506	3510	4160	24	1130	729	604	1460	1010
Benz(a)anthracene	14	992	18500	4790	1030	7670	5610	56.1	1650	2210	2220	3070	2440
Benzo(a)pyrene	15	890	13500	4090	1080	8740	4810	50.4	1200	2120	2000	2800	2300
Benzo(b)fluoranthene	15	1340	19400	4020	1450	11000	6100	79.6	1740	3430	3040	4230	2700
Benzo(k)fluoranthene	14	446	7810	5280	534	4340	2540	25.3	673	1000	1080	1500	1300
Benzo(g,h,i)perylene	24	647	9450	4350	907	6940	3200	42	672	1690	1480	2070	1420
Chrysene	10	945	15200	6640	1080	6630	4520	59.5	1550	1960	1860	2810	2400
Dibenzo(a,h)anthracene	0.023	171	2290	929	235	1710	771	0.023	155	397	329	459	280
Indeno(1,2,3-cd)pyrene	0.018	677	10500	3980	1030	7180	3250	44.4	771	1960	1640	2260	1400
Fluoranthene	0.017	2130	56900	11300	2360	18200	16200	126	5420	5180	6360	8460	6520
Fluorene	10	68.3	3170	36.8	155	2940	1760	19.6	259	347	198	377	469
Naphthalene	9	162	12700	1270	2810	7480	26000	119	1010	1690	1140	4130	1460
Phenanthrene	15	580	37400	6530	1280	15800	15400	110	2440	2580	1750	5340	4760
Pyrene	0.015	1.66	38.4	9.96	1.82	14.3	11.2	0.0958	4.06	4.2	5.05	6.09	5.21
PAH, Total Detected USEPA 16	0.118	11.2	262	64.2	16.6	120	109	0.867	22.9	30.3	29.2	46.2	34.2
Naphthalene-d8 % recovery**	85.3	89.1	84.7	93.4	93.1	91	88.4	93	90.2	87.2	85.7	87.8	91.5
Acenaphthene-d10 % recovery**	88.2	89.2	90.6	93.3	86.2	91	91.1	90.6	95	88.9	87.3	81.2	90.7
Phenanthrene-d10 % recovery**	96.2	88.8	86.4	91.5	84.8	89.5	88.9	87.3	98	88.7	89.4	89.2	87.3
Chrysene-d12 % recovery**	99.5	85	84.7	89.7	89	91.8	86.3	84.8	102	85.1	85.2	87.6	82.4
Perylene-d12 % recovery**	92.5	82.1	83.4	100	101	99.7	81.9	92.9	89.5	90	90.2	92.1	77.7
Total Aliphatics >C12-C44	3.78	77.7	67.2	2290	398	190	39.3	244	281	387	828	270	331
Total Aromatics >EC12-EC44	17.2	65.8	196	649	185	392	193	69.1	158	196	328	208	247
Total Aliphatics & Aromatics >C5-C44	21.1	144	264	2940	584	582	234	313	439	583	1160	478	580
Metals - (Solid)													
Iron	20700	233000	169000	134000	58000	139000	137000	83800	89500	211000	151000	130000	64000
Manganese	156	7950	24800	43800	11200	24600	33500	2970	3240	20000	40900	33300	9590
Metals - (Liquid)													
Calcium	-	-	-	-	-	82600	-	183000	-	259000	-	-	150000
Magnesium	-	-	-	-	-	5730	-	40600	-	10900	-	-	16600
Phenols													
Phenol	0.01	0.01	0.01	0.01	0.01	0.0646	0.0204	0.05	0.01	0.01	0.01	0.01	0.0217
Cresols	0.01	0.01	0.01	0.01	0.01	0.226	0.0511	0.05	0.01	0.01	0.01	0.01	0.0326
Xylenols	0.015	0.015	0.015	0.015	0.015	0.162	0.0307	0.075	0.015	0.015	0.015	0.015	0.0326
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.452	0.102	0.035	0.035	0.035	0.035	0.035	0.0868
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	11/06/2018	-	11/06/2018	-	06/06/2018	-	-	11/06/2018
Analysed By	-	-	-	-	-	Barbara Urbanek-Walsh	-	Lucy Caroe	-	Marcin Magdziarek	-	-	Barbara Urbanek-Walsh
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Detected
Amosite (Brown) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Comments	-	-	-	-	-	0	-	0	-	0	-	-	Loose fibres in soil.
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	104	108	105	112	94.8	109	99.4	99.7	101	109	103	98	94.3
Toluene-d8**	97	97.6	97.9	97.9	96.9	98.8	90	95.9	96	96.6	97.6	97.5	95.3
4-Bromofluorobenzene**	86.8	98.9	87.4	88.6	83.8	96.2	74.9	81	92.7	85.1	93.3	89.3	83.2
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.2	0.1	0.2	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	1.8	0.09	0.09	0.18	0.09	0.18	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	1.4	0.07	0.07	0.14	0.07	0.14	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.8	0.04	0.04	0.08	0.04	0.08	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.2	0.1	0.2	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.2	0.1	0.2	0.1	0.1
Naphthalene	0.305	0.13	0.13	0.13	1.34	2.6	5.11	2.26	0.439	1.22	0.26	0.219	3.22
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	8	0.4	0.4	0.8	0.4	0.8	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	TP3BC1V	TP3BC2V	TP3BC3V	TP3BD1	TP3BD1	TP3BD1	TP3BD2	TP3BD2	TP3BD2	TP3BD2	TP3BD3	TP3BD3	TP3BD3
Depth	4.1	3.8	3.3	0.4	1	2	0.4	1	2	2.8	0.3	1	2
Sampled Date	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018
Carbon													
Soil Organic Matter (SOM)	5.14	5.19	6.48	1.33	13.4	12.6	11.5	7.15	2.83	6.69	20	29	17.9
Metals (Solids)													
Arsenic	12.7	12.2	12.8	6	11.6	7.99	6	3.14	6	12.6	34.1	7.87	6.56
Cadmium	0.407	0.288	0.664	0.802	2.06	0.895	0.738	0.689	0.615	4.11	17.3	1.08	1.14
Chromium	33	34.3	31.8	455	41.9	151	480	243	401	121	0.9	210	153
Copper	16.2	15.3	16.1	14	16.9	8.88	14	9.6	14	21.7	49.9	17.7	14
Lead	35.6	29.5	46.3	12	23.5	11.9	20.5	38.4	13	736	4220	64.8	41.8
Mercury	0.14	0.14	0.14	1.4	1.4	0.14	1.4	0.14	1.4	0.14	1.24	1.4	1.4
Nickel	23.6	25.4	28.1	9.25	54.7	13	8.06	5.21	4.18	20.1	23.7	18.7	13.3
Selenium	1	1	1	14.1	10	6.96	11.7	9.1	18.3	3.88	5.07	10.6	10
Vanadium	54.5	57	65.4	432	688	885	499	339	2880	124	69.4	1600	1060
Zinc	124	118	172	58.5	74.9	53	78.4	136	19	1530	11900	121	104
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.0808	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.274	0.118	0.04	0.04	0.04	0.0686	0.04	0.04	0.0452
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.258	0.113	0.04	0.0466	0.0949	0.147	0.04	0.04	0.0881
Aliphatics >C10-C12	0.04	0.04	0.04	0.0814	0.654	0.463	0.209	0.04	0.708	0.0635	0.04	0.089	0.588
Aliphatics >C12-C16	0.1	0.1	0.1	0.1	29	9.53	28.3	36.6	117	4.05	5.21	16.3	11.3
Aliphatics >C16-C21	0.1	0.1	0.1	3.76	39.3	22.3	511	647	1600	85.3	90	91.9	98.2
Aliphatics >C21-C35	4.02	3.33	6.74	24.1	151	89.6	135	158	294	59.3	224	94.9	64
Aliphatics >C35-C44	0.1	0.1	0.1	3.37	85.5	55	7.08	10.7	11.6	6.96	45.4	21.5	8.59
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.116	0.0501	0.04	0.04	0.04	0.0838	0.0482	0.0477	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.11	0.0685	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.28	0.139	0.04	0.053	0.0764	0.169	0.04	0.0521	0.0881
Aromatics >EC10-EC12	0.04	0.04	0.04	0.0539	0.435	0.309	0.139	0.04	0.472	0.0419	0.04	0.0597	0.392
Aromatics >EC12-EC16	0.905	0.1	0.1	3.59	27.8	34.1	35.1	13.8	47.5	1.76	4.25	68.8	233
Aromatics >EC16-EC21	2.74	0.1	0.1	17.6	115	129	245	211	447	28.7	59.7	354	671
Aromatics >EC21-EC35	58	29.9	17.8	36.9	289	239	228	160	219	41.2	147	779	1040
Aromatics >EC35-EC44	10.4	3.41	3.47	8.4	141	90.9	47.8	32.6	35.1	6.61	33.8	191	248
Aromatics >EC40-EC44	3.5	0.1	0.1	2.45	57.4	35.1	14.1	9.58	9.9	1.25	14.2	57.4	68.9
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	12	12	1350	1040	4240	9770	1840	3530	128	79.5	17000	204000
Acenaphthene	8	8	8	86.6	207	647	446	127	274	18	153	1950	13000
Anthracene	16	16	16	1870	1800	5060	11800	2160	2970	180	172	19900	167000
Benz(a)anthracene	21.5	14	23.8	3880	2900	5830	14100	4680	3960	259	187	31900	134000
Benzo(a)pyrene	22.8	15	15	3340	2310	4080	10600	4160	2980	193	115	31900	106000
Benzo(b)fluoranthene	36.6	15	37	4730	3450	2480	16300	6470	4350	306	258	47800	161000
Benzo(k)fluoranthene	14	14	14	1660	1200	2250	6250	1960	1680	107	83.8	15100	52800
Benzo(g,h,i)perylene	24	24	24	2330	1600	2740	7320	3280	2050	132	103	22300	69400
Chrysene	22.6	17.4	32.8	3310	2520	4570	11800	3720	3740	276	175	27900	112000
Dibenzo(a,h)anthracene	0.023	0.023	0.023	546	372	534	1860	795	479	35.3	0.023	5600	17800
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	2680	1800	3000	8320	3730	2060	138	93.5	24600	78300
Fluoranthene	49.4	39.4	53	10700	8000	17500	42600	12000	15400	905	556	78900	400000
Fluorene	10	10	10	1110	878	3560	7720	838	2690	113	237	14600	166000
Naphthalene	28.7	26.9	20.7	2140	2330	9270	11900	5740	3950	550	1630	29600	380000
Phenanthrene	36.7	28.8	37.4	6390	5730	15900	45200	8400	10800	823	567	51900	485000
Pyrene	0.039	0.0278	0.0423	7.45	6.16	13.1	30.7	9.1	11.1	0.682	0.717	53.7	269
PAH, Total Detected USEPA 16	0.257	0.14	0.247	53.5	42.3	94.7	237	69	72.1	4.85	5.12	475	2820
Naphthalene-d8 % recovery**	90.6	86.5	87.2	84.2	85.5	90.9	86.2	89.3	85.9	86.6	91.4	88.9	85.7
Acenaphthene-d10 % recovery**	88.2	83.6	82	85.2	85.8	85	89.6	92.2	97.1	89.7	90.6	88.8	99.3
Phenanthrene-d10 % recovery**	85.4	91.4	87.6	86.3	85.1	88.4	91.5	89.6	87.8	88.5	93.4	85.4	85
Chrysene-d12 % recovery**	81.1	82.4	80.1	83.9	78.5	87.5	87.1	85.4	79.6	78.8	81.6	91.6	79.2
Perylene-d12 % recovery**	95	79.7	75.7	86.1	78.5	79.6	84.4	92.9	76.7	72.9	66.8	99.1	87.1
Total Aliphatics >C12-C44	4.02	3.33	6.74	31.2	305	177	681	852	2020	156	365	225	182
Total Aromatics >EC12-EC44	72.1	33.3	21.2	66.5	572	493	556	417	748	78.3	245	1390	2190
Total Aliphatics & Aromatics >C5-C44	76.1	36.6	28	97.8	880	671	1240	1270	2770	235	609	1620	2380
Metals - (Solid)													
Iron	20700	30600	32700	165000	292000	173000	131000	121000	123000	100000	243000	139000	133000
Manganese	196	200	481	31500	12200	21400	23000	25400	42100	6120	7520	24400	17300
Metals - (Liquid)													
Calcium	-	-	-	-	208000	-	233000	138000	-	196000	-	76600	-
Magnesium	-	-	-	-	14900	-	12100	26600	-	28500	-	8790	-
Phenols													
Phenol	0.17	0.01	0.01	0.01	0.01	0.01	0.05	0.0224	0.0112	0.339	0.024	0.0336	0.1
Cresols	0.283	0.01	0.0167	0.01	0.01	0.01	0.05	0.0448	0.056	0.0113	0.204	0.0672	0.1
Xylenols	0.15	0.015	0.015	0.015	0.015	0.015	0.075	0.015	0.015	0.015	0.024	0.0784	0.15
Phenols, Total Detected monohydric	0.452	0.035	0.035	0.035	0.035	0.035	0.035	0.0672	0.0672	0.35	0.252	0.179	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	08/06/2018	-	11/06/2018	11/06/2018	-	11/06/2018	-	11/06/2018	-
Analysed By	-	-	-	-	James Richards	-	Andrzej Ferfecki	James Richards	-	Renata Bozhkov	-	Barbara Urbanek-Walsh	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	-	-	-	-	Not Detected	-	Trace	Not Detected	-	Not Detected	-	Not Detected	-
Comments	-	-	-	-	0	-	0	Fibre bundles in soil	-	0	-	0	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	104	109	111	110	107	92.1	102	101	94.6	102	106	102	78.3
Toluene-d8**	98.8	96.8	98.6	98.2	96.4	90.9	95	98	94.4	98.1	98.9	96.6	90.7
4-Bromofluorobenzene**	95.2	88.9	89.7	94.2	87.9	73.5	86.1	101	82.7	87.5	101	93.2	73.4
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0.2	2	2	2	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	1.8	0.18	1.8	1.8	1.8	0.172
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	1.4	0.14	1.4	1.4	1.4	0.116
Ethylbenzene	0.04	0.04	0.04	0.0592	0.04	0.04	0.04	0.8	0.08	0.8	0.8	0.8	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0.2	2	2	2	0.183
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0.2	2	2	2	0.1
Naphthalene	5.9	0.13	0.13	6.39	0.13	1.77	0.356	23.2	0.681	11.9	6.44	37.3	236
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	8	0.8	8	8	8	0.47
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	TP3BD1V	TP3BD2V	TP3BD3V	TP3BE1	TP3BE1	TP3BE1	TP3BE2	TP3BE2	TP3BE2	TP3BE2	TP3BE3	TP3BE3	TP3BE3	TP3BE1V	TP3BE2V	TP3BE3V
Depth	2.6	3	2.4	0.5	1	2	0.5	1	2	2.9	0.5	1	2	2.2	3	2.3
Sampled Date	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018	01/06/2018
Carbon																
Soil Organic Matter (SOM)	3.43	9.02	3.91	1.28	5.6	2.6	26.7	29.7	58.1	47.8	52.2	17.4	10.5	4.79	2.47	2.71
Metals (Solids)																
Arsenic	11.4	15.7	9.69	3.78	2.77	6	3.34	6	6	5.44	9.36	2.58	6	12.1	11.6	10.3
Cadmium	0.343	1.24	0.309	0.842	0.764	0.846	0.02	0.809	0.895	0.421	0.727	0.416	1.32	0.261	0.17	0.246
Chromium	30.9	54.6	35.2	269	313	399	60.9	245	373	161	35.9	178	222	28.4	32.2	37.4
Copper	16.9	22.7	15	12.2	12.3	14.7	4.28	24.5	14	15.3	31.1	11.1	20.4	20.8	19.6	15.4
Lead	28.7	66.7	36.7	17	17.7	31.7	8.62	21.4	19.6	27.7	66	9.68	55.5	28.2	25.8	26.6
Mercury	0.14	0.14	0.14	0.14	0.14	1.4	0.14	1.4	1.4	0.569	1.58	0.14	1.4	0.14	0.14	0.14
Nickel	25.7	26.7	26.2	162	5.45	6.36	7.45	11.8	5.25	12.7	19	7.81	12.7	25.9	27.2	30.1
Selenium	1	1.79	1	11.1	12	19.8	3.44	10	12.1	5.1	1.93	10.8	10	1	1	1
Vanadium	50.7	98.5	55.5	2180	1550	2410	254	779	449	311	86.8	1890	1400	49.2	52.7	60
Zinc	137	209	132	46.4	53.6	52.5	46.9	62.6	69.6	106	230	42.7	118	129	119	126
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0526	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.0691	0.04	0.0727	0.04	0.0571	0.0403	0.04	0.0672	0.0784	0.193	0.0803	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.18	0.04	0.117	0.04	0.04	0.04	0.04	0.0516	0.0448	0.35	0.241	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.0451	0.574	0.04	0.617	0.04	0.157	0.0874	0.04	0.0912	0.212	3.88	5.17	0.04	0.04	0.04
Aliphatics >C12-C16	0.1	0.1	29.1	4.5	4.34	2.83	12.4	11.9	11.4	15.8	10.5	14.9	123	0.1	0.1	0.1
Aliphatics >C16-C21	0.133	3.56	264	18.2	18.3	11.2	75	138	64.7	167	71.6	57.6	2440	0.1	0.1	0.1
Aliphatics >C21-C35	2.39	6.04	56	99.8	64.5	63.4	266	92.2	65.3	113	106	114	856	8.89	0.37	0.1
Aliphatics >C35-C44	0.1	0.1	0.121	27.7	16.7	19.3	61.2	22.4	10.8	12.7	13.1	14.8	44.9	0.345	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.0571	0.04	0.04	0.04	0.0459	0.214	0.044	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.108	0.0429	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.409	0.04	0.104	0.04	0.056	0.0459	0.04	0.0564	0.0594	0.472	0.296	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.382	0.04	0.411	0.04	0.105	0.0582	0.04	0.06	0.141	2.59	3.45	0.04	0.04	0.04
Aromatics >EC12-EC16	0.346	0.1	16.1	1.2	10.5	3.41	34.5	23.7	33.1	63.1	38.7	489	160	0.58	0.332	0.477
Aromatics >EC16-EC21	1.69	2.53	111	14.8	49	21.6	205	155	163	446	203	1900	1050	0.771	0.805	1.7
Aromatics >EC21-EC35	15.9	21.7	45.1	84.3	154	72.8	441	298	400	874	406	2530	881	60.5	10.7	23.7
Aromatics >EC35-EC44	7.09	4.01	6.04	31	53.6	23.9	111	85.7	93.4	185	100	504	175	11.5	4.17	6.74
Aromatics >EC40-EC44	3.19	0.1	2.06	10.4	19.6	7.94	32.8	29.2	27	47.5	30.5	158	58.4	3.77	1.73	2.82
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	12	20.7	342	16.8	9610	1360	4980	15600	10600	16000	17900	39300	8530	12	12	12
Acenaphthene	25.9	8	619	144	1670	130	340	1380	313	906	1870	3270	840	8	57.3	8
Anthracene	16	30.1	169	230	10300	2200	5130	25200	10900	15700	18200	27000	8100	16	41.7	16
Benz(a)anthracene	44.5	80.9	27.1	1500	27200	5410	11500	48700	34100	43400	38400	40700	14500	39.4	91.5	14
Benzo(a)pyrene	28.5	72.8	15	1800	27100	4950	10100	42000	32000	40900	35700	32300	11600	35.4	72.8	15
Benzo(b)fluoranthene	45.8	135	32.2	2390	41100	7220	13400	52700	47600	61100	52500	46300	16700	57	108	15
Benzo(k)fluoranthene	14	40.9	14	960	13900	2510	5730	24200	15200	17300	17400	16400	6060	14	42.5	14
Benzo(g,h,i)perylene	24	61.9	24	1330	18600	3380	6700	27100	24400	31300	26300	20600	7710	24	48.8	24
Chrysene	40.5	80.9	26.7	1670	27400	4640	9310	40100	29800	36300	28600	31400	12000	34.1	91.8	10
Dibenzo(a,h)anthracene	0.023	0.023	0.023	227	4630	799	1660	7360	6270	7290	6230	4590	1700	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	0.018	64.7	0.018	1440	21500	3860	7710	29900	27500	34600	29200	21400	7980	27.9	43.5	0.018
Fluoranthene	112	233	204	2350	57600	14600	29800	129000	79400	103000	109000	135000	47700	90.5	192	0.017
Fluorene	19	25.7	930	68.7	4320	703	2730	13500	3440	8640	22700	39200	9200	10	45.5	10
Naphthalene	29	50.9	5920	162	39900	929	22000	23300	17700	34100	40600	110000	26100	57.8	68.2	12.5
Phenanthrene	87.1	164	1490	953	37600	6920	18600	79100	29100	56600	93100	142000	34800	51.1	204	15
Pyrene	0.0813	0.164	0.147	2.37	49.4	10.7	21.4	94.3	58.1	74.4	75.4	90.4	36.8	0.069	0.157	0.015
PAH, Total Detected USEPA 16	0.514	1.23	9.9	17.6	392	70.3	171	654	426	582	614	800	250	0.462	1.26	0.118
Naphthalene-d8 % recovery**	86.2	90	90.3	90	89	85.2	90.1	87.1	90.1	86.9	90.5	76.3	98.7	80.7	82	90.6
Acenaphthene-d10 % recovery**	83.3	83.9	91.2	83.9	86.6	84.6	89.5	87.8	89.4	89.5	90.7	87.8	106	83	84.5	87.3
Phenanthrene-d10 % recovery**	90.5	87.8	91.3	87.9	93.5	86.7	85.6	80.1	82	85.9	84.2	86	96.4	85.6	86.9	84.7
Chrysene-d12 % recovery**	83.1	81.2	80.2	85.7	85.1	87.6	81.3	77.9	82.7	86.4	82.3	82.2	87.9	83.9	81.8	81.4
Perylene-d12 % recovery**	84.7	79.4	80	84.7	86	92.3	76.1	100	92.4	85.9	89.9	70.6	86.4	89.2	80.3	89.7
Total Aliphatics >C12-C44	2.53	9.6	350	150	104	96.7	414	264	152	308	201	201	3470	9.24	0.37	0.1
Total Aromatics >EC12-EC44	25	28.2	179	131	267	122	791	563	689	1570	748	5420	2260	73.3	16	32.6
Total Aliphatics & Aromatics >C5-C44	27.6	37.9	530	282	372	218	1210	827	842	1880	950	5630	5740	82.5	16.4	32.6
Metals - (Solid)																
Iron	29600	25500	29600	160000	136000	149000	86300	105000	161000	80500	63400	69000	140000	31000	28200	29700
Manganese	282	1220	239	36400	37600	44100	9240	18700	29000	12900	3660	25700	26900	461	448	280
Metals - (Liquid)																
Calcium	186000	-	-	-												
Magnesium	12900	-	-	-												
Phenols																
Phenol	0.011	0.05	0.01	0.01												
Cresols	0.033	0.05	0.01	0.01												
Xylenols	0.033	0.075	0.015	0.015												
Phenols, Total Detected monohydric	0.077	0.035	0.035	0.035												
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE																
pH																
Sulphate, Total																
Sulphur, Total																
Sulphate, Total potential																
Sulphate, acid soluble (total)																
Cyanide, Total																
Exchangeable Ammonia as N																
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-												
Date of Analysis	11/06/2018	-	-	-												
Analysed By	Renata Bozhkov	-	-	-												
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-												
Additional Asbestos Components (Using TM048)																
Analysts Comments																
Asbestos Quantification - Total - %	-	-	-	-												
Chrysotile (White) Asbestos	Not Detected	-	-	-												
Amosite (Brown) Asbestos	Not Detected	-	-	-												
Crocidolite (Blue) Asbestos	Not Detected	-	-	-												
Fibrous Anthophyllite	Not Detected	-	-	-												
Fibrous Tremolite	Not Detected	-	-	-												
Fibrous Actinolite	Not Detected	-	-	-												
Non-Asbestos Fibre	Not Detected	-	-	-												
Comments	0	-	-	-												
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	104	105	108	113												
Toluene-d8**	94.1	96.9	100	98.3												
4-Bromofluorobenzene**	79.8	84.6	103	99												
Methyl Tertiary Butyl Ether	0.1	0.1	2	0.1												
Benzene	0.09	0.09	1.8	0.09												
Toluene	0.07	0.07	1.4	0.07												
Ethylbenzene	0.04	0.04	0.8	0.04												
p/m-Xylene	0.1	0.1	2	0.1												
o-Xylene	0.1	0.1	2	0.1												
Naphthalene	10.3	0.13	2.6	0.13												
Sum of BTEX	0.4	0.4	8	0.4												
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-												
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-												
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-												
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-												
Water Analytical M (ad)	-	-	-	-												
Water Gross M(ex)	-	-	-	-												
Water Total M(ar)	-	-	-	-												

Sample ID	TP3CB301	TP3CB302	TP3CB303	TP3CB501	TP3CB3V	TP3CB5V	TP3CD301	TP3CD302	TP3CD3V	TP3CM401	TP3CM402	TP3CM403	TP3CM4V
Depth	0.45	0.65	0.9	0.5	1.3	1.6	0.45	0.65	1.7	0.5	1.2	2	3.6
Sampled Date	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017	28/09/2017
Carbon													
Soil Organic Matter (SOM)	8.59	46.7	3.86	7.02	4.52	1.78	2.98	3.5	0.888	4.19	>100	6.59	5.55
Metals (Solids)													
Arsenic	6	4.85	7.92	7.14	9.1	9.75	8.64	6	11.9	7.66	0.652	6	11.4
Cadmium	1.5	0.958	1.93	1.48	0.559	0.22	3.28	0.2	0.168	0.375	0.159	0.978	0.02
Chromium	252	80.3	227	265	33.8	46.4	10.1	137	19.5	25.3	3.01	637	72.8
Copper	28.9	21.7	109	30.5	24.5	18	1790	22.5	9.51	15.2	8.91	14	22.9
Lead	103	39.3	68.7	93.5	44.4	25.2	312	29.5	20.2	32.3	6.34	29.9	30.5
Mercury	1.4	0.14	1.4	1.4	0.663	0.645	1.4	1.4	0.526	0.69	0.14	1.4	0.856
Nickel	17.7	18.4	65	22.6	27.2	37.3	22.8	19.1	32.9	29.2	1.43	2.7	29.4
Selenium	10	9.64	14.4	12.6	1	1	10	10	1	1	1	13.1	1
Vanadium	756	91.8	454	333	66.9	66.4	59.1	223	46.6	48.6	8.94	528	100
Zinc	379	324	178	446	150	116	4930	94.8	82.9	146	17.8	56.6	120
TPH Criteria Working Group (TPH CWG)													
Benzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	0.0158	0.0109	0.008	0.0101	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Ethylbenzene	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.537	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	2.81	4.11	0.1	4.18	0.1	0.1	10.8	10.9	0.1	0.1	37.6	0.166	1.26
Aliphatics >C16-C21	11	15.5	0.1	16.9	0.1	0.1	22.1	26	0.1	0.1	19.3	11.9	2.84
Aliphatics >C21-C35	89.9	78.3	0.1	91.1	4.33	1.83	112	114	0.708	9.47	22.3	28.4	20.8
Aliphatics >C35-C44	41.4	11.8	0.1	27.4	0.1	0.1	25.2	113	0.1	0.1	1.11	7.14	2.61
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.358	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	6.13	7.66	11.4	5.76	0.1	0.1	4.5	5.98	0.1	0.1	104	0.586	0.533
Aromatics >EC16-EC21	32.6	72	46.4	25.7	0.1	0.138	16	32.6	0.1	0.1	90.5	5.95	3.15
Aromatics >EC21-EC35	130	206	59.4	143	13.4	6.42	73.4	144	2.21	18.2	116	27.4	42.4
Aromatics >EC35-EC44	60.2	53.7	15.1	55.5	5.4	2.1	30.9	151	0.658	6.02	15.7	8.87	14.1
Aromatics >EC40-EC44	22.7	16.4	4.97	20.8	1.51	0.55	11.7	71.6	0.1	1.74	3.42	3.98	4.5
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	703	1170	622	291	26.2	12	157	38	12	12	127	12	12
Acenaphthene	105	51.1	19.9	139	8	15.4	43.8	144	8	8	257	57.4	8
Anthracene	1120	2490	415	523	24.4	20.9	293	256	16	16	529	81.8	16
Benz(a)anthracene	4210	7240	1490	3480	63.7	369	1170	3790	14	22.8	1130	527	218
Benzo(a)pyrene	4270	6630	1350	4950	66.6	528	1260	3850	15	20.7	787	513	272
Benzo(b)fluoranthene	6850	10700	2620	5570	83.1	689	1750	5270	15	31.5	1490	679	364
Benzo(k)fluoranthene	2200	4080	830	2400	32.9	299	651	2460	14	14	482	275	145
Benzo(g,h,i)perylene	3290	5400	1110	3400	60.1	400	1050	3170	24	24	562	411	226
Chrysene	3240	7060	1500	3450	34.6	431	1100	4040	10	23.4	1560	875	192
Dibenzo(a,h)anthracene	812	1410	304	815	0.023	98.5	233	839	0.023	0.023	209	102	0.023
Indeno(1,2,3-cd)pyrene	2870	4780	964	2730	43	326	820	2600	0.018	0.018	377	291	170
Fluoranthene	6750	14400	3570	4210	182	406	2280	8320	0.017	34.9	2210	798	268
Fluorene	437	696	259	325	41.6	10	93.1	66.7	10	10	686	30.4	10
Naphthalene	1710	1230	1480	2050	34.9	46.9	302	419	39.5	9	4140	117	59.6
Phenanthrene	3390	6310	2790	2220	251	135	973	3790	15	31.5	6470	633	136
Pyrene													
PAH, Total Detected USEPA 16	47	84.1	21.7	40.4	1.06	4.17	14.1	45.6	0.118	0.192	22.8	6.21	2.3
Naphthalene-d8 % recovery**	99.5	113	102	107	117	115	108	103	124	113	104	98.2	122
Acenaphthene-d10 % recovery**	94	107	97.1	102	112	105	104	93.7	111	102	103	94	118
Phenanthrene-d10 % recovery**	94.1	106	95.9	101	110	103	102	94.6	110	101	102	93.7	115
Chrysene-d12 % recovery**	98.7	108	95.1	105	103	102	104	100	107	97.3	103	96	114
Perylene-d12 % recovery**	104	112	97.1	112	107	95.1	111	94.4	99.3	89.5	100	98.9	121
Total Aliphatics >C12-C44	145	110	0.1	140	4.33	1.83	170	264	0.708	9.47	80.3	47.6	27.5
Total Aromatics >EC12-EC44	229	340	132	230	18.8	8.66	125	333	2.86	24.2	327	42.8	60.2
Total Aliphatics & Aromatics >C5-C44													
Metals - (Solid)													
Iron	128000	102000	276000	162000	34100	39700	169000	141000	36900	31800	1160	127000	39800
Manganese	19200	<0.13	26800	24000	807	1640	4020	15100	1590	750	133	28800	2460
Metals - (Liquid)													
Calcium	199000	102000	160000	169000	-	-	118000	174000	-	37200	2090	265000	-
Magnesium	14100	15000	5700	10200	-	-	18500	19000	-	11200	279	12700	-
Phenols													
Phenol	0.01	0.01	0.011	0.0112	0.01	0.01	0.01	0.0111	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.0224	0.01	0.01	0.01	0.01	0.01	0.0133	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	0.0933	0.111	0.0661	0.16	-	-	0.357	0.17	-	0.0972	0.0621	0.0917	-
pH	10.7	11.5	12.3	10.9	8.48	8.86	10.5	12.1	8.29	8.08	7.81	12.7	8.24
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.319	0.272	0.265	0.256	-	-	0.176	9.28	-	0.052	0.398	0.31	-
Sulphate, Total potential	0.957	0.816	0.795	0.768	-	-	0.528	27.8	-	0.156	1.19	0.93	-
Sulphate, acid soluble (total)	0.326	0.199	0.466	0.557	-	-	0.39	0.846	-	0.0481	0.02	0.628	-
Cyanide, Total	1	4.21	13.9	1.13	1	1	1	1.64	1	1	1	1	1
Exchangeable Ammonia as N	12	18.3	12	12	342	141	14.8	12	170	12	12	12	246
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	0.001	-	-	-	0.001	-	-	-	-	-	-
Date of Analysis	06/10/2017	06/10/2017	06/10/2017	06/10/2017	-	-	06/10/2017	06/10/2017	-	06/10/2017	06/10/2017	06/10/2017	-
Analysed By	Renata Hatos	Renata Hatos	Renata Hatos	Renata Hatos	-	-	Renata Hatos	Renata Hatos	-	Renata Hatos	Renata Hatos	Renata Hatos	-
Asbestos Quantification - PCOM Evaluation - %	-	-	0.001	-	-	-	0.001	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	None	-	-	-	None	-	-	-	-	-	-
Analysts Comments	-	-	N/C	-	-	-	N/C	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	0.001	-	-	-	0.001	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Detected	Not Detected	-	-	Trace	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Comments	0	0	Fibre bundles in soil	0	-	-	Loose fibres in soil	0	-	0	0	0	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CA1	3CA1	3CA1	3CA2	3CA2	3CA2	3CA3	3CA3	3CA3	3CA4	3CA4	3CA4	3CA5	3CA5	3CA5	3CA6	3CA6	3CA7	3CA7	3CA8	3CA8	3CA1V
Depth	0.5	1	1.5	0.5	1.5	2.5	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5	0.5	1.5	0.5	1.5	0.5	1	2.3
Sampled Date	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	30/07/2018	30/07/2018	07/08/2018
Carbon																						
Soil Organic Matter (SOM)	6.15	17.4	16.7	5.65	55.3	6.19	14.4	10.8	5.72	6.83	22.8	8.28	9.38	16.7	8.24	3.79	4.67	6.24	5.72	1.46	4.83	5.24
Metals (Solids)																						
Arsenic	8.07	4.25	4.94	8.52	3.53	7.05	6.25	18.6	12.8	9.27	7.43	6	9.35	7.92	6	6.29	6.77	9.54	2.62	5.12	12.6	12.6
Cadmium	0.114	0.02	0.142	0.02	0.0729	0.2	0.02	0.02	0.2	0.2	1.2	0.211	0.455	1.67	0.2	0.02	0.02	0.381	0.02	0.02	0.2	0.0351
Chromium	41.4	15.1	9.23	104	6.89	539	72	81.4	92.1	143	200	584	155	168	385	167	235	147	112	300	303	34.3
Copper	15.3	13.5	13.2	17.7	10.2	15.2	18.1	26.2	42	20.1	47.3	19	22.8	28.3	16.2	13.4	19.3	18.6	7.11	14.4	45.1	34.7
Lead	44.5	21.1	17.9	58.2	10.6	10.5	24.6	55.8	88	59.5	91.7	55.9	88.7	99.8	23.3	29.7	48.3	63.9	10.4	11.9	17.9	37.3
Mercury	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	1.4	0.14	1.4	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	1.4	0.14
Nickel	12	8.52	11.8	16.4	6.33	14.7	17.3	32.5	39.9	16.7	14.6	12.7	22.6	17.3	2.07	9.68	12.8	17.6	5.46	5.29	35.3	27.1
Selenium	1.2	1.44	1.5	2.99	1	13.3	1.89	4.2	10	10	12.6	15.5	10	12	10.6	3.84	4.84	10	3.92	9.33	10	1
Vanadium	67.4	20.2	20.9	149	17.1	454	261	165	613	210	223	415	304	302	291	230	369	213	167	244	338	49.8
Zinc	191	86.3	113	289	67.8	47.2	118	205	306	178	1050	227	308	635	175	122	296	218	51.3	56.6	108	136
TPH Criteria Working Group (TPH CWG)																						
Benzene																						
Toluene																						
Ethylbenzene																						
sum of detected mpo xylene by GC																						
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.0286	0.0106	0.026	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0136	0.0154	0.01	0.01	0.01	0.01	0.0241	0.01	0.01	0.01
Aliphatics >C8-C10	0.0456	0.01	0.0195	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0124	0.0143	0.01	0.01	0.01	0.01	0.0197	0.01	0.01	0.01
Aliphatics >C10-C12	0.134	0.01	0.0282	0.01	0.01	0.01	0.0132	0.01	0.01	0.0121	0.01	0.01	0.0249	0.0363	0.01	0.01	0.0134	0.0132	0.035	0.01	0.01	0.01
Aliphatics >C12-C16	3.97	1.62	2.28	5.62	8.91	0.1	3.27	2.28	2.96	2.34	4.95	9.14	1.86	2.52	0.298	1.52	3.04	2.14	0.768	0.786	1.34	0.1
Aliphatics >C16-C21	12.9	10.9	12.5	26	83.5	0.259	25.9	13.3	14.6	13.4	37.1	23.9	10.5	25	3	6.58	16.3	9.73	5.57	6.09	6.51	0.1
Aliphatics >C21-C35	74.5	34.7	43.2	146	65.7	16.5	89	51.7	65.1	51.2	66.5	47.9	60.7	53.9	31.3	45	73.6	47.9	25.4	28.7	32.1	1.04
Aliphatics >C35-C44	41.1	8.85	15.5	53.2	13.2	2.15	40.7	15.2	19.4	16.4	16.2	11.9	26.8	12.1	25.5	17.3	35	15.9	6.18	7.44	8.73	0.1
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.0308	0.01	0.013	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0131	0.01	0.01	0.01
Aromatics >EC10-EC12	0.0891	0.01	0.0184	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0158	0.0242	0.01	0.01	0.01	0.01	0.023	0.01	0.01	0.01
Aromatics >EC12-EC16	5.43	9.65	70.7	3.92	31.7	0.287	13	5.28	6.87	5.01	19.5	6.54	3.68	16.8	1.03	2.2	6.09	4.39	2.83	0.758	1.56	0.161
Aromatics >EC16-EC21	39.9	98.2	418	23.5	442	3.92	154	45.9	66.5	33.7	324	81.3	27.8	236	7.03	12.2	37.1	30.9	14.4	12.9	13.7	1.03
Aromatics >EC21-EC35	146	432	755	118	1420	26.6	500	161	241	109	1030	370	104	701	54.3	54.4	151	85.3	45.9	71.6	72.1	15.9
Aromatics >EC35-EC44	73.3	134	202	74	311	7.07	155	49.6	78.7	40.3	259	114	43.8	185	51.6	27	64.2	29.2	16.8	23.8	26.1	9.1
Aromatics >EC40-EC44	29.4	45.3	68.1	31.6	99.2	2.27	57.2	16.7	27.4	15.2	81.1	38.2	15.7	59.5	26.3	10.5	26.2	10.5	6.34	7.71	9.03	3.63
Polyaromatic Hydrocarbons (PAHs)																						
Acenaphthylene	890	1490	410	429	15600	382	3740	1480	1580	1060	9850	4600	962	5320	99.4	167	1120	533	801	12	249	12
Acenaphthene	172	314	114	77	647	21.3	557	137	129	185	393	215	138	263	80	26.4	180	89.4	135	275	114	8
Anthracene	1850	4560	1280	701	47500	529	6520	1940	2450	1450	14900	4310	1460	13900	224	186	1580	542	1030	472	550	16
Benz(a)anthracene	4290	18100	3790	1750	97300	1840	24000	5890	9560	4090	58600	22500	4080	29300	1630	596	4250	1720	2580	4180	2700	41.4
Benzo(a)pyrene	4010	13300	4770	1490	96900	2440	23300	6060	8290	4120	54200	28300	3740	26400	1950	584	3650	1660	2370	5300	2760	48.1
Benzo(b)fluoranthene	6510	24800	6120	2030	139000	3600	37800	8590	12900	6250	72400	48800	6010	40900	2740	946	5580	2440	4010	8100	3690	82
Benzo(k)fluoranthene	2280	10200	2330	533	46100	1110	12900	3190	4160	2460	28200	11700	2220	16200	1140	324	2200	778	1500	2540	1300	14
Benzo(g,h,i)perylene	2980	10100	3080	1040	76200	2010	18100	4270	6080	3190	37700	22800	2900	19900	1340	449	2630	1120	1790	3070	1840	41.3
Chrysene	4260	17500	3640	1560	95400	2420	23400	5160	8900	3910	54500	22700	3750	27100	1810	582	3750	1500	2330	4190	2270	58.3
Dibenzo(a,h)anthracene	736	3140	1030	231	18100	369	5320	1200	1700	896	11700	6230	839	5800	343	96.5	723	301	517	775	430	0.023
Indeno(1,2,3-cd)pyrene	2780	9880	3120	862	102000	2090	15900	5470	6980	2750	42800	19200	2530	25000	1270	580	2360	1590	1540	3780	1920	31.6
Fluoranthene	9660	21700	5490	2730	241000	2410	48200	12200	18400	8170	110000	32700	8980	59300	2300	1240	8550	3500	6150	5200	4940	86.6
Fluorene	735	1350	352	360	10600	21	1670	782	767	618	4330	910	584	4370	81.8	93.3	841	308	705	118	165	10
Naphthalene	977	1260	262	415	4090	56.3	2120	1790	1630	2330	3290	1590	1520	2900	148	384	2340	1240	1780	66.2	451	9
Phenanthrene	5670	14000	3300	2150	103000	141	13400	5630	5880	3860	38500	7470	4220	29900	895	617	4880	1850	3930	1990	2020	49.3
Pyrene	7.1	15.4	3.83	1.73	193	2.74	35.7	9.52	14.9	6.53	89	33.6	6.6	41.5	2.19	0.906	6.54	2.65	4.46	4.97	4.13	0.0756
PAH, Total Detected USEPA 16	54.9	167	42.9	18.1	1290	22.2	273	73.3	104	51.9	630	268	50.5	348	18.2	7.77	51.2	21.8	35.6	45	29.5	0.514
Naphthalene-d8 % recovery**	95.7	96.3	65.6	71	89.5	96.1	92.2	93.2	93	91.2	91.7	91.3	95.6	97.8	93	94.6	87.1	90	93.9	92.5	94	91.7
Acenaphthene-d10 % recovery**	107	92	85	106	72.5	91.1	97.9	95	95	99.5	88.5	98	98.1	96.3	94.8	92.8	89.4	90.5	96.1	95.1	91	95
Phenanthrene-d10 % recovery**	100	118	98.4	98.9	76.5	84.7	94.1	88.3	101	104	95.1	98.9	99.3	92.5	97.2	92.8	91.7	86.5	98.5	96	93.4	94.6
Chrysene-d12 % recovery**	96.3	117	71.9	89.1	79.5	81.5	98.9	94.8	95.2	110	95.3	106	103	97.4	90.9	86	95.4	92.1	100	92.2	92.8	95.1
Perylene-d12 % recovery**	95.1	93.9	80.3	88.7	91	79.5	112	107	92.9	114	113	120	109	108	88.8	87.5	95.5	96.6	106	105	93.1	102
Total Aliphatics >C12-C44	133	56.1	73.4	231	171	18.9	159	82.6	102	83.3	125	92.8	99.8	93.5	60.1	70.4	128	75.7	38	43	48.7	1.04
Total Aromatics >EC12-EC44	264	674	1450	219	2200	37.9	823	262	393	188	1630	572	180	1140	114	95.8	258	150	79.9	109	113	26.2
Total Aliphatics & Aromatics >C5-C44	397	731	1520	449	2370	56.8	981	344	495	272	1760	665	280	1230	174	166	386	226	118	152	162	27.2
Metals - (Solid)																						
Iron	45000	24100	15600	54800	8780	118000	68000	72900	185000	85700	102000	109000	97500	113000	124000	80400	75900	72800	44100	132000	255000	20700
Manganese	3730	2790	1890	10200	523	26200	7800	12700	9430	9510	33100	27600	11500	20800	21400	12300	14300	9310	9660	33900	21400	287
Metals - (Liquid)																						
Calcium	128000	-	211000	-	137000	-	194000	-	171000	85000	-	50200	57500	47900	-	-	-	-	-	-	-	-
Magnesium	21900	-	16000	-	14100	-	39500	-	9800	13900	-	4320	7310	8570	-	-	-	-	-	-	-	-
Phenols																						
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0104	0.0107	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.114
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0103
Xylenols	0.0226	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.124
Inorganics																						
Soluble Sulphate 2:1 extract as SO4 BRE																						
pH																						
Sulphate, Total																						
Sulphur, Total																						
Sulphate, Total potential																						
Sulphate, acid soluble (total)																						
Cyanide, Total																						
Exchangeable Ammonia as N																						
Asbestos																						
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	10/08/2018	-	09/08/2018	-	10/08/2018	-	10/08/2018	-	01/08/2018	10/10/2018	-	10/10/2018	10/10/2018	10/10/2018	-	-	-	-	-	-	-	-
Analysed By	Renata Bozhkov	-	Renata Bozhkov	-	Renata Bozhkov	-	Renata Bozhkov	-	James Richards	Andrzej Ferfecki	-	Andrzej Ferfecki	James Richards	Marcin Magdziarek	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																						
Analysts Comments																						
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Comments	0	-	Loose fibres in soil	-	0	-	0	-	Material typical of asbestos cement debris	0	-	0	0	0	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																						
Dibromofluoromethane**	95.7	93.8	105	101	99.3	109	108	102	97.7	110	103	111	105	109	108	112	103	105	101	105	113	104
Toluene-d8**	95.1	91.5	94.4	102	94.6	96	97.9	98.7	93.6	95.9	98.8	99.2	94.9	98	99.3	97	100	99.1	109	99.9	100	98.9
4-Bromofluorobenzene**	87.6	86.3	98.1	95.1	89.9	87.4	85.8	95.8	81.2	93.6	94.2	96.3	85.8	95.9	89.9	96.6	98.9	96.9	99.8	102	99.7	90.3
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.303	0.758	0.13	0.13	0.825	0.28	0.318	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																						
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3CA2V	3CA3V	3CA4V	3CA5V	3CA6V	3CA7V	3CA8V	3CB2	3CB2	3CB2	3CB6	3CB7	3CB7
Depth	2.9	2	2.2	1.8	2.2	2.2	1.8	1	2.2	2.8	0.5	0.5	0.9
Sampled Date	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	07/08/2018	30/07/2018	13/08/2018	13/08/2018	13/08/2018	01/08/2018	30/07/2018	30/07/2018
Carbon													
Soil Organic Matter (SOM)	5.9	1.36	1.43	6.62	1.72	1.57	1.91	5.59	74	30	7.12	5.67	5.88
Metals (Solids)													
Arsenic	12.1	9.17	8.92	13.2	8.64	10.8	10.6	16.2	3.14	3.16	8.49	7.27	6.56
Cadmium	0.101	0.02	0.02	0.347	0.02	0.02	0.02	0.887	0.122	0.154	0.638	0.02	0.02
Chromium	34	34.2	36.7	24.8	34.7	29.6	36.8	127	12.2	15	100	120	271
Copper	24.2	20.1	21.2	27.5	20.1	13.6	16	18.6	16.5	10.5	15.6	13.6	15.5
Lead	40.1	22.9	20.9	45.3	21.1	21.3	25.9	84.4	30.1	23	77.5	40.2	28
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14
Nickel	28.7	36.6	37.4	29.3	33.4	29.9	28.5	19	7.25	8.2	21.6	11.6	12.3
Selenium	1	1	1	1	1	1	1	10	1	1	1.7	3.45	8.14
Vanadium	52.1	51.2	52.6	41.7	50.7	48	53.5	469	15.7	28.8	83.4	188	940
Zinc	149	109	125	145	123	90.2	104	292	105	92.5	222	191	109
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.019	0.01	0.01	0.01	0.0257
Aliphatics >C8-C10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0123	0.01	0.01	0.01	0.0185
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0347	0.01	0.01	0.01	0.0534
Aliphatics >C12-C16	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5.47	6.29	1.78	1.8	10.8	2.05
Aliphatics >C16-C21	0.1	0.1	0.1	0.1	0.1	0.1	0.1	27.6	62.8	17	6.84	4.17	12.8
Aliphatics >C21-C35	8.52	1.58	1.2	3.86	0.1	0.1	0.146	78.7	81.3	21.3	32.9	71.1	68.2
Aliphatics >C35-C44	1.73	0.1	0.1	0.1	0.1	0.1	0.1	39.6	19.5	1.99	12.5	66.3	23.8
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0123
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0235	0.01	0.01	0.01	0.0349
Aromatics >EC12-EC16	0.1	0.1	0.164	0.1	0.1	0.1	6.53	8.18	255	10.7	2.08	5.49	3.5
Aromatics >EC16-EC21	1.83	0.312	1.35	2.37	0.1	0.1	51.5	43.6	4330	172	10.8	28.9	22.7
Aromatics >EC21-EC35	20.4	4.22	8.13	21.9	3.99	3.02	160	152	5480	440	44.8	110	82.8
Aromatics >EC35-EC44	4.8	0.29	0.624	4.29	0.1	1.95	47.7	159	826	97.6	21	49.3	32.7
Aromatics >EC40-EC44	1.22	0.1	0.1	0.882	0.1	0.763	15.9	76.7	215	30.2	8.13	18.4	11.9
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	12	28.9	22	12	12	12	855	61500	1860	276	463	367
Acenaphthene	8	8	8	8	8	8	8	71.8	2720	61.4	33.7	75.4	87
Anthracene	16	16	22.3	27.4	16	16	16	1550	204000	4860	604	829	878
Benz(a)anthracene	76.3	65	100	223	14	14	38	4110	358000	14900	1610	2300	2440
Benzo(a)pyrene	109	64	124	245	15	15	43.3	3670	303000	13500	1360	2130	2090
Benzo(b)fluoranthene	148	98.5	190	356	15	15	63.7	4980	378000	21900	2100	3530	3680
Benzo(k)fluoranthene	52.1	44.6	63.1	118	14	14	19.7	2040	159000	6810	726	1260	1210
Benzo(g,h,i)perylene	80.8	47.9	103	146	24	24	24	2600	223000	9860	814	1600	1550
Chrysene	88.6	55.4	103	246	10	10	37.7	3450	308000	14500	1340	2000	2100
Dibenzo(a,h)anthracene	0.023	0.023	0.023	35	0.023	0.023	0.023	675	46100	2340	201	469	454
Indeno(1,2,3-cd)pyrene	109	39.8	148	214	0.018	0.018	34.3	3210	194000	9140	752	1320	1330
Fluoranthene	114	118	169	394	0.017	0.017	55.1	9730	1260000	33800	3160	4470	5120
Fluorene	10	10	10	10	10	10	10	609	76800	787	214	328	204
Naphthalene	9	9	9	13.2	9	9	9	719	13300	735	266	1350	1260
Phenanthrene	65.1	30.7	53.3	108	15	15	27.6	5290	831000	8420	1550	2830	2870
Pyrene	0.102	0.0953	0.166	0.325	0.015	0.015	0.0493	6.83	953	25.1	2.29	3.51	3.96
PAH, Total Detected USEPA 16	0.945	0.659	1.27	2.47	0.118	0.118	0.369	50.4	5370	169	17.3	28.5	29.6
Naphthalene-d8 % recovery**	92.3	87.8	90	99.2	90.5	88	90.4	111	109	92.1	81.5	93.6	88.5
Acenaphthene-d10 % recovery**	91.7	88	82.3	98.3	87.7	84.1	85.6	116	116	96.4	86.5	87.6	85.9
Phenanthrene-d10 % recovery**	83.1	93.2	85.2	99.8	85.9	87.5	91.1	114	117	98.3	85.8	89.9	86
Chrysene-d12 % recovery**	94.7	96.2	89.9	93.7	79.4	83.7	87	100	111	102	74.7	79	76.1
Perylene-d12 % recovery**	94.2	101	91	93.6	81	85.4	95.9	100	105	94.4	70	77.2	75.5
Total Aliphatics >C12-C44	10.2	1.58	1.2	3.86	0.1	0.1	0.146	151	170	42	54	152	107
Total Aromatics >EC12-EC44	27	4.82	10.3	28.6	3.99	4.97	266	362	10900	720	78.7	194	142
Total Aliphatics & Aromatics >C5-C44	37.3	6.4	11.5	32.4	3.99	4.97	266	514	11100	762	133	346	249
Metals - (Solid)													
Iron	27500	24200	29500	28000	21700	29400	32600	94800	12100	23000	53900	85900	112000
Manganese	417	383	472	776	487	941	332	12100	735	1910	4660	11800	26800
Metals - (Liquid)													
Calcium	175000	111000	164000	-	85500	-	74000	-	18000	-	94700	-	-
Magnesium	14400	24500	17700	-	9830	-	6590	-	2820	-	13400	-	-
Phenols													
Phenol	0.236	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.0411	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.277	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	01/08/2018	01/08/2018	03/08/2018	-	09/10/2018	-	10/10/2018	-	10/10/2018	-	10/10/2018	-	-
Analysed By	Lucy Caroe	James Richards	Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	James Richards	-	Lucy Caroe	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Comments	Soil containing material typical of asbestos cement	0	0	-	Loose fibres in soil	-	0	-	0	-	0	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	104	105	102	103	105	103	104	107	105	111	103	106	106
Toluene-d8**	97.7	95.9	98.7	95	98.5	97.4	96.9	96.6	99.3	98.9	98.3	100	100
4-Bromofluorobenzene**	88.5	87.6	96.8	87.6	92	95.4	86.7	86.5	96.5	99.5	94.3	99.9	94.8
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.221	0.13	0.13	0.13	0.13	0.26	0.173	0.368	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CB8	3CB9	3CB2V	3CB6V	3CB7V	3CB8V	3CB9V	3CC2	3CC6	3CC6	3CC6	3CC7	3CC7
Depth	0.3	0.5	3	1.2	1	0.4	1	1	0.5	1	1.5	0.5	0.9
Sampled Date	30/07/2018	01/08/2018	13/08/2018	01/08/2018	30/07/2018	30/07/2018	01/08/2018	13/08/2018	01/08/2018	01/08/2018	01/08/2018	30/07/2018	30/07/2018
Carbon													
Soil Organic Matter (SOM)	4.9	7.55	0.893	0.75	4.59	4.74	3.28	46.7	2.34	5.91	4.03	5.65	4.29
Metals (Solids)													
Arsenic	9.72	11.1	8.73	8.85	10.7	12.4	12	12.5	9.04	6	10.4	12.5	12.8
Cadmium	0.435	1.31	0.02	0.02	0.02	0.167	0.02	0.02	0.02	0.376	0.411	0.02	0.02
Chromium	33.8	113	25.2	35.7	35.4	28.8	34.8	23.4	19.4	167	98.1	6.3	78.3
Copper	16.4	22.1	8.86	13.1	27.8	24.5	15	42.8	14.3	14.8	15.4	18.4	20.6
Lead	59.4	319	14	22.8	39	37	29.3	73	35	94.6	60.2	58.2	56.4
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	16.9	17	27.6	25.3	29.5	31.7	26.7	35.3	22.3	24.9	17.5	17.6	24.6
Selenium	1.34	3.27	1	1	1	1	1	1	1.02	3.9	2.39	1	1.03
Vanadium	66.4	251	40.2	50.6	63.3	45.8	52.4	47.9	76	164	122	71.7	132
Zinc	258	1260	80.7	97.4	190	140	98.1	264	139	623	220	201	235
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.0472	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0148	0.01
Aliphatics >C8-C10	0.0288	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0117	0.01
Aliphatics >C10-C12	0.0368	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0138	0.01
Aliphatics >C12-C16	1.67	3.9	0.1	0.1	1.13	0.1	0.1	2.13	0.1	0.1	0.1	1.84	2.24
Aliphatics >C16-C21	8.42	12.2	0.1	0.131	4.11	0.1	0.771	11.5	1.04	2.93	2.6	11.4	9.5
Aliphatics >C21-C35	44.2	52.9	0.1	2.73	38.9	7.12	1.62	28.7	8.16	24.7	24.9	46.2	37
Aliphatics >C35-C44	15.3	23.6	0.1	0.276	11.4	0.1	0.639	5.85	2.68	13.4	13.9	19.1	12.3
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.0196	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.0242	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	1.81	0.1	0.1	0.1	1.12	0.183	0.235	15.4	0.637	1.01	1.4	1.57	2.65
Aromatics >EC16-EC21	9.02	4.63	0.32	0.1	9.88	1.72	0.702	215	3.17	9	9.3	12.1	13.6
Aromatics >EC21-EC35	35	19	2.18	14.9	108	17	15.7	676	15	41.2	42.4	52.3	50.8
Aromatics >EC35-EC44	16.5	1.47	2.64	1.19	33.4	4.44	4.31	166	5.52	20.1	21.4	27.3	23
Aromatics >EC40-EC44	6.12	0.1	1.88	0.1	11.3	1.16	1.6	48.6	2.04	7.92	8.2	11.1	9.62
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	76.3	158	12	12	17.1	12	12	1220	26.8	498	159	171	255
Acenaphthene	20.3	31.8	8	8	124	13.8	8	150	8	130	14.5	25.4	31.1
Anthracene	168	268	16	16	192	48	16	3200	55.2	1720	351	354	406
Benz(a)anthracene	378	940	21	14	1170	139	14	14200	199	3710	1130	1010	1150
Benzo(a)pyrene	335	754	20.9	15	1520	131	15	11900	168	3080	964	820	976
Benzo(b)fluoranthene	611	1330	26.2	15	2140	216	15	18500	343	3680	1620	1380	1220
Benzo(k)fluoranthene	161	406	14	14	730	62.6	14	6820	109	1490	626	517	447
Benzo(g,h,i)perylene	224	516	24	24	964	78.8	24	7280	153	2150	621	579	713
Chrysene	366	770	25.1	10	1100	142	10	12300	228	2930	1290	778	921
Dibenzo(a,h)anthracene	59.5	124	0.023	0.023	248	0.023	0.023	2620	39.4	550	153	166	172
Indeno(1,2,3-cd)pyrene	276	422	0.018	0.018	818	99.3	0.018	7720	121	2300	650	488	778
Fluoranthene	828	1740	56.9	0.017	1490	290	0.017	28100	358	7760	2350	2000	2470
Fluorene	99.4	92.3	10	10	69.6	22	10	807	23.6	337	88.1	107	157
Naphthalene	272	397	9	9	166	14.2	9	576	66.4	531	180	300	410
Phenanthrene	539	938	15	15	693	212	15	8980	205	4410	933	856	1200
Pyrene	0.605	1.4	0.0404	0.015	1.41	0.215	0.015	19.9	0.269	6.06	1.73	1.49	1.89
PAH, Total Detected USEPA 16	5.02	10.3	0.191	0.118	12.9	1.68	0.118	144	2.36	41.3	12.9	11	13.2
Naphthalene-d8 % recovery**	93.1	77.8	97.7	77.8	85.7	92	68.1	84.5	85	94.9	91.3	92.2	78.4
Acenaphthene-d10 % recovery**	91.8	83.3	94.7	79.1	82	89.6	70.8	88.7	85.5	96.8	87.3	87.1	79.1
Phenanthrene-d10 % recovery**	91.5	86.3	94	81.2	82.2	91.3	72.6	83	84.2	93.6	85.2	88.8	80.5
Chrysene-d12 % recovery**	88.6	75.8	85.5	76.7	75.3	87.8	70.8	92.4	69.4	84.8	81.2	76.4	75.9
Perylene-d12 % recovery**	97.9	69.5	85.7	81	72.6	98.8	68.1	82.2	68.9	86.6	72.6	71.9	71.3
Total Aliphatics >C12-C44	69.6	92.6	0.1	3.14	55.5	7.12	3.03	48.1	11.9	41.1	41.5	78.6	61
Total Aromatics >EC12-EC44	62.3	25.1	5.14	16.1	152	23.3	20.9	1070	24.4	71.3	74.5	93.3	90.1
Total Aliphatics & Aromatics >C5-C44	132	118	5.14	19.2	208	30.4	23.9	1120	36.2	112	116	172	151
Metals - (Solid)													
Iron	53000	109000	32100	31000	73900	32700	29600	46700	66900	78700	46000	102000	99600
Manganese	3940	10400	1030	418	3080	919	335	2250	3580	11000	5480	5270	7510
Metals - (Liquid)													
Calcium	-	-	93200	-	89200	-	174000	-	42900	36700	-	-	17200
Magnesium	-	-	26200	-	15400	-	6540	-	5800	3770	-	-	4450
Phenols													
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.0132	0.012	0.0108	0.01	0.0217	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	01/08/2018	-	03/08/2018	-	09/10/2018	-	09/10/2018	10/10/2018	-	-	10/10/2018
Analysed By	-	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Lucy Caroe	-	Marcin Magdziarek	Andrzej Ferfecki	-	-	Marcin Magdziarek
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected
Amosite (Brown) Asbestos	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected
Fibrous Anthophyllite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Not Detected	-	-	Not Detected
Fibrous Tremolite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected
Fibrous Actinolite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected
Non-Asbestos Fibre	-	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected
Comments	-	-	0	-	0	-	0	-	Loose fibre in soil	0	-	-	0
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	106	106	109	103	98.2	106	100	107	106	106	108	101	105
Toluene-d8**	100	101	99.9	96.6	96.4	98.1	99.9	99.3	98.9	97.4	97.6	97.2	100
4-Bromofluorobenzene**	99.2	97.2	89.7	93.8	86.3	96.2	96.6	96.4	97.6	94.6	93	90.1	96.2
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.181	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CC8	3CC8	3CC9	3CC9	3CC2V	3CC6V	3CC7V	3CC8V	3CC9V	3CD2	3CD2	3CD6	3CD6
Depth	0.5	1	0.5	1	1.5	1.6	1	1.1	2	1	2	0.5	1
Sampled Date	30/07/2018	30/07/2018	01/08/2018	01/08/2018	13/08/2018	01/08/2018	30/07/2018	30/07/2018	01/08/2018	13/08/2018	13/08/2018	01/08/2018	01/08/2018
Carbon													
Soil Organic Matter (SOM)	25.3	11.2	2.78	3.29	1.32	0.922	0.89	1.55	2.38	>100	>100	7.67	4.55
Metals (Solids)													
Arsenic	9.05	8.82	6.61	8.07	8.07	13.7	9.39	11.3	9.43	8.61	2.38	10	6.27
Cadmium	0.02	0.167	0.0399	0.172	0.02	0.02	0.02	0.02	0.02	0.063	0.02	0.0365	0.02
Chromium	182	35.9	144	39.4	40.2	27.7	25.3	37.3	35.3	5.58	9.08	93.2	207
Copper	22.6	17.6	8.35	21.2	24.4	8.75	8.16	17.1	15.1	23.6	14.6	18	12.3
Lead	69.2	108	41	52.2	17.8	23.4	16.6	25.3	26.4	10.2	6.14	64	40.5
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	21.1	19.8	14.2	19.2	35.2	34.7	28.6	37.4	33.2	14.9	7.1	20.1	11.7
Selenium	1.82	1.04	6.62	1.03	1	1	1	1	1	1.23	1	1.86	4.47
Vanadium	247	101	130	63.5	51.2	48.1	41.1	54.2	52.8	14.5	7.28	154	224
Zinc	279	358	172	218	111	86.3	79.8	105	121	50.7	30.4	258	193
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.0234	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.0164	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.0351	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	5.47	1.65	0.201	2.27	0.1	0.698	0.1	0.1	1.81	3.71	1.82	4.21	2.67
Aliphatics >C16-C21	22.3	13.4	2.66	13.4	0.1	8.81	0.1	0.1	32	87.4	39.8	15	8.47
Aliphatics >C21-C35	52.5	40.4	23.2	61.2	0.1	52.6	0.1	0.1	23.2	33.6	24.9	42.4	34.4
Aliphatics >C35-C44	14.8	16.9	7.93	21.2	0.1	16.4	0.1	0.1	5.59	0.1	0.1	11.5	11.1
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.0117	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.0234	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	16.3	6	0.974	4.43	0.1	2.1	0.1	0.1	1.03	13.7	5.88	3.34	3.08
Aromatics >EC16-EC21	235	53.3	6.9	55.9	0.1	22.2	0.1	0.1	10.6	65.5	37.2	18.7	20
Aromatics >EC21-EC35	501	161	47.5	180	1.55	87.5	1.01	5.25	17.5	99.6	70.7	58.4	74.6
Aromatics >EC35-EC44	161	51.7	18.1	58.4	0.1	30.9	2.33	0.42	5.94	13.5	13.9	25.8	25.8
Aromatics >EC40-EC44	49.6	18	6.83	20.6	0.1	11.1	1.41	0.238	2.41	3.52	5.6	10.2	9.26
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	1390	999	111	4830	12	12	12	12	12	41.6	69.3	397	199
Acenaphthene	80.8	111	9.61	215	8	8	8	8	8	39.4	70.7	91.4	37.8
Anthracene	1900	1440	153	5870	16	16	16	16	16	181	432	1730	566
Benz(a)anthracene	7680	4610	501	23800	14	14	14	14	40.2	367	1610	1980	1430
Benzo(a)pyrene	7890	4420	526	22600	15	15	15	15	28.2	347	1520	1550	1150
Benzo(b)fluoranthene	11800	7360	711	32200	15	15	15	15	53.2	640	2650	2750	1950
Benzo(k)fluoranthene	3730	2170	224	10800	14	14	14	14	14	198	709	1040	630
Benzo(g,h,i)perylene	5990	3320	472	16700	24	24	24	24	24	285	1060	988	756
Chrysene	6920	3640	508	19600	10	10	10	10	51.6	314	1300	1990	1160
Dibenzo(a,h)anthracene	1600	899	115	4590	0.023	0.023	0.023	0.023	0.023	90.8	314	287	188
Indeno(1,2,3-cd)pyrene	6830	2600	481	19000	0.018	0.018	0.018	0.018	0.018	220	893	842	652
Fluoranthene	14000	9940	942	46400	0.017	27.7	0.017	0.017	151	473	1760	4140	2490
Fluorene	608	727	48.4	1780	10	10	10	10	10	95.6	197	548	203
Naphthalene	1390	2120	152	2790	9	9	9	9	13.2	343	175	842	287
Phenanthrene	4650	4270	407	14500	15	15	15	15	62.4	720	1420	2690	1420
Pyrene	10.6	7.44	0.727	35.4	0.015	0.0206	0.015	0.015	0.133	0.374	1.36	3.05	1.89
PAH, Total Detected USEPA 16	87	56.1	6.09	261	0.118	0.118	0.118	0.118	0.532	-	-	24.9	15
Naphthalene-d8 % recovery**	91.5	89.3	97.8	479	78.1	95	81.3	94.9	89.3	-	-	83.6	80.4
Acenaphthene-d10 % recovery**	93.1	87	97.8	490	76	95.7	86.7	87.6	83	-	-	86.3	83.1
Phenanthrene-d10 % recovery**	92.1	84.3	96.1	482	74.8	93.9	84.1	89.5	89.4	-	-	89.8	83.4
Chrysene-d12 % recovery**	87.6	75.6	91.7	437	81.4	89.3	81.7	91.1	84.8	-	-	75.1	73.9
Perylene-d12 % recovery**	108	72.9	91.7	462	80.9	88.6	76.1	90.1	80	-	-	73.5	69
Total Aliphatics >C12-C44	95.1	72.4	34	98	0.1	78.5	0.1	0.1	62.6	125	66.6	73.2	56.6
Total Aromatics >EC12-EC44	914	272	73.4	298	1.55	143	3.34	5.67	35.1	192	128	106	123
Total Aliphatics & Aromatics >C5-C44	1010	344	107	396	1.55	221	3.34	5.67	97.7	317	194	179	180
Metals - (Solid)													
Iron	114000	78400	47300	40500	32600	45900	36000	35200	35700	14900	4370	69700	81600
Manganese	10600	4510	16200	3530	577	493	881	607	1010	885	237	6300	13600
Metals - (Liquid)													
Calcium	-	-	-	-	-	130000	60400	-	92600	150000	-	57100	-
Magnesium	-	-	-	-	-	32300	7110	-	17200	20000	-	7310	-
Phenols													
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	08/08/2018	10/10/2018	-	10/10/2018	10/10/2018	-	10/10/2018	-
Analysed By	-	-	-	-	-	Lucy Caroe	Andrzej Ferfecki	-	James Richards	James Richards	-	James Richards	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Tremolite	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Actinolite	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	-	-	-	-	-	Not Detected	Not Detected	-	Detected	Not Detected	-	Not Detected	-
Comments	-	-	-	-	-	0	0	-	0	0	-	0	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	115	107	111	110	105	104	103	101	108	105	103	103	105
Toluene-d8**	94.6	97.3	97.8	101	97	99.5	97	97.8	97	93.8	98.9	98	98.9
4-Bromofluorobenzene**	87.5	94.5	94.3	99.6	89.5	95.3	95	90.6	92.2	89.2	96.1	93.5	99.5
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.183	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CD7	3CD8	3CD8	3CD9	3CD9	3CD2V	3CD6V	3CD7V	3CD8V	3CD9V	3CE2	3CE2
Depth	0.5	0.5	1	0.5	1	2.9	1.2	0.7	1.2	1.2	0.5	1
Sampled Date	30/07/2018	30/07/2018	30/07/2018	01/08/2018	01/08/2018	13/08/2018	01/08/2018	30/07/2018	30/07/2018	01/08/2018	13/08/2018	13/08/2018
Carbon												
Soil Organic Matter (SOM)	2.83	14.6	7.78	4	5.09	1.88	6.59	7.14	0.729	1.2	98.8	>100
Metals (Solids)												
Arsenic	12.2	10.8	10.6	9.65	9.46	8.6	14.8	13	9.62	9.46	9.67	11
Cadmium	0.2	0.91	3.14	0.043	0.428	0.02	0.36	0.387	0.02	0.02	0.02	0.02
Chromium	96.7	77.5	250	104	62	37.6	37.8	32.3	39.4	32.2	0.9	9.65
Copper	23.3	22.2	29.4	20.4	28.6	23.9	18.4	18.8	18.8	10.5	28.2	42.5
Lead	77	304	537	89.4	128	19.1	46	44.2	20.6	19.6	208	73.8
Mercury	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	26.9	19.9	27.1	19.9	21.3	34.2	26.4	25	42.1	34.1	23.9	61.2
Selenium	10	2.72	10	3.49	1.33	1	1	1	1	1	1	1
Vanadium	375	314	573	139	96.1	52.3	58.2	52.4	52.6	52.6	40.2	69.3
Zinc	237	1050	1400	356	633	133	135	128	120	103	311	320
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.0152	0.0437	0.01	0.01	0.0151	0.01	0.01	0.034	0.01	0.01	0.01
Aliphatics >C8-C10	0.01	0.0117	0.0345	0.01	0.01	0.0164	0.01	0.01	0.0202	0.01	0.01	0.01
Aliphatics >C10-C12	0.01	0.0176	0.0403	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	1.9	3.22	5.28	1.02	1.93	0.1	0.1	0.1	0.1	0.1	8.76	3.1
Aliphatics >C16-C21	9.79	21.7	25.2	6.25	11	0.1	0.26	0.1	0.982	0.348	115	62.6
Aliphatics >C21-C35	52.2	95.4	88.1	28.8	63.2	0.1	3.36	9.92	1.47	1.62	92.7	68.8
Aliphatics >C35-C44	18.2	23.3	21.4	9.66	19.6	0.1	0.509	0.1	0.1	0.1	15.5	14.5
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.023	0.01	0.01	0.011	0.01	0.01	0.0126	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.0117	0.0265	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	1.49	6.78	0.1	2.38	0.1	0.1	0.661	0.1	0.1	0.1	8.43	3.8
Aromatics >EC16-EC21	8.42	69.8	0.1	20.2	2.63	0.1	1.16	1.98	0.1	0.501	40.9	34.8
Aromatics >EC21-EC35	34.7	193	4.17	81.7	23.1	0.1	31.3	30.9	3.3	2.38	137	75.4
Aromatics >EC35-EC44	16.6	57	0.389	28.1	0.371	0.1	5.34	13.2	0.1	0.714	31.9	15.9
Aromatics >EC40-EC44	6.18	20.7	0.219	10.6	0.1	0.1	1.92	5.42	0.1	0.105	10.1	4.66
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	49.5	1240	418	40.4	1020	12	12	12	12	12	171	41.1
Acenaphthene	18.2	129	60.8	9.09	36.6	8	8	8	8	8	13.7	15.7
Anthracene	101	2730	741	65.3	3820	16	16	16	16	16	230	104
Benz(a)anthracene	319	6660	3220	282	5950	14	14	25.3	14	14	942	420
Benzo(a)pyrene	304	5000	2670	237	4130	15	15	24.9	15	15	1040	398
Benzo(b)fluoranthene	410	7400	4230	445	6190	15	26.1	68.1	15	15	1740	689
Benzo(k)fluoranthene	164	2000	1180	149	2420	14	14	20.8	14	14	562	239
Benzo(g,h,i)perylene	238	3490	1780	166	2780	24	24	24	24	24	917	338
Chrysene	324	5880	2400	220	4890	10	19.1	40.5	10	10	871	386
Dibenzo(a,h)anthracene	51.1	782	446	41.1	676	0.023	0.023	0.023	0.023	0.023	252	90.9
Indeno(1,2,3-cd)pyrene	229	3850	1840	144	2370	0.018	0.018	0.018	0.018	0.018	764	285
Fluoranthene	738	16400	7420	482	16600	0.017	34.9	85.8	0.017	21.5	1350	892
Fluorene	32.8	1380	330	29.2	1260	10	10	10	10	10	49.6	43.8
Naphthalene	153	1210	794	89.8	244	20.2	9	9	9	9	986	423
Phenanthrene	442	10800	3160	241	12300	15	15	47.1	15	15	647	694
Pyrene	0.593	11.3	5.48	0.385	11.3	0.015	0.0284	0.0595	0.015	0.015	1.2	0.701
PAH, Total Detected USEPA 16	4.17	80.3	36.2	3.02	75.9	0.118	0.118	0.372	0.118	0.118	11.7	5.76
Naphthalene-d8 % recovery**	94.4	85.2	92.2	82.7	80.8	81.6	74.4	87.5	93	91.5	86.7	86.5
Acenaphthene-d10 % recovery**	89.2	86.2	89.4	89.6	87.3	71.9	80.9	85.8	85.9	90.2	90.8	86
Phenanthrene-d10 % recovery**	93	86.2	92.5	90.8	87.5	81.4	83.4	89.2	89.9	97.3	91.6	78.3
Chrysene-d12 % recovery**	95.2	88	88.1	83.6	78.1	82.8	82.4	81.1	92.5	93.4	77.4	48.4
Perylene-d12 % recovery**	94.5	79.6	84.9	78.1	73	83.5	82.1	80.1	87.7	81.6	71.1	38.1
Total Aliphatics >C12-C44	82.1	144	140	45.8	95.8	0.1	4.13	9.92	2.45	1.97	232	149
Total Aromatics >EC12-EC44	61.2	326	4.56	132	26.1	0.1	38.5	46	3.3	3.6	218	130
Total Aliphatics & Aromatics >C5-C44	143	470	145	178	122	0.1	42.6	55.9	5.81	5.57	450	279
Metals - (Solid)												
Iron	207000	114000	162000	79800	63100	33800	30700	28800	42900	38100	129000	41400
Manganese	11100	12300	18600	11500	4800	328	354	392	548	839	1720	906
Metals - (Liquid)												
Calcium	-	-	-	-	-	101000	-	167000	167000	-	-	-
Magnesium	-	-	-	-	-	11400	-	26700	14800	-	-	-
Phenols												
Phenol	0.01	0.01	0.01	0.01	0.01	0.046	0.01	0.01	0.0104	0.0105	0.01	0.215
Cresols	0.01	0.01	0.01	0.01	0.01	0.0115	0.01	0.01	0.0104	0.01	0.01	0.157
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.0575	0.035	0.035	0.035	0.035	0.035	0.372
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE												
pH												
Sulphate, Total												
Sulphur, Total												
Sulphate, Total potential												
Sulphate, acid soluble (total)												
Cyanide, Total												
Exchangeable Ammonia as N												
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	01/08/2018	-	07/08/2018	10/10/2018	-	-	-
Analysed By	-	-	-	-	-	Marcin Magdziarek	-	Renata Bozhkov	Andrzej Ferfecki	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)												
Analysts Comments												
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	-	-
Amosite (Brown) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	-
Fibrous Anthophyllite	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	-
Fibrous Tremolite	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	-
Fibrous Actinolite	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	-
Non-Asbestos Fibre	-	-	-	-	-	Not Detected	-	Detected	Not Detected	-	-	-
Comments	-	-	-	-	-	Loose fibre in soil	-	0	0	-	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	104	105	158	111	106	105	109	101	103	98.8	108	104
Toluene-d8**	100	99.5	99.6	98.9	98.7	97.4	98.1	99.3	94.1	96	95.8	98.4
4-Bromofluorobenzene**	96	99.1	104	97.1	95	85.9	91.1	93.2	89.4	92	92.1	93.2
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.462	0.13	0.18	0.235	0.226	0.13	0.679
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3CE6	3CE6	3CE7	3CE7	3CE8	3CE8	3CE9	3CE9	3CE2V	3CE6V	3CE7V	3CE8V	3CE9V
Depth	0.5	1	0.5	0.9	0.5	1	0.5	1	1.6	1.1	1	1.5	1.7
Sampled Date	01/08/2018	01/08/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	01/08/2018	01/08/2018	13/08/2018	01/08/2018	30/07/2018	30/07/2018	01/08/2018
Carbon													
Soil Organic Matter (SOM)	3.76	7.67	5.79	5.43	7.07	7.53	2.76	5.31	2.21	5	0.903	0.91	3.03
Metals (Solids)													
Arsenic	8.56	6.27	8.77	12.1	11.7	10.8	9.83	4.74	8.58	12.9	9.01	13.1	10.2
Cadmium	0.426	0.24	0.02	0.295	2.84	0.822	0.02	0.02	0.02	0.189	0.02	0.02	0.02
Chromium	107	169	102	64.8	41.6	84.4	304	110	43.4	47.7	34.7	38.9	45.7
Copper	12.6	9.96	15.7	27.3	23.8	26.6	16.2	10.7	20.9	18.3	12.5	13.6	10.4
Lead	84.4	38.8	82.6	182	189	204	36.1	21.5	23.2	81.2	27	23	21.2
Mercury	0.14	0.14	0.14	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	14.6	12.9	15	31.6	25.2	32.4	13.1	13.7	35.1	25.9	37.6	38	24.6
Selenium	3.17	4.24	2.35	10	10	10	4.98	4.48	1	1	1	1	1.35
Vanadium	272	204	164	266	217	257	417	313	53.9	63.2	51.1	54.2	96.2
Zinc	318	145	330	496	510	568	172	82.9	128	133	113	110	85.1
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.0655	0.01	0.01	0.0483	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.01	0.01	0.0555	0.01	0.01	0.0345	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.01	0.01	0.135	0.01	0.01	0.0426	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	0.868	5.6	2.81	2.19	5.87	2.58	9.01	5	0.1	0.192	0.1	0.1	0.248
Aliphatics >C16-C21	8.6	27.6	16.2	13.2	19.6	13.3	22.1	16.9	0.1	0.93	0.1	0.1	3.39
Aliphatics >C21-C35	37.5	73.4	81	68.8	68.7	50	96.8	121	0.547	5.2	0.931	0.1	4.33
Aliphatics >C35-C44	12.7	36.4	32.5	25.7	23.8	17.6	38	88.4	0.1	0.406	0.1	0.1	3.61
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.0366	0.01	0.01	0.023	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.0899	0.01	0.01	0.0288	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	5.46	55.4	3.88	2.73	2.46	4.25	1.73	3.83	0.401	0.676	0.1	0.1	0.822
Aromatics >EC16-EC21	44.5	0.1	24.9	21.1	19.9	33.3	8.35	29	0.697	2.91	0.218	0.301	2.17
Aromatics >EC21-EC35	111	182	92.6	68.8	73.4	95.6	52	169	3.52	24.7	2.68	3	6.86
Aromatics >EC35-EC44	39.9	85.2	45	31.7	32.1	37.7	32	105	0.1	4.05	4.29	2.97	5.62
Aromatics >EC40-EC44	13.7	34.6	18.4	13.2	12.8	14.7	13.6	40.5	0.1	0.945	2.4	1.61	2.71
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	607	408	729	292	204	558	58.1	292	12	12	12	12	12
Acenaphthene	38.9	70.8	56.1	57.4	48	67.8	21.8	55.1	8	8	8	8	130
Anthracene	1180	2030	1280	641	433	1030	118	580	16	16	16	16	68.6
Benz(a)anthracene	2840	3490	2540	1380	1230	3150	424	1800	14	74.9	14	14	76.9
Benzo(a)pyrene	2140	2380	2320	1320	1170	2930	349	1670	15	63.8	15	15	78.1
Benzo(b)fluoranthene	3810	4000	3530	2270	1980	4660	722	2590	15	67.4	15	15	66.4
Benzo(k)fluoranthene	1070	1420	973	674	574	1240	219	902	14	24.7	14	14	37.1
Benzo(g,h,i)perylene	1400	1490	1760	945	809	2040	312	1230	24	48.1	24	24	69.8
Chrysene	2640	2800	2300	1200	1090	2520	452	1610	10	88.4	10	10	86.1
Dibenzo(a,h)anthracene	392	403	424	254	226	568	77.7	309	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	1500	1290	1880	825	690	1770	242	1340	0.018	44.5	0.018	0.018	66.9
Fluoranthene	7030	6620	5720	2890	2550	6690	871	3810	0.017	192	28.4	0.017	280
Fluorene	431	522	555	251	145	365	49.8	210	10	10	10	10	95.9
Naphthalene	1040	549	1100	865	520	1180	107	601	9	18.1	9	9	176
Phenanthrene	3530	3260	3480	1530	1160	2880	397	1810	15	63.2	15	15	337
Pyrene	5.05	4.47	4.2	2.23	1.98	5.07	0.705	2.89	0.015	0.129	0.0227	0.015	0.224
PAH, Total Detected USEPA 16	34.7	35.2	32.8	17.6	14.8	36.7	5.13	21.7	0.118	0.814	0.118	0.118	1.79
Naphthalene-d8 % recovery**	89.4	77.3	85.5	91.4	92.6	83.7	86.4	95.6	91.7	101	88.2	81.8	102
Acenaphthene-d10 % recovery**	91.9	81.5	91	84.1	84	80.6	88.7	101	80.7	103	92.4	86.6	105
Phenanthrene-d10 % recovery**	108	85.3	91	84.3	87.7	79.5	84.4	102	79.4	99.9	95.6	87.2	101
Chrysene-d12 % recovery**	103	75.7	84.4	75.2	76.3	72.5	74.5	95	75.5	97	97.6	84.8	101
Perylene-d12 % recovery**	102	70.9	81.7	72.4	72.7	71.4	72.4	95.5	75.4	99.1	101	80.1	104
Total Aliphatics >C12-C44	59.7	143	133	110	118	83.5	166	231	0.547	6.73	0.931	0.1	11.6
Total Aromatics >EC12-EC44	201	322	166	124	128	171	94	307	4.62	32.3	7.19	6.27	15.5
Total Aliphatics & Aromatics >C5-C44	261	465	299	234	246	255	260	538	5.17	39.1	8.12	6.27	27
Metals - (Solid)													
Iron	54100	58700	71300	225000	174000	154000	118000	36500	36700	32600	38100	44200	38700
Manganese	8100	11800	8060	7300	7300	8630	16400	11100	677	776	280	434	3830
Metals - (Liquid)													
Calcium	-	-	-	-	24900	-	117000	125000	-	107000	-	104000	189000
Magnesium	-	-	-	-	7760	-	13100	15500	-	32300	-	11400	7230
Phenols													
Phenol	0.01	0.01	0.027	0.01	0.01	0.01	0.0118	0.01	0.0116	0.0113	0.0224	0.011	0.01
Cresols	0.0126	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	17/08/2018	-	03/08/2018	02/08/2018	-	01/08/2018	-	01/08/2018	16/10/2018
Analysed By	-	-	-	-	James Richards	-	Lucy Caroe	James Richards	-	Marcin Magdziarek	-	James Richards	Barbara Urbanek-Walsh
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Detected
Amosite (Brown) Asbestos	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Comments	-	-	-	-	0	-	0	0	-	Loose fibres in soil	-	0	Loose fibres in soil.
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	103	104	106	102	102	103	99.6	115	104	111	107	102	115
Toluene-d8**	99.8	100	99.5	98	86.5	98.8	96.3	99.5	99.6	99.1	98.1	98.2	98.5
4-Bromofluorobenzene**	96.2	96.7	92.8	96.5	82.6	91.9	88.5	98.3	95.7	93.6	92.7	87.2	93.6
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01
Benzene	0.09	0.09	0.09	1.8	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.009
Toluene	0.07	0.07	0.07	1.4	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.007
Ethylbenzene	0.04	0.04	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.004
p/m-Xylene	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01
o-Xylene	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01
Naphthalene	0.13	0.13	0.13	2.6	0.13	0.13	0.491	0.13	0.13	0.13	0.907	0.148	0.013
Sum of BTEX	0.4	0.4	0.4	8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.04
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CF2	3CF2	3CF6	3CF6	3CF7	3CF7	3CF8	3CF8	3CF9	3CF9	3CF9	3CF2V	3CF6V	3CF7V	3CF8V	3CF9V
Depth	0.5	1	0.5	0.8	0.5	1	0.5	1	0.5	1	1.6	1.5	0.9	1.9	1.6	1.7
Sampled Date	13/08/2018	13/08/2018	01/08/2018	01/08/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	13/08/2018	01/08/2018	30/07/2018	30/07/2018	30/07/2018
Carbon																
Soil Organic Matter (SOM)	74.6	>100	8.93	11.8	3.59	2.91	6.96	8	4.02	3.59	4.52	2.97	5.98	2.83	1.6	7.03
Metals (Solids)																
Arsenic	8.55	5	5.9	8.39	10.2	11.4	9.48	9.86	9.81	12	11.8	11.4	12.9	11	9.31	11.9
Cadmium	0.02	0.02	0.02	1.3	0.02	0.02	0.02	0.2	0.171	0.288	0.0459	0.02	0.108	0.02	0.02	0.157
Chromium	48.7	7.82	489	84.9	67.9	8.22	141	196	24.7	35.3	39	34.2	42.4	38.4	38.7	38.2
Copper	27.4	20	12.2	17.4	19.2	16.8	24.1	38.4	23	28.2	24.2	20.9	18.5	18.1	18.8	18.4
Lead	40.8	14.5	138	238	54.9	38.8	159	111	48.8	96.2	89.5	23.4	37.4	21.8	20.9	39.4
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	20.3	9.53	8.3	17	14.2	20	47.4	25	22.6	24.2	26.7	32.8	26.2	29.4	40.5	25.4
Selenium	1	1	11.3	2.61	1.17	1	4.37	10	1	10.4	1.35	1	1	1	1	1
Vanadium	77.1	21.5	1720	242	301	129	615	485	40.9	49.8	72.9	48.2	63.3	55.3	52	60.2
Zinc	185	93.9	731	1140	204	169	636	346	164	335	308	116	128	116	104	134
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0116	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1
Aliphatics >C6-C8	0.038	0.01	0.01	0.01	0.0283	0.0161	0.0196	0.0452	0.01	0.0269	0.044	0.01	0.01	0.01	0.01	0.298
Aliphatics >C8-C10	0.0152	0.01	0.01	0.01	0.0215	0.0173	0.015	0.029	0.01	0.0582	0.0242	0.01	0.01	0.01	0.01	10.1
Aliphatics >C10-C12	0.0109	0.01	0.01	0.01	0.0339	0.038	0.0161	0.0186	0.01	0.133	0.0374	0.01	0.01	0.01	0.01	60.2
Aliphatics >C12-C16	7.77	2.32	1.07	12.1	6.14	4.85	1.51	2.32	1.72	24.2	3.95	0.1	0.1	0.413	0.1	514
Aliphatics >C16-C21	22.5	45.8	8.24	106	23.2	11.8	9.01	12.2	8.15	167	14.9	0.1	0.354	0.536	0.1	3530
Aliphatics >C21-C35	38.6	44.2	21.3	97.5	79.7	51.5	38.5	46.6	48.6	88.4	80.1	3.17	3.28	5.55	0.1	700
Aliphatics >C35-C44	5.95	11.7	5.47	31.6	33.9	21.4	10	13.9	18.4	21.2	36.9	0.1	0.1	0.315	0.1	0.2
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.1
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.0147	0.0115	0.01	0.0197	0.01	0.0392	0.0165	0.01	0.01	0.01	0.01	6.75
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.0226	0.0253	0.0115	0.0128	0.01	0.0885	0.0253	0.01	0.01	0.01	0.01	40.2
Aromatics >EC12-EC16	15.9	4.36	2.74	21.4	2.57	1.7	3.96	17.2	1.55	13.7	2.54	0.1	0.1	0.582	0.1	461
Aromatics >EC16-EC21	41.8	29	24.4	224	11.5	9.21	24.6	105	7.18	57.9	11.4	0.1	0.816	1.43	0.1	1050
Aromatics >EC21-EC35	117	87.6	56	433	54.4	41.4	75.4	206	40.2	65.1	50.9	9.45	21.6	32.2	3.61	309
Aromatics >EC35-EC44	28.6	70.7	16.3	124	38.4	22.1	23.2	58.9	22.3	27.1	35.8	1.28	2.64	4.51	1.37	20.8
Aromatics >EC40-EC44	8.97	33	5.57	42.1	17.2	8.9	8	19.2	8.94	11	16	0.1	0.566	1.16	0.323	7.36
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	196	81	636	807	67.7	60	508	489	76.6	256	143	12	12	12	12	1780
Acenaphthene	35.9	36.4	98.9	239	44.1	40	62.2	54.1	29.9	222	64.7	8	8	8	8	36700
Anthracene	475	222	2370	1530	162	195	997	1540	410	519	339	16	16	16	16	3170
Benz(a)anthracene	2560	654	2620	3660	502	466	2250	3590	579	1030	875	37.7	14	14	14	173
Benzo(a)pyrene	2330	673	2240	3120	453	385	2060	2370	470	878	775	40.7	22.4	15	15	109
Benzo(b)fluoranthene	3970	1440	1910	5200	513	714	2410	4140	863	1240	1270	59.8	24.3	15	15	170
Benzo(k)fluoranthene	1410	417	1150	1690	224	305	990	1380	251	332	330	21.8	14	14	14	50.3
Benzo(g,h,i)perylene	1770	697	1640	2090	327	320	1490	1670	292	656	495	38.3	24	24	24	68
Chrysene	2460	606	2590	3730	467	440	2160	2640	536	894	709	40.3	21.9	10	10	187
Dibenzo(a,h)anthracene	582	179	447	569	73.5	0.115	342	426	82.6	146	140	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	1770	562	1770	2490	432	256	1940	1440	270	706	469	40.9	0.018	0.018	0.018	80.8
Fluoranthene	4650	900	6530	8240	1070	999	5780	8520	1220	2680	1740	85.9	51.8	0.017	0.017	2030
Fluorene	136	68.1	579	681	75	101	562	629	111	296	161	10	10	10	10	18800
Naphthalene	725	377	1320	1290	151	163	323	384	181	2460	560	9	422	27.2	9	172000
Phenanthrene	2190	1060	3470	3970	591	552	3470	4980	743	1610	985	49.3	40.7	26.5	15	24500
Pyrene	3.47	0.73	4.67	6.23	0.788	0.793	3.98	5.71	0.88	1.94	1.25	0.0668	0.0414	0.015	0.015	1.06
PAH, Total Detected USEPA 16	28.7	-	34	45.5	5.94	5.69	29.3	40	7	15.9	10.3	0.482	0.624	0.118	0.118	261
Naphthalene-d8 % recovery**	89.1	-	87.7	92	88.1	84.3	91.1	76.6	87.6	83.8	88.1	105	87.6	82.6	79.8	69.6
Acenaphthene-d10 % recovery**	83	-	81.1	98	85.8	91.4	90.8	78.7	93.1	87.7	96	108	94.2	81	80.7	91.7
Phenanthrene-d10 % recovery**	90.7	-	86.5	108	83.1	84.6	90.7	85.2	95.5	85	100	106	94.3	80.4	86.8	68.8
Chrysene-d12 % recovery**	85.4	-	76.6	97.5	73.5	84.2	83.7	75.3	94.7	79.3	96.7	94.7	91.3	78.7	87.3	82.3
Perylene-d12 % recovery**	73.1	-	76.8	93.7	70.7	83.2	80.8	71.7	96	72.4	95	96.5	92.3	82.1	85.2	83.4
Total Aliphatics >C12-C44	74.9	104	36.1	247	143	89.6	59	75	76.8	301	136	3.17	3.63	6.81	0.1	4740
Total Aromatics >EC12-EC44	203	192	99.5	803	107	74.3	127	387	71.3	164	101	10.7	25.1	38.7	4.98	1840
Total Aliphatics & Aromatics >C5-C44	278	296	136	1050	250	164	186	462	148	465	237	13.9	28.7	45.5	4.98	6710
Metals - (Solid)																
Iron	102000	15600	150000	74100	163000	112000	144000	143000	40100	67700	76700	35500	32700	33300	33700	35200
Manganese	3950	682	36400	7930	9360	4980	16700	16100	2340	25900	6450	476	687	356	418	392
Metals - (Liquid)																
Calcium	146000	-	82700	-	-	138000	-	151000	-	136000	-	121000	-	102000	-	196000
Magnesium	31300	-	6460	-	-	11400	-	10900	-	13400	-	15000	-	16500	-	13600
Phenols																
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0585	0.06	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0585	0.06	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE																
pH																
Sulphate, Total																
Sulphur, Total																
Sulphate, Total potential																
Sulphate, acid soluble (total)																
Cyanide, Total																
Exchangeable Ammonia as N																
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	09/10/2018	-	09/10/2018	-	-	09/10/2018	-	08/10/2018	-	08/10/2018	-	02/08/2018	-	01/08/2018	-	17/10/2018
Analysed By	Lucy Caroe	-	James Richards	-	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Lucy Caroe
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																
Analysts Comments																
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Tremolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Actinolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Comments	0	-	0	-	-	Loose fibres in soil	-	0	-	0	-	0	-	Loose fibres in soil	-	-
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	91.4	108	99.1	104	107	109	103	100	103	98.5	98.6	102	106	104	107	106
Toluene-d8**	90	97.8	94.8	98.7	97.9	99	94.5	93.1	95	94.4	95.3	98.5	98.4	99.2	98.8	92.7
4-Bromofluorobenzene**	73.8	95.2	88.1	94.1	95	91.2	87.3	86	83.2	87.6	83	92	94.8	87.1	95.7	81.6
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.55	0.644	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CG2	3CG2	3CG6	3CG6	3CG6	3CG7	3CG7	3CG8	3CG8	3CG9	3CG9	3CG2V	3CG6V	3CG7V	3CG8V	3CG9V
Depth	0.5	0.9	0.5	1	1.5	0.5	0.9	0.5	1	0.5	1	1.1	2	1	1.3	1.2
Sampled Date	13/08/2018	13/08/2018	01/08/2018	01/08/2018	01/08/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	30/07/2018	13/08/2018	01/08/2018	30/07/2018	30/07/2018	30/07/2018
Carbon																
Soil Organic Matter (SOM)	69.5	70.7	31.9	4.76	31.4	2.91	4.28	6.91	11.6	5.55	1.06	6.4	4.07	0.876	0.767	6.96
Metals (Solids)																
Arsenic	7.65	6.53	7.07	7.07	2.25	10	7.73	10.4	9.89	10.8	9.62	13	10.3	8.68	11.2	14.4
Cadmium	0.0331	0.2	0.02	0.02	0.02	0.02	0.02	0.32	0.878	0.408	0.02	0.242	0.136	0.02	0.02	0.199
Chromium	8.06	31.3	275	314	85.2	79.3	30.4	122	112	68.9	27.8	39.4	44.4	32.3	38.7	38.6
Copper	25.5	26.9	24.2	27	6.48	27.2	19.2	21.6	48.6	19.1	24.3	32.3	20.9	11	15.9	20.3
Lead	33.1	34.8	36.8	24.1	16	39.3	26.1	168	231	88.1	32.5	49	36.8	19.6	22.8	37.9
Mercury	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	15.2	24.5	17.6	14.7	3.66	30.9	11.7	18.7	25.4	18.3	28.7	33.9	30.7	41.4	40.9	30.7
Selenium	1	10	5.98	7.62	3.64	1	1	3.08	10	1.63	1	1	1	1	1	1
Vanadium	29.1	84.7	793	1150	138	228	67.2	286	250	96	36.4	55.5	62.2	54.8	56.3	61.3
Zinc	118	131	203	127	82.1	212	134	677	636	309	131	167	144	105	122	142
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.013	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.0573	0.0102	0.01	0.01	0.0399	0.01	0.01	0.0152	0.0324	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.0162	0.01	0.01	0.01	0.0399	0.01	0.01	0.014	0.0312	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	0.0847	0.01	0.01	0.0222	0.0516	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	10.2	4.13	4.41	1.04	8.15	4.02	3.41	2.93	1.25	3.36	0.1	0.1	0.995	0.1	0.1	0.1
Aliphatics >C16-C21	18.3	83.3	15.4	8.43	40.5	3.88	15.9	15.6	9.81	13.4	0.1	0.1	0.956	0.1	0.1	1.21
Aliphatics >C21-C35	39.9	76.6	51.4	46.7	74.4	19.3	55.4	44	38.5	58.6	6.39	1.85	3.09	0.614	0.1	8.35
Aliphatics >C35-C44	7.1	11.3	15.4	16.1	28.3	4.59	27	11.1	10.2	17.5	0.1	0.1	0.907	0.1	0.1	0.1
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.0108	0.01	0.01	0.01	0.0266	0.01	0.01	0.01	0.0204	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.0569	0.01	0.01	0.0152	0.0336	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	20.3	6.86	5.97	2.95	35.9	1.97	6.58	4.44	2.7	1.74	14.7	0.1	4.09	0.124	0.1	0.1
Aromatics >EC16-EC21	53.7	81.9	66.4	39.1	315	9.51	44.1	32.5	21.2	9.59	201	1.8	6.51	0.278	0.1	2.53
Aromatics >EC21-EC35	169	153	183	144	959	41.1	122	101	121	48.2	724	13.2	36.4	2.17	4.32	32.9
Aromatics >EC35-EC44	36.1	37.5	43.5	44.6	305	20.4	52.6	32.4	86.8	23.4	275	2.04	4.21	1.87	2.74	7.91
Aromatics >EC40-EC44	10.3	10.6	12.6	15.1	100	8.11	20.6	11.2	37.6	9.36	113	0.298	0.217	0.772	0.914	2.65
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	3520	866	1010	1640	3800	509	176	329	455	119	12	12	12	12	12	12
Acenaphthene	177	160	120	125	261	74.2	44	68	47.6	21.8	8	8	8	8	8	23.5
Anthracene	7580	3200	2720	3530	8430	633	378	628	806	228	16	16	16	16	16	16
Benz(a)anthracene	16100	7000	7690	9930	19500	7980	1090	2010	2430	705	19.4	45.9	30.1	14	14	57.4
Benzo(a)pyrene	12400	5970	6010	8390	16200	5570	1080	1780	2060	652	23.1	47.6	26.6	15	15	58.9
Benzo(b)fluoranthene	16900	9630	9130	11900	24600	10600	1860	2980	2280	1090	40.4	72	34.2	15	15	107
Benzo(k)fluoranthene	5560	3850	3550	4200	7940	3160	561	1020	778	385	14	27.6	14	14	14	40.3
Benzo(g,h,i)perylene	7700	6920	4400	6170	11500	3220	780	1350	1330	461	24	42.9	24	24	24	53.3
Chrysene	13300	6900	6380	8590	17200	5690	1010	1650	1950	640	26.5	60.1	29.4	10	10	79.7
Dibenzo(a,h)anthracene	2460	1740	1110	1700	3100	1400	216	366	310	127	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	9630	7510	3750	6820	12800	4050	694	1110	1820	391	0.018	46.5	0.018	0.018	0.018	41.2
Fluoranthene	39000	28000	18100	20800	47700	9910	2250	3570	5620	1350	47	138	100	0.017	0.017	167
Fluorene	2650	390	917	826	2890	182	121	273	343	47.6	10	10	10	10	10	25.4
Naphthalene	1840	1280	884	1020	2510	337	437	1230	2120	272	20.6	16.4	48.8	9	9	106
Phenanthrene	25200	16800	8990	6260	20900	1770	1130	1750	2720	519	24.9	80.7	70.9	15	15	105
Pyrene	25.1	16.3	12.7	15.1	32.1	7.3	1.74	2.66	4.02	1.04	0.0375	0.113	0.0747	0.015	0.015	0.12
PAH, Total Detected USEPA 16	189	117	87.5	107	232	62.4	13.6	22.8	29.1	8.04	0.239	0.691	0.415	0.118	0.118	0.984
Naphthalene-d8 % recovery**	92.8	94.9	80.3	94.6	89.9	93.5	94.9	92.7	83.9	91.6	89.2	96.8	97.2	91.6	89.8	89.8
Acenaphthene-d10 % recovery**	95.8	96.4	86.4	88.7	88.9	92.4	87.9	94.2	80.3	82.6	78.8	97.1	99.8	86.9	85.7	89
Phenanthrene-d10 % recovery**	90.9	95.2	87.3	93.4	89.3	95.7	89.3	94.3	84.5	88.5	85.2	93.8	97.5	87.1	87.3	89.2
Chrysene-d12 % recovery**	75.3	78.1	79.6	79.2	77.8	92.2	81	86.6	81.2	77.8	78.7	83.9	95.1	85.5	87	84
Perylene-d12 % recovery**	75.9	82.2	76.9	80.3	80.9	94.5	78.1	86.7	74.7	74.2	77.7	84.4	96.2	84.3	85.9	82.2
Total Aliphatics >C12-C44	75.5	175	86.7	72.3	151	31.8	102	73.6	59.8	92.8	6.39	1.85	5.94	0.614	0.1	9.56
Total Aromatics >EC12-EC44	279	280	299	230	1610	73	225	171	232	83	1220	17.1	51.2	4.44	7.06	43.3
Total Aliphatics & Aromatics >C5-C44	355	455	386	303	1770	105	327	244	292	176	1220	18.9	57.2	5.05	7.06	52.8
Metals - (Solid)																
Iron	49500	138000	100000	141000	40400	169000	74100	126000	166000	68900	38000	33700	32600	40300	39000	33900
Manganese	1190	3940	18000	25700	8550	7380	4130	11100	8750	5520	1260	321	393	437	280	574
Metals - (Liquid)																
Calcium	-	200000	159000	-	77000	-	64100	-	-	-	-	-	44500	8210	-	22500
Magnesium	-	13000	12700	-	9830	-	5710	-	-	-	-	-	7310	6510	-	3160
Phenols																
Phenol	0.01	0.01	0.01	0.01	0.01	0.0102	0.01	0.01	0.01	0.01	0.01	0.058	0.0236	0.01	0.0109	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0846	0.01	0.278	0.142	0.0126	0.0109	0.023
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.116	0.0236	0.0378	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0846	0.035	0.452	0.189	0.0504	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE																
pH																
Sulphate, Total																
Sulphur, Total																
Sulphate, Total potential																
Sulphate, acid soluble (total)																
Cyanide, Total																
Exchangeable Ammonia as N																
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	16/10/2018	08/10/2018	-	09/10/2018	-	08/10/2018	-	-	-	-	-	29/10/2018	29/10/2018	-	29/10/2018
Analysed By	-	Lucy Caroe	Lucy Caroe	-	Lucy Caroe	-	Andrzej Ferfecki	-	-	-	-	-	Christian Hallam	Christian Hallam	-	Christian Hallam
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																
Analysts Comments																
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected
Fibrous Tremolite	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected
Fibrous Actinolite	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	Detected	Not Detected	-	Detected	-	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected
Comments	-	-	0	-	0	-	0	-	-	-	-	-	0	0	-	0
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	109	77.2	95	106	102	100	98.8	107	109	101	105	94.5	86	105	102	88.5
Toluene-d8**	95.9	94.3	93.3	93.6	97.8	98.4	98.2	98	94.3	97.9	95.7	96.9	92.8	98.5	98.7	89.6
4-Bromofluorobenzene**	85.2	85.9	78	82.9	91.8	94.5	92.1	92.1	79.7	91.2	85.1	88.7	82.5	99.7	95.6	73.3
Methyl Tertiary Butyl Ether	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.01	0.1	0.1	0.1
Benzene	0.09	0.009	0.09	0.09	0.09	0.09	0.09	0.09	0.009	0.09	0.09	0.09	0.009	0.09	0.09	0.114
Toluene	0.07	0.007	0.07	0.07	0.07	0.07	0.07	0.07	0.007	0.07	0.07	0.12	0.0284	0.07	0.07	0.146
Ethylbenzene	0.04	0.004	0.04	0.04	0.04	0.04	0.04	0.04	0.004	0.04	0.04	0.04	0.004	0.04	0.04	0.04
p/m-Xylene	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.144	0.0519	0.1	0.1	0.1
o-Xylene	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.01	0.1	0.1	0.1
Naphthalene	0.13	0.013	0.13	0.13	0.13	0.13	0.13	0.13	0.013	0.13	0.13	579	411	0.13	0.13	8.18
Sum of BTEX	0.4	0.04	0.4	0.4	0.4	0.4	0.4	0.4	0.04	0.4	0.4	0.4	-	0.4	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	18.4	-	-	18.1
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	15.3	-	-	15.6
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	18.2	-	-	17.8
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	14.7	-	-	15
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	1.01	-	-	0.86
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	16.1	-	-	12.8
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	17	-	-	13.5

Sample ID	3CH6	3CH7	3CH8	3CH8	3CH9	3CH9	3CH4
Depth	0.5	0.5	0.5	1	0.5	1	0.5
Sampled Date	13/08/2018	01/08/2018	01/08/2018	01/08/2018	30/07/2018	30/07/2018	17/10/2018
Carbon							
Soil Organic Matter (SOM)	8.5	1.27	12.7	14.7	3.19	3.9	8.98
Metals (Solids)							
Arsenic	10.3	6.65	7.92	7.09	7.5	8.7	15.1
Cadmium	0.435	0.02	0.722	0.0699	0.854	0.935	0.931
Chromium	232	156	62.3	28.4	48.3	48	56.4
Copper	45.2	33.3	14.1	13.7	17	61.6	26.2
Lead	146	42.5	158	70.7	129	169	131
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	21.4	19.9	13.5	15.2	14	46	28.9
Selenium	6.44	2.87	2.44	1	2.38	1.92	1
Vanadium	274	155	134	49.3	72.2	76.6	75.5
Zinc	670	201	579	476	482	686	555
TPH Criteria Working Group (TPH CWG)							
Benzene							
Toluene							
Ethylbenzene							
sum of detected mpo xylene by GC							
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.0129	0.01	0.01	0.01	0.0196	0.01	0.01
Aliphatics >C8-C10	0.0164	0.01	0.01	0.01	0.015	0.01	0.01
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	0.0161	0.01	0.01
Aliphatics >C12-C16	0.1	3.47	6.11	3.94	1.53	1.95	0.1
Aliphatics >C16-C21	3.44	16.2	34.1	12.9	11.2	13.1	0.407
Aliphatics >C21-C35	15.7	90.8	89.4	44.5	60.8	70.8	8.23
Aliphatics >C35-C44	4.27	46.2	10.9	7.37	16.8	23.6	1.11
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.0105	0.01	0.01	0.01	0.0104	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.0104	0.01	0.01
Aromatics >EC12-EC16	1.58	1.35	14.1	92.2	1.16	2.13	0.1
Aromatics >EC16-EC21	7.89	8.45	121	536	6	22.2	0.1
Aromatics >EC21-EC35	34.5	53.4	300	803	37	69.4	15.3
Aromatics >EC35-EC44	10	32.4	82.9	215	21	31.8	1.16
Aromatics >EC40-EC44	3.2	13.4	26.5	66.8	8.69	13.6	0.1
Polyaromatic Hydrocarbons (PAHs)							
Acenaphthylene	268	44.7	1090	730	85.5	141	38.4
Acenaphthene	31.7	23.6	97.9	87	34.3	33.5	8
Anthracene	464	86.9	2470	1220	336	344	32.3
Benz(a)anthracene	1250	330	7580	4020	790	798	134
Benzo(a)pyrene	1170	302	6680	3300	657	681	200
Benzo(b)fluoranthene	1750	610	8710	5820	1070	1250	242
Benzo(k)fluoranthene	615	194	3030	1890	398	377	75
Benzo(g,h,i)perylene	885	265	4420	2600	452	501	199
Chrysene	1140	367	5790	3440	849	717	152
Dibenzo(a,h)anthracene	239	66.6	1250	686	130	141	35.9
Indeno(1,2,3-cd)pyrene	1090	195	5080	2150	373	410	141
Fluoranthene	2710	614	15500	8500	1380	1630	265
Fluorene	180	32.9	608	504	92.2	102	10
Naphthalene	253	109	1060	1400	229	245	35.8
Phenanthrene	1310	305	6570	3430	668	793	133
Pyrene	1.9	0.482	12	6.32	1.1	1.27	0.224
PAH, Total Detected USEPA 16	15.2	4.03	81.9	46.1	8.65	9.43	1.91
Naphthalene-d8 % recovery**	103	84.5	84.5	78	91.3	88.7	90.6
Acenaphthene-d10 % recovery**	102	87.6	84.3	81.8	88.5	84.1	86.5
Phenanthrene-d10 % recovery**	102	83.2	85.1	84.6	85.5	83.9	82.9
Chrysene-d12 % recovery**	91.9	75.8	79.2	70.6	75.7	77.2	80.5
Perylene-d12 % recovery**	93.6	74.1	82.1	71.8	71.8	72.3	86.1
Total Aliphatics >C12-C44	23.4	157	140	68.7	90.4	109	9.75
Total Aromatics >EC12-EC44	54	95.6	518	1650	65.1	126	16.4
Total Aliphatics & Aromatics >C5-C44	77.5	252	658	1710	156	235	26.2
Metals - (Solid)							
Iron	84800	93000	86400	65000	55100	69500	36200
Manganese	15000	9880	7030	3110	6250	5840	1530
Metals - (Liquid)							
Calcium	96000	-	-	60200	127000	132000	-
Magnesium	12500	-	-	7720	22600	17900	-
Phenols							
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics							
Soluble Sulphate 2:1 extract as SO4 BRE							
pH							
Sulphate, Total							
Sulphur, Total							
Sulphate, Total potential							
Sulphate, acid soluble (total)							
Cyanide, Total							
Exchangeable Ammonia as N							
Asbestos							
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-
Date of Analysis	16/10/2018	-	-	17/10/2018	16/10/2018	16/10/2018	-
Analysed By	Barbara Urbanek-Walsh	-	-	Andrzej Ferfecki	James Richards	Lucy Caroe	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)							
Analysts Comments							
Asbestos Quantification - Total - %	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-
Comments	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)							
Dibromofluoromethane**	103	105	118	115	117	111	110
Toluene-d8**	94.2	96.5	96	96.2	95.5	97.1	97.1
4-Bromofluorobenzene**	78.1	83.4	78.9	90.2	86.6	87.6	89
Methyl Tertiary Butyl Ether	0.2	0.1	0.1	0.2	0.1	0.1	0.1
Benzene	0.18	0.09	0.09	0.18	0.09	0.09	0.09
Toluene	0.14	0.07	0.07	0.14	0.07	0.07	0.07
Ethylbenzene	0.08	0.04	0.04	0.08	0.04	0.04	0.04
p/m-Xylene	0.2	0.1	0.1	0.2	0.1	0.1	0.1
o-Xylene	0.2	0.1	0.1	0.2	0.1	0.1	0.1
Naphthalene	0.26	0.13	0.13	0.26	0.13	0.13	0.13
Sum of BTEX	0.8	0.4	0.4	0.8	0.4	0.4	0.4
Subcontracted: Inorganics							
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3CH4	3CH4	3CH5	3CH5	3CH5	3CH4V	3CH5V
Depth	1	2	0.3	0.8	1.5	2.7	2.7
Sampled Date	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018
Carbon							
Soil Organic Matter (SOM)	81.2	74.3	4.9	2.81	62.2	1.76	4.71
Metals (Solids)							
Arsenic	8.2	9.64	13.4	6	7.13	11	12.9
Cadmium	0.386	0.532	0.0891	0.2	0.144	0.02	1.31
Chromium	53.9	73.8	41.3	460	42.3	43.9	46.8
Copper	29.5	33.8	22	14	42.9	22.2	27.7
Lead	2080	96.7	40.4	52.4	44.8	22	342
Mercury	0.14	0.14	0.14	1.4	0.14	0.14	0.14
Nickel	13.8	17.8	26.2	10.1	14.8	33.8	19.2
Selenium	2.03	2.23	1	14.4	1.24	1	1.31
Vanadium	56.6	73.7	65.6	427	28.7	80.3	76.9
Zinc	634	594	140	400	245	124	2560
TPH Criteria Working Group (TPH CWG)							
Benzene							
Toluene							
Ethylbenzene							
sum of detected mpo xylene by GC							
Aliphatics >C5-C6	0.303	0.2	0.01	0.01	0.023	0.01	0.01
Aliphatics >C6-C8	1.62	0.775	0.01	0.01	0.0771	0.0181	0.01
Aliphatics >C8-C10	2.94	1.26	0.01	0.01	0.069	0.0155	0.01
Aliphatics >C10-C12	108	38.5	0.01	0.01	0.161	0.143	0.01
Aliphatics >C12-C16	14.8	16.5	0.1	0.1	8.96	0.206	1.11
Aliphatics >C16-C21	120	96.4	0.1	3.36	92.2	0.868	15.7
Aliphatics >C21-C35	152	212	6.31	51.7	109	5.67	79
Aliphatics >C35-C44	33.4	91.3	0.1	5.84	29.9	0.935	21.9
Aromatics >EC5-EC7	0.2	0.2	0.01	0.01	0.0426	0.01	0.01
Aromatics >EC7-EC8	0.2	0.2	0.01	0.01	0.0322	0.01	0.01
Aromatics >EC8-EC10	1.96	0.839	0.01	0.01	0.046	0.0103	0.01
Aromatics >EC10-EC12	71.7	25.7	0.01	0.01	0.107	0.0955	0.01
Aromatics >EC12-EC16	509	542	0.1	0.1	63.6	0.1	2.92
Aromatics >EC16-EC21	1350	1570	1.82	0.384	499	0.369	21.9
Aromatics >EC21-EC35	2090	2240	20.3	7.9	1530	6.57	112
Aromatics >EC35-EC44	477	522	10	0.1	444	3.53	47.1
Aromatics >EC40-EC44	126	142	4.46	0.1	116	1.15	15.9
Polyaromatic Hydrocarbons (PAHs)							
Acenaphthylene	20700	70400	12	51.2	24900	48.2	483
Acenaphthene	27600	20300	8	8	2010	35.6	18.7
Anthracene	32300	66600	16	33	45200	71.8	243
Benz(a)anthracene	33900	82800	80.5	162	111000	136	1110
Benzo(a)pyrene	24900	59900	82.5	214	92300	103	1540
Benzo(b)fluoranthene	36200	67600	130	285	96300	116	1560
Benzo(k)fluoranthene	9930	32600	39.7	99.4	45500	47.5	730
Benzo(g,h,i)perylene	15800	39300	72.9	261	66200	75.9	1730
Chrysene	27600	74400	87.1	155	89700	107	1040
Dibenzo(a,h)anthracene	11.5	6730	0.023	48.9	16500	0.023	323
Indeno(1,2,3-cd)pyrene	14500	50200	44.3	199	51100	101	1450
Fluoranthene	101000	274000	146	260	289000	363	1570
Fluorene	32300	56800	10	14.5	20900	71.8	59.4
Naphthalene	418000	1360000	29	101	18400	518	474
Phenanthrene	109000	214000	102	152	152000	312	537
Pyrene	66.1	187	0.107	0.204	203	0.226	1.31
PAH, Total Detected USEPA 16	970	2660	0.921	2.24	1320	2.33	14.2
Naphthalene-d8 % recovery**	135	86	91.5	92	87.5	81.1	90.6
Acenaphthene-d10 % recovery**	155	98	89.6	86.6	88.5	82.2	90.2
Phenanthrene-d10 % recovery**	158	96	91.5	83.3	87	88.2	91.6
Chrysene-d12 % recovery**	188	84	88.3	80.4	95	88.8	91.5
Perylene-d12 % recovery**	210	69	88.8	83.3	79	86.9	88.1
Total Aliphatics >C12-C44	321	416	6.31	60.9	240	7.68	118
Total Aromatics >EC12-EC44	4420	4870	32.1	8.29	2540	10.5	184
Total Aliphatics & Aromatics >C5-C44	4930	5360	38.4	69.2	2780	18.4	302
Metals - (Solid)							
Iron	42900	39100	25000	158000	52100	28200	68300
Manganese	3550	4970	891	35200	2190	891	4440
Metals - (Liquid)							
Calcium	-	140000	57200	108000	-	-	-
Magnesium	-	15800	10200	12700	-	-	-
Phenols							
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics							
Soluble Sulphate 2:1 extract as SO4 BRE							
pH							
Sulphate, Total							
Sulphur, Total							
Sulphate, Total potential							
Sulphate, acid soluble (total)							
Cyanide, Total							
Exchangeable Ammonia as N							
Asbestos							
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-
Date of Analysis	-	17/10/2018	17/10/2018	09/10/2018	-	-	-
Analysed By	-	Andrzej Ferfecki	Andrzej Ferfecki	Andrzej Ferfecki	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)							
Analysts Comments							
Asbestos Quantification - Total - %	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	Not Detected	Not Detected	-	-	-
Amosite (Brown) Asbestos	-	Not Detected	Not Detected	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	-	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Anthophyllite	-	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Tremolite	-	Not Detected	Not Detected	Not Detected	-	-	-
Fibrous Actinolite	-	Not Detected	Not Detected	Not Detected	-	-	-
Non-Asbestos Fibre	-	Not Detected	Not Detected	Not Detected	-	-	-
Comments	-	-	-	0	-	-	-
Volatile Organic Compounds (VOCs)							
Dibromofluoromethane**	111	106	110	94.4	101	113	102
Toluene-d8**	96.1	95.4	96.2	93.2	93.4	99.5	96.7
4-Bromofluorobenzene**	82.4	84.3	81.1	83.2	78.3	94.4	89.3
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.161	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics							
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-

Sample ID	3CH6V	3CH7V	3CH8V	3CH9V	3CI7	3CI7	3CI8	3CI8	3CI8	3CI9	3CI9	3CI4	3CI4	3CI4	3CI5	3CI5	3CI5	3CI5	3CI4V	3CI5V	3CI6V	3CI7V	3CI8V	3CI9V
Depth	0.8	0.9	1.1	1.3	0.5	1	0.5	1	2	0.5	1	0.5	1	2	0.3	0.8	1.5	2	3.4	3.2	0.2	2	2.6	1.3
Sampled Date	13/08/2018	01/08/2018	01/08/2018	30/07/2018	01/08/2018	01/08/2018	01/08/2018	01/08/2018	01/08/2018	30/07/2018	30/07/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	01/08/2018	01/08/2018	01/08/2018	30/07/2018
Carbon																								
Soil Organic Matter (SOM)	5.4	4.79	1.9	1.91	12.8	2.52	4.52	9.53	10.9	7.57	4.53	6.19	0.35	5.84	6.96	29.3	54.5	26.7	0.597	6.69	4.76	4.97	1.4	2.43
Metals (Solids)																								
Arsenic	11.5	21.2	13.6	13.2	6.89	5.14	9.73	8.48	9.84	7.89	9.63	18.1	3.86	6	15	7.15	4.03	3.32	14.2	14.3	9.99	8.02	15.2	12
Cadmium	0.109	0.02	0.02	0.02	0.17	0.02	0.02	0.0231	0.225	0.316	0.172	0.388	0.02	0.2	2.41	0.02	0.02	0.02	0.02	0.02	0.02	0.052	0.02	0.02
Chromium	44.6	41.6	39.3	43.3	89.8	65.1	32.2	82.3	121	54.4	104	35.1	464	734	276	220	165	49.4	35.1	77.4	91.3	68.6	35.9	33.8
Copper	21.5	31.9	17.6	18	12.6	13	16.1	15.4	20	15.9	24.5	19.4	10.3	17.5	55.7	17.8	11.4	6.46	11.8	19.1	14.3	14	16	19
Lead	30.2	139	24.9	26.6	53.3	46.1	53.4	129	180	169	448	52.6	8.94	17.2	423	142	13.5	13.1	24.6	33.1	30.1	52.2	25.5	27.6
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	29.9	28.4	38.5	35.9	17.3	12.2	19.3	18.2	17.6	14.9	18.8	28.9	3.82	8.02	43.5	11.3	7.78	3.31	34.2	26.5	25	15.4	38.4	28.9
Selenium	1	1	1	1	2.24	1.89	1	1	3.31	1.82	2.25	1	6.41	15	10	4.62	4.61	4.01	1	1.49	1.12	2.56	1	1
Vanadium	63.5	83.5	55.2	61.2	109	108	52.3	137	213	111	116	63.7	406	631	249	217	161	59.6	55.2	119	159	119	52.9	53.2
Zinc	141	194	106	128	197	187	234	458	716	319	316	179	63.1	111	2610	1270	92	88.4	103	132	135	217	111	132
TPH Criteria Working Group (TPH CWG)																								
Benzene																								
Toluene																								
Ethylbenzene																								
sum of detected mpo xylene by GC																								
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0383	0.01	0.01	0.01	0.01	0.01	0.0417	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0325	0.01	0.01	0.01	0.01	0.01	0.0176	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0112	0.051	0.01	0.01	0.01	0.01	0.01	0.0143	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	0.1	0.601	0.1	0.1	2.41	2.92	1.25	1.85	2.11	3.95	2.66	0.1	7.21	2.1	0.787	2.33	17.8	2.65	0.1	0.1	0.511	5.49	0.1	0.1
Aliphatics >C16-C21	0.1	1.06	0.1	0.1	12.4	13.1	9.49	11.2	18.2	20.6	9.08	0.1	13.4	10.8	11.1	10	27.4	14	0.1	0.1	2	16.2	0.1	0.1
Aliphatics >C21-C35	3.79	5.07	1.07	0.1	62.6	72.6	60.2	49.2	60.6	79.1	45	5.69	68.1	56.7	76.8	77	69.8	13.1	0.1	4.38	11.7	99.3	1.11	0.1
Aliphatics >C35-C44	0.1	0.432	0.1	0.1	22	31	11.5	16.7	12.1	23.1	18.5	0.1	6.44	11.1	27.6	12.6	7.15	1.3	0.1	0.1	4.34	51.8	0.1	0.1
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.022	0.01	0.01	0.01	0.01	0.01	0.0121	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0336	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	0.1	0.342	0.297	0.1	2.83	3	2.8	9.13	7.09	5.02	1.23	0.1	16.4	0.182	2.03	0.165	19.6	6.1	0.1	0.1	0.498	3.19	0.286	0.1
Aromatics >EC16-EC21	0.1	1.98	0.915	0.1	17.7	21.9	19.3	63.8	56	33.6	5.25	1.28	23.2	4.8	11.7	3.58	42.4	88.3	0.1	0.1	4.04	21	0.718	0.1
Aromatics >EC21-EC35	13.2	48.9	9.89	5.33	76.9	90.8	87.6	152	185	119	24.9	25.5	53.7	18.6	93.7	19	79.6	167	2.45	26.6	21	114	6.53	12.6
Aromatics >EC35-EC44	2.05	7.32	4.61	0.689	34.6	41.5	35.9	59	58.8	44.5	13.4	7.38	12.3	1	56.3	1.73	20.7	41	0.1	3.34	7	68.3	3.23	4.2
Aromatics >EC40-EC44	0.407	1.77	1.9	0.1	13.2	16.1	14.5	21.8	19.6	16.7	5.35	2.53	3.51	0.1	20.8	0.1	6.69	12.5	0.1	0.1	2.59	28.4	1.22	1.65
Polyaromatic Hydrocarbons (PAHs)																								
Acenaphthylene	12	12	12	12	398	206	203	686	610	520	124	12	47.2	17.4	288	225	1090	143	12	12	133	244	12	12
Acenaphthene	8	8	8	8	81.4	33.1	40	72.5	62.6	151	60.9	8	23.9	19.4	11.6	19.6	67	17.1	8	8	33.6	42.4	8	8
Anthracene	16	16	16	16	665	455	393	1210	933	882	359	16	106	55.3	148	191	1050	284	16	16	244	478	16	16
Benz(a)anthracene	39	14	14	14	1700	1330	1240	3680	2520	2810	760	31.2	312	286	816	667	2080	908	14	112	862	1340	14	14
Benzo(a)pyrene	38.6	15	15	15	1550	1080	1090	3520	2490	2470	696	30.9	238	222	1040	723	1460	832	15	136	768	1190	15	15
Benzo(b)fluoranthene	64.9	32.6	15	15	2560	1920	2040	4560	3040	4010	1110	29.2	385	307	1110	877	2550	1040	15	150	1350	2150	15	15
Benzo(k)fluoranthene	24.4	14	14	14	867	637	705	1670	1240	1160	403	14	119	124	454	309	831	361	14	59	450	683	14	14
Benzo(g,h,i)perylene	24	24	24	24	1120	762	838	2640	1840	1660	422	24	171	180	1120	654	787	716	24	97.8	531	935	24	24
Chrysene	47.4	21.7	10	10	1590	1160	1320	3120	2250	2610	744	30.9	405	381	716	599	1820	792	10	135	847	1340	10	10
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	297	201	220	688	464	489	116	0.023	48.2	39.7	213	129	248	152	0.023	0.023	142	236	0.023	0.023
Indeno(1,2,3-cd)pyrene	43	0.018	0.018	0.018	960	670	687	2870	1900	1430	366	31.2	135	267	928	880	1250	549	0.018	78.5	614	794	0.018	0.018
Fluoranthene	101	37.5	0.017	0.017	3650	2760	2660	7730	5780	5320	1710	63.4	708	678	1050	1240	6280	2020	0.017	173	1720	2660	0.017	0.017
Fluorene	10	10	10	10	450	196	132	441	397	374	181	10	91.1	22.1	37.6	111	791	95.4	10	10	107	172	10	10
Naphthalene	14.3	9	9	9	497	351	380	877	744	1410	344	9	474	91	262	847	8430	498	9	33.6	254	379	9	9
Phenanthrene	57.2	22.5	15	15	2130	1450	1150	3460	2440	2510	1270	25.2	949	516	367	736	5610	922	15	101	757	1260	15	15
Pyrene	0.0728	0.0293	0.015	0.015	2.7	2.04	1.99	5.96	4.38	4.09	1.26	0.0492	0.528	0.533	0.855	0.946	4.19	1.52	0.015	0.159	1.36	2.01	0.015	0.015
PAH, Total Detected USEPA 16	0.502	0.144	0.118	0.118	21.2	15.3	15	43.2	31.1	31.9	9.93	0.291	4.74	3.74	9.42	9.16	38.5	10.9	0.118	1.23	10.2	15.9	0.118	0.118
Naphthalene-d8 % recovery**	95.5	82.3	92.7	88.2	89.5	88.4	83.3	96.3	95.8	91.1	92.4	83.5	93.6	79	94.1	78.3	92.4	92.2	93.9	94.8	92.2	84.1	65.2	86.1
Acenaphthene-d10 % recovery**	98.4	86	101	82	89.6	96.1	90.3	94.6	91.6	91.5	86.5	85	92.3	82.9	94.3	84.3	89.4	87.5	91	95.1	102	87.5	71.7	73.6
Phenanthrene-d10 % recovery**	94.1	88.1	103	86.1	90.9	97.5	89.2	91.8	93.3	82.2	86.5	90.3	89.3	85.8	96.3	88.1	89.6	83.8	89.3	96.5	101	89.5	82.8	83.4
Chrysene-d12 % recovery**	83.8	77.6	100	83.8	79.7	86.1	84	87.7	85.4	76.5	76.9	88.8	83.7	81.7	101	88.1	78.2	74.9	88.4	102	101	77.2	84.6	79.6
Perylene-d12 % recovery**	86.2	82.4	95.1	82.2	75.4	87.8	80.9	89	86.4	71.1	72.8	85.6	75.7	77.6	98.7	84.7	70.4	74.6	92.4	100	94.1	73	82.3	77.9
Total Aliphatics >C12-C44	3.79	7.16	1.07	0.1	99.5	120	82.5	79	93	127	75.2	5.69	95.2	80.6	116	102	122	31.1	0.1	4.38	18.6	173	1.11	0.1
Total Aromatics >EC12-EC44	15.3	58.5	15.7	6.01	132	157	146	284	307	202	44.7	34.1	106	24.6	164	24.5	162	302	2.45	30	32.6	206	10.8	16.8
Total Aliphatics & Aromatics >C5-C44	19.1	65.7	16.8	6.01	232	277	228	363	400	329	120	39.8	201	105	280	126	284	333	2.45	34.4	51.1	379	11.9	16.8
Metals - (Solid)																								
Iron	32900	29100	36700	44600	55000	63900	54800	120000	131000	55200	86500	26700	132000	154000	130000	106000	59600	20700	35400	32100	78400	41400	36000	41000
Manganese	377	381	351	850	5720	6270	2580	5830	12200	5730	7800	792	20600	18600	11900	17200	8780	6630	492	2910	4010	5980	382	884
Metals - (Liquid)																								
Calcium	190000	-	108000	-	93600	171000	72900	-	149000	105000	-	157000	-	-	109000	193000	160000	118000	-	23400	-	64700	124000	-
Magnesium	24900	-	13500	-	14600	22600	19100	-	15500	9870	-	24500	-	-	13600	31500	23000	16400	-	3870	-	15200	12200	-
Phenols																								
Phenol	0.01	0.01	0.01	0.0111	0.022	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0875	0.13	0.01	0.01	0.01	0.01
Cresols	0.022	0.01	0.062	0.0444	0.022	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0219	0.59	0.01	0.0114	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	1.16	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.062	0.0555	0.0439	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.109	1.88	0.035	0.035	0.035	0.035
Inorganics																								
Soluble Sulphate 2:1 extract as SO4 BRE																								
pH																								
Sulphate, Total																								
Sulphur, Total																								
Sulphate, Total potential																								
Sulphate, acid soluble (total)																								
Cyanide, Total																								
Exchangeable Ammonia as N																								
Asbestos																								
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	29/10/2018	-	29/10/2018	-	29/10/2018	29/10/2018	16/10/2018	-	17/10/2018	17/10/2018	-	16/10/2018	-	-	16/10/2018	29/10/2018	24/10/2018	24/10/2018	-	17/08/2018	-	07/08/2018	07/08/2018	-
Analysed By	Christian Hallam	-	Christian Hallam	-	Christian Hallam	Christian Hallam	Barbara Urbanek-Walsh	-	Lucy Caroe	Lucy Caroe	-	Lucy Caroe	-	-	Lucy Caroe	Christian Hallam	Paul Poynton	Paul Poynton	-	Andrzej Ferfecki	-	Renata Bozhkov	Renata Bozhkov	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																								
Analysts Comments																								
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Detected	Detected	-	Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Comments	0	-	0	-	0	0	-	-	-	-	-	-	-	-	-	0	0	0	-	0	-	0	0	-
Volatile Organic Compounds (VOCs)																								
Dibromofluoromethane**	101	89.4	102	94	99.1	88.8	105	110	87.3	93.7	103	105	109	101	111	114	105	96.5	98.4	73.7	95	100	97	104
Toluene-d8**	98.7	90.9	99.1	92.8	98.6	91.1	94.8	93.6	88.7	91	94.3	96.3	96.3	94.5	95.1	91.3	97.3	92.8	96.4	96.2	93.8	98.2	95.8	98.3
4-Bromofluorobenzene**	102	81.1	93	75.9	95.8	70.9	82.7	84.2	70	70.4	77.8	86.1	83.7	79.7	80.5	98.6	99.8	85.1	88.7	70.5	75.1	91	84.5	94.7
Methyl Tertiary Butyl Ether	2	0.1	0.1	0.1	2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	1.8	0.09	0.09	0.09	1.8	0.18	0.18	0.09	0.18	0.18	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.947	0.09	0.09	0.09	0.09
Toluene	1.4	0.07	0.07	0.07	1.4	0.14	0.14	0.07	0.14	0.14	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.581	0.07	0.07	0.07	0.07
Ethylbenzene	0.8	0.04	0.04	0.04	0.8	0.08	0.08	0.04	0.08	0.08	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0661	0.04	0.04	0.04	0.04
p/m-Xylene	2	0.1	0.1	0.1	2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.33	0.1	0.1	0.1	0.1
o-Xylene	2	0.1	0.1	0.1	2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.59	0.1	0.1	0.1	0.1
Naphthalene	2.6	0.13	0.13	0.13	4.59	0.327	0.26	0.13	0.26	0.26	0.26	0.597	0.73	0.244	0.13	0.13	0.13	0.13	0.13	2.6	0.13	0.13	0.205	0.13
Sum of BTEX	8	0.4	0.4	0.4	8	0.8	0.8	0.4	0.8	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	3.51	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																								
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CJ5	3CJ5	3CJ5	3CJ5	3CJ6	3CJ6	3CJ6	3CJ6	3CJ7	3CJ7	3CJ8	3CJ4	3CJ4	3CJ4	3CJ4V	3CJ5V	3CJ6V	3CJ7V	3CJ8V
Depth	0.5	1.2	1.9	2.2	0.3	0.6	1.1	2	0.5	1	0.5	0.5	0.7	1.8	3.7	2.3	2.3	1.4	0.8
Sampled Date	13/08/2018	13/08/2018	13/08/2018	13/08/2018	13/08/2018	13/08/2018	13/08/2018	13/08/2018	01/08/2018	01/08/2018	01/08/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	13/08/2018	13/08/2018	01/08/2018	01/08/2018
Carbon																			
Soil Organic Matter (SOM)	6.5	1.74	79	53.1	3	>100	76.9	52.6	21	3.28	4.76	6.1	14.9	1.14	3.57	3.83	3.53	9.83	1.76
Metals (Solids)																			
Arsenic	19.5	6	7.18	10.4	6	5.35	4.29	8.83	4.67	7.66	9.33	10.9	2.79	4.42	12.7	7.64	11.8	14.5	11.6
Cadmium	9.59	0.596	3.09	0.564	0.2	0.02	0.02	0.0858	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.211	0.02
Chromium	185	471	32	22.2	842	212	148	54.7	225	58.3	150	28.8	338	627	39.6	37.6	36.8	42.1	34
Copper	91.3	20.3	43	41.5	22.3	21.7	35.9	34.7	12.5	13.6	15.5	13.9	2.1	8.18	17.8	12.9	11.3	19.1	18.3
Lead	1330	175	385	105	10.3	31.3	24.7	56.1	22.2	32.1	137	36.1	14.4	5.03	30.2	28.3	25.5	41.6	21.1
Mercury	1.4	1.4	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	62.1	15.2	30.5	20.7	7.82	10.2	10.1	16.8	23.8	26.7	14.1	29.4	18.7	1.62	29.9	36.8	27.2	24.7	36.9
Selenium	10	11.1	10	3.14	13.8	4.38	4.32	2.41	4.76	1	3.98	1	6.6	8.12	1	1	1	1	1
Vanadium	147	375	67.5	48.4	614	195	168	53	182	65.8	160	48.5	371	499	64.3	53.4	56.6	63.1	52.4
Zinc	7680	1140	2140	479	69.8	159	86.7	161	101	168	586	178	83.5	28.8	147	118	99.7	128	108
TPH Criteria Working Group (TPH CWG)																			
Benzene																			
Toluene																			
Ethylbenzene																			
sum of detected mpo xylene by GC																			
Aliphatics >C5-C6	0.0106	0.01	0.112	0.0267	0.01	0.0147	0.01	0.01	0.01	0.01	0.01	0.01	0.0149	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.0378	0.0142	0.424	0.126	0.0196	0.0622	0.01	0.01	0.01	0.01	0.01	0.01	0.0352	0.01	0.01	0.0191	0.01	0.01	0.01
Aliphatics >C8-C10	0.0448	0.0197	2.17	0.674	0.0185	0.0509	0.01	0.01	0.01	0.01	0.01	0.0113	0.0277	0.01	0.01	0.0203	0.01	0.01	0.01
Aliphatics >C10-C12	0.0389	0.0153	162	25.4	0.0309	0.052	0.01	0.01	0.01	0.01	0.01	0.0127	0.0363	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	0.1	3.01	40.4	13.3	2.88	20.4	5.6	3.7	0.65	0.54	2	0.1	7.7	2.4	0.1	0.495	0.1	0.247	0.1
Aliphatics >C16-C21	8.92	8.4	176	58.9	5.7	176	29.9	14.7	7.31	3.5	14.5	0.1	24.5	17.9	0.1	0.1	0.1	1.11	0.1
Aliphatics >C21-C35	45.9	63.8	80.9	39.1	28.4	154	53.2	38.5	33.7	24.5	52.2	8.7	71.5	106	2.3	0.889	1.66	11.6	0.538
Aliphatics >C35-C44	6.43	8.22	11.8	2.66	4.82	34.4	11.5	6.88	10.5	8.77	14.2	0.1	7.52	27.3	0.985	0.1	0.1	0.795	0.1
Aromatics >EC5-EC7	0.01	0.01	0.64	0.408	0.01	0.0158	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.511	0.254	0.01	0.0316	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.0307	0.0131	1.45	0.449	0.0123	0.0339	0.01	0.01	0.01	0.01	0.01	0.01	0.0181	0.01	0.01	0.014	0.01	0.01	0.01
Aromatics >EC10-EC12	0.026	0.0109	108	16.9	0.0206	0.035	0.01	0.01	0.01	0.01	0.01	0.01	0.0245	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	0.337	2.75	344	120	2.88	76.5	18.9	8.41	2.36	0.1	2.79	0.815	17.8	1.78	0.1	0.1	0.1	0.865	0.184
Aromatics >EC16-EC21	4.46	6.75	816	292	12.2	1060	182	43.7	13.9	3.33	23.1	2.13	104	18.8	0.1	0.343	0.851	4.9	0.687
Aromatics >EC21-EC35	23.1	26.5	826	327	32.6	3020	464	122	63.2	12.1	92.4	35.8	279	83.9	7.8	4.18	21.7	71.8	11.6
Aromatics >EC35-EC44	0.1	7.97	129	49.6	8.43	569	90.4	15.2	25.4	0.1	32.4	6.33	63.8	26.4	3.83	0.1	2.76	14.4	7.18
Aromatics >EC40-EC44	0.1	2.59	32.8	13.5	2.76	151	23.9	4.54	9.1	0.1	12	1.99	18.1	9.21	1.58	0.1	0.606	4.67	3.53
Polyaromatic Hydrocarbons (PAHs)																			
Acenaphthylene	24.2	12	99000	13900	91.9	25400	1860	952	582	48.8	545	12	3640	15.2	12	12	12	121	12
Acenaphthene	8	8	5550	849	11.7	768	101	126	77.8	18.2	70.2	8	129	92.8	8	8	8	14	8
Anthracene	52.3	31.4	81100	11600	153	42600	3550	1890	1480	102	1430	16	4980	142	16	16	16	325	16
Benz(a)anthracene	133	62.6	59600	8660	415	137000	12600	4650	2600	305	3540	74.7	15700	1250	14	14	31.9	813	14
Benzo(a)pyrene	116	51.7	39300	6110	362	108000	9400	3490	2270	264	2830	65.1	13700	981	15	15	28.7	645	15
Benzo(b)fluoranthene	224	97.5	57100	9500	578	63400	17500	6060	3880	461	4860	101	17000	1700	15	15	43.7	1050	15
Benzo(k)fluoranthene	67.9	29.9	20000	3570	201	70500	4750	1930	1550	138	1490	30.8	5960	513	14	14	14	302	14
Benzo(g,h,i)perylene	107	52.3	19300	3460	244	62400	5000	1830	1660	193	2010	57.5	8300	755	24	24	24	387	24
Chrysene	132	87.5	44600	8470	428	110000	12400	4390	2760	278	2850	75.4	11300	1590	10	10	28.9	815	10
Dibenzo(a,h)anthracene	31.4	0.023	5990	1.15	69.8	22100	1910	634	442	50.2	481	0.023	2560	189	0.023	0.023	0.023	111	0.023
Indeno(1,2,3-cd)pyrene	83.5	50.1	18400	3180	244	74800	5550	1650	1940	165	1680	49	6800	577	0.018	0.018	0.018	427	0.018
Fluoranthene	311	163	208000	29000	882	232000	23400	11900	6340	551	7140	138	35300	1850	0.017	0.017	59.6	1980	0.017
Fluorene	10	19.1	90600	12300	41	13200	1210	831	598	38.8	458	10	1770	54.9	10	10	10	48.8	10
Naphthalene	1180	166	2480000	588000	381	11400	1550	1070	445	113	642	45.1	2080	67.1	20.7	50	221	37.7	9
Phenanthrene	234	208	307000	39700	534	84900	7140	5480	4560	272	3410	96.1	11300	1140	15	15	35.3	331	15
Pyrene	0.263	0.135	129	18.7	0.635	162	18	8.18	4.71	0.416	5.28	0.0985	25.2	1.76	0.015	0.015	0.0442	1.46	0.015
PAH, Total Detected USEPA 16	2.96	1.15	3660	757	5.27	1220	126	55	35.9	3.42	38.7	0.831	166	12.7	0.118	0.118	0.493	8.87	0.118
Naphthalene-d8 % recovery**	91.1	95	87.5	104	96.1	93.9	88.2	83.3	88.1	85.5	74.8	94.9	94.7	92.6	80.2	96.2	91.7	93.1	92.6
Acenaphthene-d10 % recovery**	90.9	90.8	135	113	90	92.6	96.9	76.7	96.4	85.3	78.5	95.4	95	89.8	83	88.6	88.6	95	99.5
Phenanthrene-d10 % recovery**	99.8	89	127	100	98.8	92.6	98.4	96.6	105	91.2	84.9	94.8	97.3	89.3	89.4	86.1	89.3	106	101
Chrysene-d12 % recovery**	83.4	80.7	100	78.8	110	75.6	96	93.1	95.2	80.4	73.8	100	98.2	94.1	87.7	81.3	96.8	102	93.7
Perylene-d12 % recovery**	73.8	75.6	88.5	66.6	109	108	89.7	80.6	89.3	81.3	66.5	97.9	86.8	98.6	84.7	78.1	98.7	98.6	88.4
Total Aliphatics >C12-C44	61.2	83.4	309	114	41.8	384	100	63.8	52.2	37.3	83	8.7	111	154	3.28	1.38	1.66	13.7	0.538
Total Aromatics >EC12-EC44	27.9	44	2120	788	56.2	4720	754	189	105	15.4	151	45.1	465	131	11.6	4.53	25.3	91.9	19.6
Total Aliphatics & Aromatics >C5-C44	89.3	128	2700	947	98.1	5110	855	253	157	52.8	234	53.8	577	285	14.9	5.96	27	106	20.2
Metals - (Solid)																			
Iron	225000	153000	87900	47100	155000	80500	41900	25100	67800	43000	150000	26400	107000	153000	30000	25200	37300	27100	38500
Manganese	8030	27400	1900	1790	29500	10900	9530	2460	13400	2910	15500	1040	20900	24500	477	340	234	397	955
Metals - (Liquid)																			
Calcium	233000	215000	114000	196000	-	127000	-	118000	-	78700	142000	157000	-	188000	160000	194000	-	156000	178000
Magnesium	45600	11700	17100	17500	-	22900	-	15500	-	12600	8530	27800	-	7390	31800	21700	-	27200	16100
Phenols																			
Phenol	0.0747	0.0105	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.214	0.01	0.01	0.01	0.01
Cresols	0.0213	0.01	0.01	0.01	0.01	0.0116	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0238	0.01	0.0111	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0333	0.015	0.015
Phenols, Total Detected monohydric	0.096	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.238	0.035	0.0444	0.035	0.035
Inorganics																			
Soluble Sulphate 2:1 extract as SO4 BRE																			
pH																			
Sulphate, Total																			
Sulphur, Total																			
Sulphate, Total potential																			
Sulphate, acid soluble (total)																			
Cyanide, Total																			
Exchangeable Ammonia as N																			
Asbestos																			
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	29/10/2018	24/10/2018	29/10/2018	29/10/2018	-	29/10/2018	-	29/10/2018	-	24/10/2018	24/10/2018	29/10/2018	-	24/10/2018	18/06/2018	21/06/2018	-	21/06/2018	21/06/2018
Analysed By	Christian Hallam	Paul Poynton	Christian Hallam	Christian Hallam	-	Paul Poynton	-	Christian Hallam	-	Paul Poynton	Paul Poynton	Christian Hallam	-	Paul Poynton	Christian Hallam	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	James Richards
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																			
Analysts Comments																			
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Detected	Not Detected	-	Detected	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	-	Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected
Comments	0	0	0	0	-	-	-	0	-	0	0	0	-	0	Loose fibres in soil.	0	-	Loose fibres in soil.	0
Volatile Organic Compounds (VOCs)																			
Dibromofluoromethane**	81.9	101	92.2	90.4	102	91.8	101	98	103	97.1	97.5	108	105	112	114	105	105	103	107
Toluene-d8**	87.4	100	89.8	95.2	96.4	91.7	94.1	95	96.1	92.9	95.5	95.9	97.4	101	96.9	95.9	95.5	101	95.9
4-Bromofluorobenzene**	64.5	102	80.3	89.5	98.5	86.9	87.4	88.6	94.9	89.8	83.7	97	92.3	102	86.8	96.4	92.5	94.6	89.7
Methyl Tertiary Butyl Ether	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.18	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.14	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.08	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.26	0.26	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-	0.4	-	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																			
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3CB1	3CB1	3CB1	3CB3	3CB3	3CB3	3CB4	3CB4	3CB5	3CB5	3CB1V	3CB3V	3CB4V	3CB5V
Depth	0.5	0.8	1.2	0.5	1	1.9	0.7	1.4	0.5	1	1.65	2.4	2.4	1.4
Sampled Date	23/10/2018	23/10/2018	23/10/2018	19/10/2018	19/10/2018	19/10/2018	19/10/2018	19/10/2018	18/10/2018	18/10/2018	23/10/2018	19/10/2018	19/10/2018	18/10/2018
Carbon														
Soil Organic Matter (SOM)	2.59	0.934	1.95	13	40.2	12.9	9.14	1.95	6.74	3.03	4.14	1.88	6.47	2.31
Metals (Solids)														
Arsenic	6.25	8.04	9.6	41.1	23.9	17	5.97	6	9	12.2	9.16	12.1	14.2	12.6
Cadmium	0.345	0.404	0.398	0.02	0.2	0.2	0.766	0.2	0.02	0.2	0.02	0.02	0.16	0.02
Chromium	75.5	7.58	12.8	61.9	184	127	79.8	366	170	174	34.6	32	37.4	30.3
Copper	15.8	11.3	14.8	27.8	47.7	38.4	19.3	40.7	18.8	57	20.2	18.8	23.2	18.4
Lead	28.6	99.6	29.8	198	45.3	25.9	43	18.6	81.5	54.6	24.1	19.8	46.7	26.9
Mercury	0.14	0.14	0.14	0.14	1.4	1.4	1.32	1.4	0.14	1.4	0.14	0.14	0.14	0.14
Nickel	17.7	28.2	26.8	18.9	35.6	25.7	14.7	29.2	13.9	38.4	25.3	37.4	25.4	31.9
Selenium	2.02	1	1	2.01	16.5	10	1.37	14.1	5.13	10	1	1	1	1
Vanadium	235	15	27.1	189	107	97.5	160	377	231	275	53.2	48.5	63.5	53
Zinc	121	117	91	745	240	83.1	446	70.5	492	302	106	107	164	127
TPH Criteria Working Group (TPH CWG)														
Benzene														
Toluene														
Ethylbenzene														
sum of detected mpo xylene by GC														
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.0341	0.0305	0.02	0.02	0.02	0.02	0.02	0.02	0.0231	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.0737	0.0502	0.02	0.02	0.02	0.02	0.02	0.02	0.0631	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.044	0.0295	0.02	0.02	0.02	0.02	0.02	0.02	0.0724	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.0539	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0816	0.02
Aliphatics >C12-C16	1.11	0.1	0.1	2.97	7.12	1.7	2.29	0.1	1.75	1.66	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	5.16	0.1	1.1	10.4	24.3	5.31	8.32	0.1	8.01	12.3	0.1	0.1	0.1	0.1
Aliphatics >C21-C35	33.8	0.1	7.85	58.9	128	28.1	37.7	2.4	44.1	82.4	3.73	1.8	4.63	0.1
Aliphatics >C35-C44	11.9	0.1	0.1	20.9	17.7	3.78	9.83	0.1	18.2	31.3	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.0286	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0493	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.0352	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0539	0.02
Aromatics >EC12-EC16	1.94	0.1	0.1	5.23	5.47	1.31	3.3	0.1	13.2	2.54	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	9.01	0.1	2.01	31.4	30.4	7	18.5	2.07	307	22.7	0.1	0.1	2.17	0.1
Aromatics >EC21-EC35	30.7	0.1	11.8	116	101	21.9	98.6	8.39	634	133	14.6	1.54	20.7	6.66
Aromatics >EC35-EC44	11	0.1	1.41	40.5	23.4	4.67	31.6	6.95	175	47.7	0.944	0.1	4.01	0.702
Aromatics >EC40-EC44	3.67	0.1	0.1	13.4	6.04	1.42	9.87	3.29	53	15.9	0.1	0.1	1.24	0.1
Polyaromatic Hydrocarbons (PAHs)														
Acenaphthylene	127	12	17.2	678	1400	467	429	15.9	4040	131	12	12	12	12
Acenaphthene	28.5	8	8	82.6	60.7	8	25.5	8	913	156	8	8	8	8
Anthracene	227	16	41.3	989	2700	900	474	34.8	17600	372	16	16	16	16
Benz(a)anthracene	646	23	62.2	3090	6190	2080	1440	214	63600	2850	14	39	77.5	22.4
Benzo(a)pyrene	571	16.3	54.4	2840	5110	1870	1900	105	58700	3760	15	15	44.4	24.4
Benzo(b)fluoranthene	752	32.8	83.5	4520	8880	3210	2700	258	88100	5310	15	23.6	76	36
Benzo(k)fluoranthene	325	14	25.6	1730	3290	1140	845	106	28900	2060	14	14	26.4	14
Benzo(g,h,i)perylene	524	24	47.4	2240	4190	1280	1770	102	42700	2590	24	24	24	24
Chrysene	641	22.9	70.3	2640	5440	2240	1570	312	58900	3220	10	41.3	101	23.3
Dibenzo(a,h)anthracene	116	0.023	0.023	609	1100	300	439	26.4	10200	648	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	507	19	45.3	2790	4760	1630	2140	81.9	50600	2910	0.018	0.018	33.4	0.018
Fluoranthene	1500	48.3	207	6830	14300	4620	2710	389	197000	3670	0.017	107	240	28.2
Fluorene	77.8	10	19.5	358	850	10	103	10	7450	123	10	10	10	10
Naphthalene	358	15.9	87.1	689	1110	537	252	39.7	11900	498	9	9	9	9
Phenanthrene	945	45.9	186	2730	8150	1940	809	357	101000	1470	15	15	67.6	15
Pyrene	1.12	0.0356	0.15	5.04	10.7	3.56	2.43	0.258	133	3.69	0.015	0.089	0.171	0.0262
PAH, Total Detected USEPA 16	8.47	0.26	1.1	37.9	78.2	25.8	20	2.3	875	33.5	0.118	0.3	0.837	0.161
Naphthalene-d8 % recovery**	91.1	99.5	90.2	92.8	90.1	89.5	77.9	87.9	97.1	93.7	86.9	87.2	87.6	95.5
Acenaphthene-d10 % recovery**	90.5	98.3	88.5	91.8	90.9	87.3	90.4	92.2	91.8	90.5	88.4	90.7	92.9	96.1
Phenanthrene-d10 % recovery**	88.5	103	85.2	89.9	86.5	88.9	95.3	92.6	90.2	90.1	86.4	91	94.4	97
Chrysene-d12 % recovery**	87.1	81	80.2	87.3	74.6	85.5	76.8	86.3	85.6	87	84.4	84.8	90.8	93.1
Perylene-d12 % recovery**	80.9	75.9	78.4	84.1	73.7	75.6	71.5	76.7	96.4	90.9	83.1	76.6	83.1	91.5
Total Aliphatics >C12-C44	51.9	0.1	8.95	93.2	177	38.9	58.2	2.4	72.1	128	3.73	1.8	4.63	0.1
Total Aromatics >EC12-EC44	52.6	0.1	15.2	193	160	34.9	152	17.4	1130	206	15.5	1.54	26.9	7.37
Total Aliphatics & Aromatics >C5-C44	105	0.1	24.2	286	337	73.9	210	19.8	1200	333	19.3	3.33	31.8	7.37
Metals - (Solid)														
Iron	54200	17100	23800	61800	162000	209000	46100	214000	113000	245000	32400	34400	36600	45300
Manganese	6440	541	1150	8440	25600	10100	8760	26300	10700	19800	195	501	792	1220
Metals - (Liquid)														
Calcium	90900	-	52000	78300	-	59600	148000	-	-	135000	-	-	-	-
Magnesium	16400	-	13800	10400	-	7650	47900	-	-	10200	-	-	-	-
Phenols														
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0116	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.194	0.01	0.0113	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.0363	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.23	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics														
Soluble Sulphate 2:1 extract as SO4 BRE	0.0393	-	0.182	0.134	-	0.0526	0.144	-	-	0.239	-	-	-	-
pH	11	8.25	8.38	7.97	10.8	9.93	7.87	12.5	8.79	11	7.62	8.25	7.87	7.96
Sulphate, Total														
Sulphur, Total	0.108	-	0.0983	0.163	-	0.207	0.105	-	-	0.401	-	-	-	-
Sulphate, Total potential	0.324	-	0.295	0.489	-	0.621	0.315	-	-	1.2	-	-	-	-
Sulphate, acid soluble (total)	0.253	-	0.104	0.155	-	0.152	0.163	-	-	0.759	-	-	-	-
Cyanide, Total	1	1	1	4.05	1	2	142	1	1.98	2.01	1	1	1.18	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	375	265	234	226
Asbestos														
Asbestos Quantification - Gravimetric - %	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-
Date of Analysis	06/11/2018	-	06/11/2018	05/11/2018	-	05/11/2018	05/11/2018	-	-	05/11/2018	-	-	-	-
Analysed By	James Richards	-	James Richards	Lucy Caroe	-	Andrzej Ferfecki	Christian Hallam	-	-	Lucy Caroe	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	None	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	N/C	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-
Comments	-	-	-	Fibre bundles in soil	-	0	0	-	-	0	-	-	-	-
Volatile Organic Compounds (VOCs)														
Dibromofluoromethane**	105	108	116	97.9	101	108	102	80	103	106	112	107	108	107
Toluene-d8**	96	98	98.3	89.4	89.6	96.5	95.2	99.9	96.2	94.4	101	99.5	97.8	99.8
4-Bromofluorobenzene**	81.6	103	89.5	73.1	70.4	76.8	87.7	95	85.1	84.9	92.7	94.9	91.4	92.7
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.18	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.14	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.08	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.469	0.309	0.13	0.13	0.214	0.151	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics														
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CC1	3CC1	3CC3	3CC3	3CC3	3CC4	3CC4	3CC5	3CC5	3CC1V	3CC3V	3CC4V
Depth	0.5	1	0.5	1	1.5	0.7	1.4	0.5	1	1.451.45	2.2	2.4
Sampled Date	23/10/2018	23/10/2018	19/10/2018	19/10/2018	19/10/2018	19/10/2018	19/10/2018	18/10/2018	18/10/2018	23/10/2018	19/10/2018	19/10/2018
Carbon												
Soil Organic Matter (SOM)	0.391	2.28	61.9	4.45	0.36	9.26	0.828	19.7	7.84	2.31	1.32	1.01
Metals (Solids)												
Arsenic	6.61	8.01	12.4	20.7	7.04	14.7	6	19.3	9.45	9.11	10.6	9.1
Cadmium	0.893	0.02	1.59	0.919	0.2	1.16	1.25	10.1	1.9	0.02	0.02	0.02
Chromium	34.5	99.6	195	192	465	32	516	115	204	27.6	34.7	22.4
Copper	14.3	10.2	30.4	188	42.5	42.4	15.3	44.9	69	17.8	17.5	7.35
Lead	44.4	13.7	182	70	7	369	34.6	1320	190	18.8	21	23.5
Mercury	1.4	0.14	1.4	1.4	1.4	0.14	1.4	1.4	1.4	0.14	0.14	0.14
Nickel	29.3	16.3	36	137	32.5	27.5	10.7	40.2	59.9	31.8	36.8	25
Selenium	10	3.26	10	10	15.3	1.82	14.6	10	10	1	1	1
Vanadium	67.4	259	155	344	460	64.7	693	195	399	46.7	53.6	41.1
Zinc	153	82.5	812	190	29.2	2870	89.1	5610	749	101	104	114
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aliphatics >C12-C16	5.68	2.96	3.7	0.305	0.1	0.1	3.96	2.83	2.82	0.1	0.1	0.1
Aliphatics >C16-C21	24.6	9.5	24.2	1.07	0.1	1.53	10.5	11.7	12.1	0.1	0.1	0.1
Aliphatics >C21-C35	93.4	35.4	88.6	6.77	59.6	23.3	52.9	53.1	87.3	0.1	0.1	0.1
Aliphatics >C35-C44	33.2	12.6	33.9	1.78	50.3	5.73	11.1	11.8	35.4	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC12-EC16	3.23	3.1	29.5	1.5	0.1	0.15	1.14	3.92	1.73	0.1	0.1	0.1
Aromatics >EC16-EC21	15.4	14.4	371	14.8	0.637	2.33	13.8	37.4	14.2	0.1	0.1	0.1
Aromatics >EC21-EC35	59	37.2	1010	51.7	15.4	24.2	136	111	106	3.05	1.89	3.64
Aromatics >EC35-EC44	27.7	12.5	263	15.1	9.4	4.11	45.2	26.5	44.6	0.1	0.1	0.1
Aromatics >EC40-EC44	9.72	4.21	66.2	6.83	3.47	0.1	16.3	7.91	17.4	0.1	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	226	208	10300	334	12	68.7	12	535	194	12	12	17.9
Acenaphthene	42.4	44.6	342	13.8	8	8	139	27.9	95.8	8	8	8
Anthracene	454	425	12700	330	16	42	152	531	375	16	16	16
Benz(a)anthracene	872	806	43600	1350	136	271	2740	2120	2680	14	27.8	111
Benzo(a)pyrene	727	649	36800	1430	76.3	237	4710	1790	3510	15	22	120
Benzo(b)fluoranthene	860	956	64100	2360	955	444	4710	2360	4650	15	33.4	167
Benzo(k)fluoranthene	413	302	21800	797	333	115	2030	1010	1940	14	14	81.7
Benzo(g,h,i)perylene	612	554	29900	1110	560	239	3640	1300	2480	24	24	84
Chrysene	795	744	42300	1120	586	223	2900	1480	3010	10	22.9	123
Dibenzo(a,h)anthracene	137	124	6970	243	110	40.1	643	334	374	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	645	531	33100	1600	250	232	3810	1180	2300	0.018	0.018	65.4
Fluoranthene	2140	2130	99000	3070	287	398	2700	4370	3650	0.017	35.7	186
Fluorene	193	206	4060	106	10	10	52.9	238	101	10	10	10
Naphthalene	671	655	3050	206	24.9	77.7	48.3	387	162	9	9	9
Phenanthrene	1690	1780	32900	982	81.1	164	732	1800	1170	15	15	33.3
Pyrene	1.52	1.5	72.8	2.35	0.21	0.297	2.97	3.23	3.34	0.015	0.0298	0.146
PAH, Total Detected USEPA 16	12	11.6	514	17.4	3.61	2.85	32	22.7	30	0.118	0.172	1.13
Naphthalene-d8 % recovery**	94.7	93.2	87.6	91	82.6	87.3	74.5	94.4	91.3	89.2	82.4	80.7
Acenaphthene-d10 % recovery**	94.5	93.2	98	89.9	83.4	93.3	82.4	93.6	92.2	89	93.6	82.2
Phenanthrene-d10 % recovery**	93.3	92.8	91.7	88.2	82.2	93.1	81.2	94.1	93.3	87.8	97.7	84.9
Chrysene-d12 % recovery**	91.9	91.9	78	85.1	83	91.5	70.5	87.2	87.6	85.9	80.3	84
Perylene-d12 % recovery**	87.5	88.2	81.1	89.2	78	81.6	77.8	75.6	89	76.6	74.8	80.6
Total Aliphatics >C12-C44	157	60.5	150	9.92	110	30.5	78.4	79.5	137	0.1	0.1	0.1
Total Aromatics >EC12-EC44	105	67.2	1680	83.1	25.5	30.8	196	179	167	3.05	1.89	3.64
Total Aliphatics & Aromatics >C5-C44	262	128	1830	93	135	61.3	275	259	305	3.05	1.89	3.64
Metals - (Solid)												
Iron	60400	54900	113000	424000	190000	87800	120000	175000	252000	27700	22600	31500
Manganese	3460	6260	13200	19400	28700	3320	58200	10700	17900	710	405	1060
Metals - (Liquid)												
Calcium	89800	-	-	86600	-	-	245000	-	132000	-	-	-
Magnesium	8920	-	-	4950	-	-	11400	-	8300	-	-	-
Phenols												
Phenol	0.01	0.01	0.0122	0.0327	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.0122	0.0436	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.0762	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	0.149	-	-	0.0927	-	-	0.201	-	0.294	-	-	-
pH	8.87	9.42	8.06	11.8	8.03	7.84	11.7	8.4	11.3	7.38	7.82	8.6
Sulphate, Total												
Sulphur, Total	0.0703	-	-	0.161	-	-	0.24	-	0.298	-	-	-
Sulphate, Total potential	0.211	-	-	0.483	-	-	0.72	-	0.894	-	-	-
Sulphate, acid soluble (total)	0.265	-	-	0.263	-	-	0.662	-	0.932	-	-	-
Cyanide, Total	1	1	3.74	4.86	1	5.33	1	8.51	18.7	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	205	213	47.9
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	06/11/2018	-	-	05/11/2018	-	-	05/11/2018	-	05/11/2018	-	-	-
Analysed By	Lucy Caroe	-	-	Barbara Urbanek-Walsh	-	-	James Richards	-	Lucy Caroe	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-
Fibrous Tremolite	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-
Fibrous Actinolite	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-
Comments	-	-	-	0	-	-	0	-	0	-	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	113	111	95.4	103	109	115	112	93	109	120	102	107
Toluene-d8**	98.1	98.6	85.9	99	98.4	96.8	102	91.8	95.9	101	96.1	99.9
4-Bromofluorobenzene**	85.2	86.8	70.1	91.7	97.8	87.2	102	75.9	91.6	94.7	76.4	97.1
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.446	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CD1	3CD1	3CD1	3CD3	3CD3	3CD4	3CD4	3CD5	3CD5	3CD1V	3CD3V	3CD4V	3CD5V
Depth	0.3	0.7	1.2	0.8	1.5	0.5	1	0.8	1.6	1.65	1.9	2.5	2.6
Sampled Date	23/10/2018	23/10/2018	23/10/2018	19/10/2018	19/10/2018	19/10/2018	19/10/2018	18/10/2018	18/10/2018	23/10/2018	19/10/2018	19/10/2018	18/10/2018
Carbon													
Soil Organic Matter (SOM)	2.72	3.91	0.35	0.35	5.57	4.9	3	12.6	2.88	1.52	1.57	6.6	2.05
Metals (Solids)													
Arsenic	24.5	13.1	9.34	21.5	8.76	11.9	5.3	9.01	12.9	11.3	11.6	14.4	10.6
Cadmium	0.796	0.02	0.456	0.2	0.02	0.02	0.02	0.192	0.02	0.02	0.02	0.224	0.02
Chromium	12.9	0.9	20.6	91.7	145	31.9	352	45	318	31.3	32.8	31.4	38.8
Copper	13	23.4	11.4	35.6	8.58	20.7	6.4	23	8.21	20.4	12.7	20.9	17.6
Lead	53.5	21.3	15.5	13.2	8.27	35.6	13.9	84.5	21.5	21.8	20.8	43.7	30.6
Mercury	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	14.1	36.9	28	14.1	7.17	32.3	3.97	19.7	5.25	36	33.1	28.8	30.2
Selenium	1	1	1	10	4.72	1	7.89	1.45	8.45	1	1	1	1
Vanadium	30.1	25.5	35	163	192	53.5	318	67.7	307	49	54.6	51	60.3
Zinc	206	320	53.5	144	108	144	82.9	300	66	103	96.9	139	126
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.02	0.02	0.02	0.0407	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.14	0.043	0.0219	0.0217	0.02	0.02	0.02	0.02	0.02	0.0224
Aliphatics >C8-C10	0.02	0.02	0.02	0.162	0.0368	0.02	0.0206	0.02	0.02	0.02	0.02	0.02	0.0251
Aliphatics >C10-C12	0.02	0.02	0.02	0.176	0.0808	0.02	0.0733	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	1.49	0.1	0.1	5.24	22.2	0.1	5.18	1.07	16.7	0.1	0.1	0.167	0.1
Aliphatics >C16-C21	5.78	2.97	0.1	14.1	16.5	0.1	9.21	7	19.3	0.1	0.688	0.604	0.1
Aliphatics >C21-C35	33.7	8.1	0.1	98.4	77.2	4.95	142	24.7	86.5	0.1	0.901	3.77	0.1
Aliphatics >C35-C44	12.9	2.46	0.1	119	90.4	0.1	201	10.6	180	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.108	0.0246	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.117	0.0542	0.02	0.0485	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	2.45	0.1	0.1	2.6	6.73	0.1	2.48	2.64	5.31	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	9.67	1.33	0.1	17	16.7	0.1	18.7	30.9	21	0.1	0.1	0.1	0.1
Aromatics >EC21-EC35	33.5	5.53	0.1	120	102	8.55	173	122	131	0.1	1.7	12	3.72
Aromatics >EC35-EC44	13.2	1.39	0.1	110	91.3	1.38	172	43.8	219	0.1	0.1	1.63	4.04
Aromatics >EC40-EC44	4.75	0.1	0.1	47.1	38.3	0.1	77.1	14.8	109	0.1	0.1	0.1	1.92
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	102	12	12	60	66	12	60	4020	60	12	12	12	12
Acenaphthene	21.9	8	8	89.9	131	8	80.9	101	40	8	8	8	8
Anthracene	213	23.4	16	181	288	16	265	2830	142	16	16	16	16
Benz(a)anthracene	429	48.7	14	2220	2620	21.2	2110	14800	2570	14	20.5	125	48.3
Benzo(a)pyrene	363	41.7	15	3090	2920	19.4	2050	14700	1810	15	20.1	61.7	36.6
Benzo(b)fluoranthene	453	77.9	15	3270	5000	27.9	3190	18900	3870	15	22.2	111	55.3
Benzo(k)fluoranthene	182	24.4	14	1700	1870	14	1190	6950	1590	14	14	33.5	20.7
Benzo(g,h,i)perylene	312	32.9	24	2700	2420	24	1380	10500	1690	24	24	49.8	24
Chrysene	398	49.2	10	2500	3450	23	2190	12200	3080	10	24.1	175	51.2
Dibenzo(a,h)anthracene	63.2	0.023	0.023	421	386	0.023	315	2690	293	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	295	50.7	0.018	2570	2260	0.018	1090	9990	1270	0.018	0.018	42.9	0.018
Fluoranthene	1100	125	0.017	2990	3630	34.1	3240	27800	2680	0.017	53.7	266	102
Fluorene	89.5	10	10	50	50	10	50	590	50	10	10	10	10
Naphthalene	354	37.6	9	192	625	9	201	1330	45	9	9	50.2	9
Phenanthrene	823	99	15	934	1620	15	1290	5310	914	15	21.1	94.5	42.2
Pyrene	0.79	0.0793	0.015	3.37	3.75	0.0289	3.73	21.7	3.87	0.015	0.0435	0.211	0.087
PAH, Total Detected USEPA 16	5.99	0.69	0.118	26.2	31	0.155	22.3	154	23.8	0.118	0.205	1.22	0.443
Naphthalene-d8 % recovery**	90.2	82.7	94.2	88.5	89.6	82.6	84.4	104	85.8	85.1	87.1	84.6	90.2
Acenaphthene-d10 % recovery**	88.8	81.4	92.6	88.7	95.1	83.5	83.6	103	89.7	89.6	88.6	91.7	93.4
Phenanthrene-d10 % recovery**	87.2	88.9	89.6	88	95.4	91.4	84.6	102	87.9	97.2	90.3	92.9	95.7
Chrysene-d12 % recovery**	84.1	72.1	86.5	83.7	103	94.7	87.9	92.4	91.9	105	85.9	87	86.3
Perylene-d12 % recovery**	79.4	71.7	85.4	79.9	90.6	85.1	78.3	92.9	87	101	90.9	77.7	79.1
Total Aliphatics >C12-C44	53.9	13.5	0.1	237	206	4.95	357	43.3	303	0.1	1.59	4.54	0.1
Total Aromatics >EC12-EC44	58.9	8.25	0.1	249	217	9.93	366	200	376	0.1	1.7	13.6	7.76
Total Aliphatics & Aromatics >C5-C44	113	21.8	0.1	487	423	14.9	723	243	679	0.1	3.29	18.1	7.76
Metals - (Solid)													
Iron	30000	63700	20700	277000	118000	31300	126000	51100	106000	29500	32600	22700	38300
Manganese	2260	2340	1260	20500	20200	668	20500	3250	26000	376	1300	297	1200
Metals - (Liquid)													
Calcium	118000	-	18700	91800	-	9350	-	83400	-	-	-	-	-
Magnesium	36500	-	11900	7500	-	9760	-	17900	-	-	-	-	-
Phenols													
Phenol	0.01	0.01	0.01	0.129	0.0102	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.107	0.0102	0.0129	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.075	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.311	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	0.106	-	0.0225	0.0968	-	0.0515	-	0.114	-	-	-	-	-
pH	9.07	7.89	8.33	7.98	12.4	8.38	11.5	8.41	12	7.17	8.44	7.96	8.32
Sulphate, Total													
Sulphur, Total	0.261	-	0.02	0.0831	-	0.0403	-	0.219	-	-	-	-	-
Sulphate, Total potential	0.783	-	0.06	0.249	-	0.121	-	0.657	-	-	-	-	-
Sulphate, acid soluble (total)	0.417	-	0.02	0.445	-	0.0282	-	0.119	-	-	-	-	-
Cyanide, Total	1	1	1	1.99	1.98	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	24.5	12	12	12	12	15.1	12	95.5	111	124	185
Asbestos													
Asbestos Quantification - Gravimetric - %	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	06/11/2018	-	06/11/2018	05/11/2018	-	05/11/2018	-	05/11/2018	-	-	-	-	-
Analysed By	Barbara Urbanek-Walsh	-	James Richards	Marcin Magdziarek	-	Lucy Caroe	-	Christian Hallam	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	None	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	N/A	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Comments	Loose fibres in soil.	-	-	0	-	0	-	0	-	-	-	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	129	114	146	103	112	111	109	103	125	115	105	118	113
Toluene-d8**	98.8	99.9	100	94.2	95.7	100	93.5	96.2	93.8	99.6	99.3	99.6	99.8
4-Bromofluorobenzene**	89	90.7	97.8	81.9	83.4	95	86.8	82.6	79.6	92.9	96.9	102	99.8
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.009	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.007	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.004	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.013	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.04	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CE1	3CE1	3CE3	3CE3	3CE4	3CE4	3CE5	3CE5	3CE5	3CF1	3CF1	3CF3	3CF3
Depth	0.4	1	0.5	1	0.5	1	0.5	1.5	2	0.3	1	0.5	1
Sampled Date	23/10/2018	23/10/2018	19/10/2018	19/10/2018	19/10/2018	19/10/2018	18/10/2018	18/10/2018	18/10/2018	23/10/2018	23/10/2018	22/10/2018	22/10/2018
Carbon													
Soil Organic Matter (SOM)	3.15	4.52	9	0.688	2.91	3.05	3.57	0.984	0.35	0.35	1.79	13.3	26.4
Metals (Solids)													
Arsenic	7.53	10.9	7.93	8.19	12	5.1	10.4	6	6	6	24.1	15.8	13.6
Cadmium	0.256	1.05	0.02	0.583	0.565	0.02	0.02	0.5	1.06	1.04	0.02	6.44	4.95
Chromium	27.9	35.4	265	531	35.4	381	58.1	636	623	86	4.81	217	110
Copper	14.4	18.8	15.1	36.3	22.7	14	17	14	26.9	19.2	17.5	44.5	83.7
Lead	33.3	65.3	22.6	13.9	47.3	31.2	27	17.8	16.3	37	63.7	737	518
Mercury	0.14	1.4	0.14	1.4	0.14	0.14	0.14	1.4	1.4	1.4	0.14	1.4	1.4
Nickel	20.7	34.1	15	25.4	30.5	8.93	20.7	11.3	27.2	33.9	44.3	35.5	31.8
Selenium	1.03	10	5.08	11.8	1	13.6	1.45	10.8	10	10	1	10	10
Vanadium	71.1	85	262	629	49.7	741	105	940	1180	82.5	19.9	284	141
Zinc	147	149	106	190	149	102	113	190	45.4	128	195	3440	2600
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.02	0.02	0.0214	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aliphatics >C6-C8	0.02	0.02	0.0655	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aliphatics >C8-C10	0.02	0.02	0.0567	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aliphatics >C10-C12	0.02	0.02	0.0353	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aliphatics >C12-C16	3.36	1.94	1.89	0.1	0.1	2.63	0.1	0.1	0.1	1.22	0.1	1.52	0.1
Aliphatics >C16-C21	12	6.47	21.4	0.1	0.1	9.69	1.35	0.1	0.1	3.89	2.82	8.74	6.85
Aliphatics >C21-C35	70.9	36.3	39.1	0.1	3.53	76.3	16.5	0.1	2.42	17.7	12.3	44.6	37
Aliphatics >C35-C44	26.2	13.1	8.97	0.1	0.1	25.3	8.17	0.1	0.1	5.63	5.46	7.66	3.24
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aromatics >EC8-EC10	0.02	0.02	0.0378	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aromatics >EC10-EC12	0.02	0.02	0.0239	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Aromatics >EC12-EC16	4.89	2.57	4.17	0.1	0.1	2.03	0.1	0.1	0.1	1.27	0.1	4.09	4.2
Aromatics >EC16-EC21	23.6	10.8	24.1	0.1	1.63	21.9	1.33	1.75	0.1	5.76	0.9	36	34.9
Aromatics >EC21-EC35	74	37.4	81.4	0.1	14.8	127	29.3	12.5	1.44	17.8	5.41	124	123
Aromatics >EC35-EC44	28.1	15.2	27.4	0.1	5.06	51.8	19	6.23	0.1	4.69	2.02	32.6	33.4
Aromatics >EC40-EC44	9.88	5.39	9.53	0.1	1.88	19.5	7.78	2.67	0.1	1.32	0.1	11.1	11.8
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	301	175	184	12	12	12	14.4	12	16.2	86.9	12	613	761
Acenaphthene	59.6	28.4	77.6	8	8	82.1	24.6	8.74	8	16.4	8	37.4	31.8
Anthracene	685	326	550	16	16	206	44.3	17.3	39	222	16	754	1010
Benz(a)anthracene	1610	586	949	55.6	53.9	1900	327	221	293	399	21.3	2670	3690
Benzo(a)pyrene	1340	504	817	28.3	53	2100	493	245	235	317	15	2420	3380
Benzo(b)fluoranthene	2070	602	1290	125	97.4	3880	572	490	347	306	24.6	3760	5560
Benzo(k)fluoranthene	729	303	479	41.4	36.4	1520	208	171	107	171	14	1190	2090
Benzo(g,h,i)perylene	910	424	572	94.9	47.2	1710	360	368	167	250	24	1810	2460
Chrysene	1510	565	1100	143	64.6	2580	349	340	401	360	23	2820	4000
Dibenzo(a,h)anthracene	246	87	119	0.023	0.023	342	85.9	75	27.5	62.3	0.023	374	550
Indeno(1,2,3-cd)pyrene	1220	426	600	27.4	35	1360	402	206	159	258	0.018	2050	2650
Fluoranthene	3490	1570	1780	93.5	88.1	3990	450	375	653	1070	46	5130	7470
Fluorene	297	138	204	10	10	29	16	10	10	78	10	172	274
Naphthalene	878	487	568	9	9	79.6	30	27.3	49.3	305	22.8	432	608
Phenanthrene	2410	1110	1430	36.9	31.6	2020	184	241	194	770	40.8	1790	2920
Pyrene	2.54	1.12	1.4	0.0762	0.0709	3.3	0.448	0.299	0.514	0.743	0.0349	3.95	5.67
PAH, Total Detected USEPA 16	20.3	8.44	12.1	0.722	0.578	25.1	4.01	3.08	3.2	5.42	0.213	30	43.2
Naphthalene-d8 % recovery**	85.9	89.1	80.1	83	79.5	80.4	79.6	79.2	80.7	93.1	101	80	88.8
Acenaphthene-d10 % recovery**	92.6	90.9	88.9	86.7	80.3	80.7	91.7	84.9	88.2	91.5	84	88.2	92.8
Phenanthrene-d10 % recovery**	96.8	89.8	94.1	88.4	83	89.5	96.7	87.8	90.1	86.9	88.9	89.7	94.1
Chrysene-d12 % recovery**	104	85	88.7	82.3	78.5	92.3	78.5	78	81.2	81.2	83.1	78.5	86.2
Perylene-d12 % recovery**	91.4	79.2	76.4	84.4	76.1	85.4	71	77.9	70	76.6	81.5	70.2	76.7
Total Aliphatics >C12-C44	113	57.8	71.4	0.1	3.53	114	26	0.1	2.42	28.4	20.5	62.5	47.1
Total Aromatics >EC12-EC44	131	66	137	0.1	21.5	202	49.6	20.5	1.44	29.5	8.33	197	196
Total Aliphatics & Aromatics >C5-C44	243	124	209	0.1	25.1	316	75.6	20.5	3.86	58	28.9	259	243
Metals - (Solid)													
Iron	56900	74900	75100	177000	24700	126000	39100	136000	175000	108000	41400	202000	223000
Manganese	3740	3920	24000	35700	1380	47200	3020	37700	37200	7190	947	17700	20000
Metals - (Liquid)													
Calcium	-	44600	-	225000	37000	-	-	247000	255000	42300	-	101000	-
Magnesium	-	7470	-	9530	14500	-	-	7750	800	8220	-	12900	-
Phenols													
Phenol	0.01	0.01	0.0252	0.01	0.01	0.044	0.01	0.0211	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.0504	0.01	0.01	0.01	0.0112	0.0211	0.01	0.01	0.01	0.01	0.0115
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.0756	0.035	0.035	0.044	0.035	0.0423	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.0879	-	0.151	0.0368	-	-	0.0438	0.289	0.0267	-	0.117	-
pH	10.9	9.64	8.37	12.1	8.63	12.8	8.12	12.2	10.9	9.06	8.51	7.86	8.36
Sulphate, Total													
Sulphur, Total	-	0.101	-	0.462	0.0826	-	-	0.2	0.302	0.0707	-	0.184	-
Sulphate, Total potential	-	0.303	-	1.39	0.248	-	-	0.6	0.906	0.212	-	0.552	-
Sulphate, acid soluble (total)	-	0.205	-	0.863	0.0677	-	-	0.314	0.495	0.108	-	0.117	-
Cyanide, Total	1	1	1	1	1	4.03	1	1	1	1	1	10.5	9.68
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12	12	12
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-
Date of Analysis	-	06/11/2018	-	05/11/2018	05/11/2018	-	-	05/11/2018	05/11/2018	06/11/2018	-	05/11/2018	-
Analysed By	-	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	Christian Hallam	-	-	Lucy Caroe	Marcin Magdziarek	Renata Bozhkov	-	Lucy Caroe	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	None	-	-	-	-	None	-	-	-	-
Analysts Comments	-	-	-	N/C	-	-	-	-	N/C	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	0.001	-	-	-	-	0.001	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Detected	Not Detected	-	-	Not Detected	Detected	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Fibrous Tremolite	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Fibrous Actinolite	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-
Comments	-	-	-	Loose fibres in soil.	0	-	-	0	Soil containing ACM debris	-	-	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	112	109	103	113	107	116	105	99.2	107	126	108	119	107
Toluene-d8**	97.9	96.6	96.9	99.9	95.6	101	99.1	97.2	99.6	98.3	99.5	101	95.8
4-Bromofluorobenzene**	82.5	82.5	79.9	98.8	80.5	98.8	90	92.9	94.3	84.7	90.6	87.5	74.4
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.147	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.224	0.16	0.173	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.174
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3CF3	3CF4	3CF4	3CF4	3CF5	3CF5	3CF5	3CF1V	3CF3V	3CF4V	3CF5V	3CG1	3CG1	3CG3	3CG3	3CG3	3CG4
Depth	2	0.5	1.1	1.5	0.5	1	2	1.75	2.8	2.7	3.4	0.5	1	0.5	1	1.5	0.5
Sampled Date	22/10/2018	22/10/2018	22/10/2018	22/10/2018	18/10/2018	18/10/2018	18/10/2018	23/10/2018	22/10/2018	22/10/2018	18/10/2018	22/10/2018	22/10/2018	22/10/2018	22/10/2018	22/10/2018	18/10/2018
Carbon																	
Soil Organic Matter (SOM)	0.49	2.95	42.6	8.91	5.02	4.57	11.3	1.01	2.02	6.33	1.09	5.45	1.21	10.5	19.5	24.8	2.69
Metals (Solids)																	
Arsenic	9.29	15.4	8.21	11.1	7.96	7.96	6	9.06	13.2	13.6	13.5	9.3	10.6	11.1	6	8.52	12.7
Cadmium	0.2	0.02	0.02	0.2	0.902	0.89	0.2	0.02	0.02	0.096	0.02	1.22	0.0723	1.25	0.2	0.2	0.201
Chromium	619	29.1	110	459	39.3	592	430	21.6	59.8	44	34.6	83.2	24.4	122	444	300	28.7
Copper	29.7	11.2	13.4	36.3	24.2	28.8	28.3	8.96	21.4	23.8	9.84	23.8	19.9	24.6	14	16.6	15.4
Lead	46.2	19.1	22	16.8	50.3	36	39.8	14.2	27.5	36.8	21.3	74.9	47.9	162	20.1	59.5	49.4
Mercury	1.4	0.14	0.14	1.4	0.14	1.4	1.4	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	1.4	0.14
Nickel	20.6	31.7	22.9	27.7	18.4	26.5	31.8	26.6	35.1	26.5	33.7	25.9	33.5	18.4	14.3	16.9	31.6
Selenium	22	1	2.75	15.9	1.18	10	17.6	1	1	1	1	10	1.01	4.67	11.7	10	1
Vanadium	830	55.5	106	654	45.8	970	880	38.3	91.9	65.5	60.4	141	39.5	211	305	248	50.8
Zinc	395	107	78	65.8	181	190	118	81.6	132	124	86.3	236	131	689	102	311	153
TPH Criteria Working Group (TPH CWG)																	
Benzene																	
Toluene																	
Ethylbenzene																	
sum of detected mpo xylene by GC																	
Aliphatics >C5-C6	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.0684	0.02
Aliphatics >C6-C8	0.02	0.01	0.0454	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.194	0.02
Aliphatics >C8-C10	0.02	0.01	0.0216	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.147	0.02
Aliphatics >C10-C12	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.174	0.02
Aliphatics >C12-C16	0.1	0.1	4.77	3.06	0.1	5.15	4.79	0.1	0.1	0.1	0.1	2.3	0.525	2.19	5.28	6.98	0.1
Aliphatics >C16-C21	0.1	0.563	16.7	15.1	0.1	10.1	13.2	0.1	0.1	0.1	0.1	7.65	1.18	11.4	19.6	29.4	0.1
Aliphatics >C21-C35	5.07	1.75	90.8	56.3	30.7	50.7	57.2	0.1	0.288	4.13	0.1	43.4	1.83	27.9	82.5	114	2.53
Aliphatics >C35-C44	0.1	0.1	13.1	8.84	17.9	11.7	14.2	0.1	0.1	0.1	0.1	14.3	0.1	5.8	11.3	16.8	0.646
Aromatics >EC5-EC7	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.0456	0.02
Aromatics >EC7-EC8	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.0661	0.02
Aromatics >EC8-EC10	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.098	0.02
Aromatics >EC10-EC12	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.116	0.02
Aromatics >EC12-EC16	0.1	0.1	2.26	2.5	0.1	2.84	5.53	0.1	0.1	0.1	0.1	4.03	0.1	3.54	5.34	6.91	0.1
Aromatics >EC16-EC21	0.426	0.1	12.2	16.5	2.78	33	74.4	0.1	0.1	1.29	0.1	18.2	0.1	18.8	22.7	36.3	0.1
Aromatics >EC21-EC35	9.2	12	46.5	53.3	47	148	167	0.1	2.29	24.1	3.28	59.3	0.121	63.7	73.4	93.7	3.7
Aromatics >EC35-EC44	3.06	0.982	4.48	17.5	47.9	53.6	56.2	0.1	0.248	1.98	0.1	26.4	0.1	14.3	18.3	29.6	0.1
Aromatics >EC40-EC44	3.52	0.1	0.1	6.32	21.1	20.1	20.7	0.1	0.1	0.1	0.1	10.9	0.1	3.71	5.14	12.3	2.5
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	91.5	12	206	60	60	100	411	12	12	12	12	2600	81.8	148	450	1400	12
Acenaphthene	10.4	8	28.2	44.4	40	107	163	8	8	8	8	392	8	38.4	31.3	51	8
Anthracene	158	16	287	300	80	329	2410	16	16	16	16	5190	349	221	878	1890	16
Benz(a)anthracene	336	14	955	2750	192	3560	8610	14	33.7	75.4	18.6	8370	325	858	3030	4510	25.2
Benzo(a)pyrene	306	15	841	3170	134	4420	6520	15	43.8	69.6	19.7	6180	248	669	2400	3510	22.6
Benzo(b)fluoranthene	669	15	1470	3410	208	6680	11100	15	99.6	111	26.4	9970	445	1190	4210	6060	29.6
Benzo(k)fluoranthene	223	14	551	1390	70	2870	5930	14	42.7	41	14	3660	146	416	1610	2090	14
Benzo(g,h,i)perylene	293	24	604	2690	120	3660	4760	24	50.3	55.5	24	3810	174	475	1770	2250	24
Chrysene	426	10	1100	3000	239	4050	8940	10	55.9	93.6	20.2	8490	393	885	2680	4730	26.8
Dibenzo(a,h)anthracene	70.4	0.023	161	526	0.115	872	1220	0.023	0.023	0.023	0.023	765	41.8	100	504	587	0.023
Indeno(1,2,3-cd)pyrene	234	0.018	490	2560	90	4420	5650	0.018	61.5	63.1	0.018	3400	277	502	2120	1970	0.018
Fluoranthene	807	22.4	1890	5760	334	6740	21600	0.017	44.2	159	30.8	21800	946	1660	6230	12900	179
Fluorene	81.4	10	83.8	50	50	61.1	107	10	10	10	10	3460	67.3	197	142	378	10
Naphthalene	91.8	9	517	219	45	231	301	9	15.5	18.8	9	4110	266	818	814	2460	9
Phenanthrene	488	15	1060	4270	75	5580	18100	15	15	83.5	15	18700	840	1060	2420	6920	63.2
Pyrene	0.542	0.0178	1.46	5.09	0.275	5.76	17.2	0.015	0.0428	0.132	0.0263	15.1	0.614	1.29	4.66	9.2	0.129
PAH, Total Detected USEPA 16	4.83	0.118	11.7	35.2	1.38	49.4	113	0.118	0.49	0.903	0.142	116	5.21	10.5	33.9	60.9	0.475
Naphthalene-d8 % recovery**	81.3	88.9	70.8	116	89.3	88.9	82.7	86.4	81.2	83.2	84.9	96	91.8	91.2	92.1	77.4	86.5
Acenaphthene-d10 % recovery**	79.6	91.4	77.2	109	93.8	90.5	87.4	91.7	84.2	86.5	86.1	101	89.7	95.5	90.1	79.7	84.5
Phenanthrene-d10 % recovery**	78.2	92.7	68.6	123	95.6	93.3	94.8	98.2	87.1	89.7	85.4	103	91.9	96.5	88.7	84.8	86.9
Chrysene-d12 % recovery**	75	99.3	58.3	126	100	87.6	98.3	109	92.2	84.6	83	112	85.9	95.7	78.6	82.6	80
Perylene-d12 % recovery**	73.6	94.4	53.1	122	83	99.1	92.8	100	91.4	82.3	80.3	90.1	84.9	84.1	74.2	73.2	81.3
Total Aliphatics >C12-C44	5.07	2.32	125	83.3	48.6	77.6	89.4	0.1	0.288	4.13	0.1	67.7	3.53	47.3	119	167	3.17
Total Aromatics >EC12-EC44	12.7	12.9	65.4	89.8	97.7	237	303	0.1	2.53	27.4	3.28	108	0.121	100	120	167	3.7
Total Aliphatics & Aromatics >C5-C44	17.8	15.3	191	173	146	315	393	0.1	2.82	31.5	3.28	176	3.66	148	238	334	6.87
Metals - (Solid)																	
Iron	205000	29600	58400	187000	21400	163000	149000	26300	51900	31800	31200	84100	45900	62000	145000	144000	23800
Manganese	48300	551	6120	35000	3170	31300	26300	1040	1810	1140	657	10600	1660	10300	19700	29900	784
Metals - (Liquid)																	
Calcium	189000	22900	-	181000	114000	191000	-	-	-	-	-	128000	-	85100	-	139000	-
Magnesium	8530	10300	-	8320	23400	9860	-	-	-	-	-	20500	-	7810	-	24900	-
Phenols																	
Phenol	0.01	0.01	0.01	0.01	0.01	0.0108	0.066	0.01	0.01	0.01	0.01	0.01	0.01	0.0351	0.01	0.01	0.01
Cresols	0.0113	0.0111	0.0108	0.01	0.01	0.01	0.022	0.01	0.01	0.01	0.01	0.0109	0.01	0.117	0.0113	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0351	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.088	0.035	0.035	0.035	0.035	0.035	0.035	0.187	0.035	0.035	0.035
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	0.0949	0.0789	-	0.0261	0.0351	0.0276	-	-	-	-	-	0.147	-	0.308	-	0.115	-
pH	12.1	8.53	9.99	12.8	8.14	12.8	13	8.42	9.07	8	8.42	10.6	8.61	8.03	10.2	12.1	8.42
Sulphate, Total																	
Sulphur, Total	0.212	0.0885	-	0.199	0.109	0.383	-	-	-	-	-	0.321	-	0.178	-	0.154	-
Sulphate, Total potential	0.636	0.266	-	0.597	0.327	1.15	-	-	-	-	-	0.963	-	0.534	-	0.462	-
Sulphate, acid soluble (total)	0.651	0.0361	-	0.488	0.0901	0.597	-	-	-	-	-	0.575	-	0.177	-	0.291	-
Cyanide, Total	1.72	1	1	1	1	1.21	2.96	1	1	1	1	1	1	2.46	1	1.34	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	23.8	195	234	154	12	12	12	12	12	12
Asbestos																	
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	05/11/2018	05/11/2018	-	05/11/2018	05/11/2018	05/11/2018	-	-	-	-	-	05/11/2018	-	05/11/2018	-	05/11/2018	-
Analysed By	Barbara Urbanek-Walsh	Lucy Caroe	-	Christian Hallam	Christian Hallam	Lucy Caroe	-	-	-	-	-	James Richards	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-
Comments	-	-	-	-	0	0	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	116	124	119	114	113	104	85.7	115	118	126	113	107	121	100	108	100	112
Toluene-d8**	102	104	91.4	103	96.5	98	95.1	99.5	103	104	99.2	96	101	95	89.8	93.9	100
4-Bromofluorobenzene**	101	91.5	74.9	85.7	91.7	96.2	87.4	94.2	91.3	88.6	98.7	83.8	95	98.3	73.8	82.2	99.3
Methyl Tertiary Butyl Ether	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Benzene	0.09	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.18	0.09	0.09	0.09
Toluene	0.07	0.07	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.14	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.26	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.426	0.13	0.355	0.13	0.586	0.13
Sum of BTEX	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.4	0.4
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CG4	3CG4	3CG5	3CG5	3CG5	3CG1V	3CG4V	3CG5V	3CH1	3CH1	3CH1	3CH2	3CH2	3CH2	3CH3	3CH1V
Depth	1	2	0.5	1	1.5	1.7	3.1	3	0.25	0.5	1	0.5	1	2	0.5	1.251.25
Sampled Date	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	22/10/2018	18/10/2018	18/10/2018	22/10/2018	22/10/2018	22/10/2018	19/10/2018	19/10/2018	19/10/2018	22/10/2018	22/10/2018
Carbon																
Soil Organic Matter (SOM)	50.3	11	2.93	20.2	7.05	0.912	1.09	4.21	3.22	1.65	3.36	8.45	90.2	5.86	3.81	3.24
Metals (Solids)																
Arsenic	6	6	6	6	6	9.98	12.6	12.5	11.1	20.4	14.1	10.4	9.64	12.9	6	13.4
Cadmium	0.67	0.2	0.2	0.2	0.808	0.02	0.204	0.363	0.02	0.252	1.01	0.0482	0.02	0.053	0.2	0.02
Chromium	166	680	537	743	760	24.3	44	41.6	49.7	11.7	10.1	26.3	14.9	28.6	678	35.1
Copper	14	17.9	14	16.5	14	12.3	11.3	20.4	17.7	15.6	17.8	31.7	37.4	41.9	14	21.5
Lead	23.1	7.14	11.8	25	13.3	21.5	34.5	34.1	20.8	38.4	31.7	30.9	69	34.1	7	21.9
Mercury	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14
Nickel	7.27	11.6	8.47	7.75	9.41	32.5	36.1	30.2	21.1	16.5	17.7	20.4	19.2	26.7	6.26	26.3
Selenium	10	18.1	11.9	22.6	13.3	1	1	1	2.25	3.21	2.45	1	1.1	2.04	14.6	1
Vanadium	194	578	364	635	865	43.3	64.5	61.8	187	53.3	30.4	52.7	45	55.7	512	58.7
Zinc	24.8	37.5	131	190	50	92.1	129	123	98.7	168	227	158	335	105	46.2	90.6
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.0451	0.02	0.0203	0.01	0.0366	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0232	0.02	0.02	0.02
Aliphatics >C6-C8	0.157	0.02	0.0857	0.0337	0.071	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.126	0.0223	0.02	0.02
Aliphatics >C8-C10	0.0748	0.02	0.0568	0.021	0.0548	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.288	0.02	0.02	0.02
Aliphatics >C10-C12	0.0693	0.02	0.0482	0.0168	0.0688	0.02	0.02	0.02	0.02	0.02	0.02	0.02	4.68	0.0211	0.02	0.02
Aliphatics >C12-C16	12.3	6.19	6.54	12.2	5.54	0.1	0.1	0.1	0.766	0.1	0.1	2.38	31.1	2.51	0.1	0.1
Aliphatics >C16-C21	23.4	13.7	10.4	53	22.6	0.1	0.767	0.254	2.79	0.1	0.1	10.5	123	48.6	1.98	0.1
Aliphatics >C21-C35	61	106	55.3	82.3	108	1.1	9.78	9.83	10.3	3.98	5.34	41.8	194	36.2	19	1.05
Aliphatics >C35-C44	11.2	56.6	4.12	16.8	46.1	0.529	4.57	10.1	3.32	0.31	0.1	13.2	53.3	6.75	0.654	0.1
Aromatics >EC5-EC7	0.0209	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0255	0.02	0.02	0.02
Aromatics >EC7-EC8	0.0418	0.02	0.0257	0.0126	0.0215	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0499	0.02	0.02	0.02
Aromatics >EC8-EC10	0.0506	0.02	0.0375	0.0147	0.0366	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.191	0.02	0.02	0.02
Aromatics >EC10-EC12	0.0462	0.02	0.0321	0.0116	0.0462	0.02	0.02	0.02	0.02	0.02	0.02	0.02	3.12	0.02	0.02	0.02
Aromatics >EC12-EC16	9.52	5.2	6.51	11.7	6.5	1.59	0.1	0.36	0.564	0.1	0.1	10.8	356	32.2	0.1	0.1
Aromatics >EC16-EC21	25.2	24.8	20.3	73.3	31.6	0.1	1.6	1.55	2.97	0.535	1.19	145	3100	343	0.1	0.1
Aromatics >EC21-EC35	66.7	107	48.1	157	112	3.24	9.84	24.5	6.78	0.1	15	371	3690	570	4.35	9.76
Aromatics >EC35-EC44	16.5	58.4	12.8	37.3	52.4	0.191	5.11	17.2	0.588	0.1	1.39	91.4	688	126	2.03	0.511
Aromatics >EC40-EC44	4.58	21.7	4.38	11.2	19.4	0.1	2.03	7.65	0.1	0.1	0.1	23.3	159	31.1	3.06	0.1
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	289	56.6	307	1560	364	12	12	12	128	12	12	364	1950	7410	43.6	12
Acenaphthene	41.2	77.4	26.5	156	162	8	8	8	24.7	8	8	46.6	227	431	8	8
Anthracene	665	179	1240	2510	414	16	16	16	235	16	16	1300	4350	12600	64.5	16
Benz(a)anthracene	1780	1480	1890	3800	1340	14	96.1	47.7	589	38	42.8	6340	8840	31300	137	14
Benzo(a)pyrene	1480	1100	1430	3650	1180	15	73.9	27.1	453	30	33.1	5150	8040	28000	119	15
Benzo(b)fluoranthene	2740	1940	2240	4290	1590	15	110	38.7	846	52	64.7	8700	10900	38000	209	15
Benzo(k)fluoranthene	991	726	919	1750	645	14	49.6	14	275	20.6	26.6	2870	4240	12500	84.2	14
Benzo(g,h,i)perylene	920	887	746	2590	828	24	56.2	24	326	33.3	35.9	3660	5640	19000	106	24
Chrysene	1720	1900	2070	3510	1220	10	106	49.4	606	39.2	46.5	6640	7730	27500	149	10
Dibenzo(a,h)anthracene	279	157	226	472	149	0.023	0.023	0.023	76.7	0.023	0.023	793	993	4300	0.023	0.023
Indeno(1,2,3-cd)pyrene	1260	874	1000	2900	847	0.018	46.6	0.018	352	27.3	31.2	3920	7060	22500	69.3	0.018
Fluoranthene	3860	4960	5210	10100	3390	39.1	179	78.1	1420	87	72.5	14400	30900	93100	353	0.017
Fluorene	429	71.5	620	1950	320	10	10	10	134	10	10	298	2970	6430	10.7	10
Naphthalene	782	292	727	1620	512	9	9	9	443	26.1	16.3	561	1320	5100	167	9
Phenanthrene	1980	7440	3510	8020	3010	15	136	67	1080	74.8	66.2	6640	22100	50800	239	15
Pyrene	2.95	3.4	3.51	7.19	2.52	0.0326	0.142	0.0656	0.981	0.0644	0.0692	10.6	22.2	66.7	0.254	0.015
PAH, Total Detected USEPA 16	22.2	25.5	25.7	56	18.5	0.118	0.997	0.374	7.97	0.493	0.505	72.2	139	426	2.01	0.118
Naphthalene-d8 % recovery**	93.1	83.5	80.4	77.8	80	75.6	91.5	90.7	82.7	85	80.6	90.1	92.4	89.4	81.1	92.1
Acenaphthene-d10 % recovery**	96.4	92.1	84.8	85.1	84.5	83.4	90.7	89.8	89.3	86.1	85.4	95.3	100	91.8	82.3	92.1
Phenanthrene-d10 % recovery**	94.4	91.3	86.2	87.6	87.1	79.5	88.4	89.2	87	87.5	88.1	96.4	96.6	94.5	83.7	88.3
Chrysene-d12 % recovery**	76.2	85.5	88.8	72.8	76	71.2	85.1	87.1	80.3	80.1	95.5	96.8	89.8	98.3	83.1	84.1
Perylene-d12 % recovery**	66.7	73.8	80.2	73.4	77.5	70.9	78.9	82.7	76.6	78.6	88.4	91.7	89.4	91.1	74.2	84.5
Total Aliphatics >C12-C44	108	182	76.3	164	182	1.63	15.1	20.2	17.2	4.29	5.34	67.9	401	94.1	21.7	1.05
Total Aromatics >EC12-EC44	118	195	87.8	279	202	5.02	16.6	43.6	10.9	0.535	17.6	619	7830	1070	6.38	10.3
Total Aliphatics & Aromatics >C5-C44	226	377	164	444	385	6.65	31.7	63.8	28.1	4.82	23	686	8240	1160	28	11.3
Metals - (Solid)																
Iron	57200	144000	152000	165000	142000	37300	25900	25200	51200	22600	27800	29600	68300	22100	165000	39800
Manganese	15600	35900	31000	40700	47200	621	791	590	4470	3790	2500	1320	1780	1210	29900	286
Metals - (Liquid)																
Calcium	111000	237000	192000	-	238000	-	-	-	-	107000	-	100000	-	18300	201000	-
Magnesium	15600	9810	38100	-	22000	-	-	-	-	18800	-	7920	-	3880	33800	-
Phenols																
Phenol	0.01	0.0107	0.0214	0.021	0.0215	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0116	0.01	0.01	0.01
Cresols	0.01	0.01	0.0107	0.0105	0.0108	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0348	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0464	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	0.0868	0.0236	0.052	-	0.0222	-	-	-	-	0.101	-	0.146	-	0.349	0.0353	-
pH	11.7	12.9	12.3	12.9	12.6	8.08	8.93	8.46	8.9	8.38	7.53	8.7	8.24	7.61	12.6	7.48
Sulphate, Total																
Sulphur, Total	0.397	0.398	0.214	-	0.191	-	-	-	-	0.365	-	0.199	-	0.127	0.126	-
Sulphate, Total potential	1.19	1.19	0.642	-	0.573	-	-	-	-	1.1	-	0.597	-	0.381	0.378	-
Sulphate, acid soluble (total)	0.334	0.456	0.305	-	0.445	-	-	-	-	0.33	-	0.112	-	0.17	0.292	-
Cyanide, Total	1.13	1	1	1.17	1	1	1	1	1	1	1	1	8.59	2.85	1	1
Exchangeable Ammonia as N	12	12	12	12	12	79.3	164	12	12	12	12	12	12	12	12	116
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	05/11/2018	05/11/2018	05/11/2018	-	05/11/2018	-	-	-	-	05/11/2018	-	05/11/2018	-	05/11/2018	05/11/2018	-
Analysed By	Marcin Magdziarek	Barbara Urbanek-Walsh	Lucy Caroe	-	Barbara Urbanek-Walsh	-	-	-	-	Marcin Magdziarek	-	James Richards	-	Lucy Caroe	Marcin Magdziarek	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Comments	0	0	0	-	0	-	-	-	-	-	-	0	-	0	-	-
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	107	95.8	99.8	99.6	99.4	112	112	110	109	113	112	108	116	122	112	112
Toluene-d8**	101	97.2	95.6	96.5	95.7	101	99.1	99.5	99.4	101	99.6	96.8	92.8	96.1	96.3	99.9
4-Bromofluorobenzene**	101	93.8	109	69.5	79.6	101	94.1	95.7	87.4	98.2	94	81.9	82.2	74.6	93.1	96.2
Methyl Tertiary Butyl Ether	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	1.8	0.09	1.8	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.136	0.2	0.09	0.09
Toluene	1.4	0.07	1.4	0.11	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.8	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	2.6	0.13	2.6	0.279	0.288	0.13	0.13	0.13	0.13	0.13	0.13	0.13	32.2	0.793	0.13	0.13
Sum of BTEX	8	0.4	8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CH2V	3CI1	3CI1	3CI1	3CI2	3CI2	3CI2	3CI3	3CI3	3CI1V	3CI2V	3CJ1	3CJ1	3CJ1	3CJ2	3CJ2
Depth	2.3	0.5	1	1.5	0.5	1	2	0.5	1.5	1.7	2.3	0.5	1	1.5	0.5	1
Sampled Date	19/10/2018	22/10/2018	22/10/2018	22/10/2018	19/10/2018	19/10/2018	19/10/2018	18/10/2018	18/10/2018	22/10/2018	19/10/2018	22/10/2018	22/10/2018	22/10/2018	19/10/2018	19/10/2018
Carbon																
Soil Organic Matter (SOM)	2.16	1.05	2	6	6.79	9.76	31.5	19	0.35	0.609	1.81	4.43	1.56	5.05	>100	65.7
Metals (Solids)																
Arsenic	10.8	6.3	10.7	9	9.71	12.6	10.1	2.93	6	7.45	14.6	9.52	6.55	8.91	10.5	13.6
Cadmium	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.2	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Chromium	40	64.5	12.7	11.7	24.7	25.8	5.1	192	554	21.4	33	23.4	118	13.3	77	264
Copper	26.4	13.2	15.3	17.6	16.3	18	35.2	3.28	14	8.03	22.5	18.3	15.2	24	98.5	72.6
Lead	21.3	19.2	37.2	26.7	34.8	27.2	28.1	5.52	7	13	18.2	27.6	37.6	24.7	138	65
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	1.4	1.06
Nickel	39	10.4	33.9	19.1	22.5	23.6	22.7	4.3	10.4	25.3	31.7	20.5	13.6	30.1	72.1	125
Selenium	1	1.4	1	1	1	1	1	5.24	13.1	1	1	1.28	2.57	1	1	1
Vanadium	58.3	93.3	31.2	46.4	45.4	44.8	63	198	394	35.8	57.4	57	144	33.5	28.7	43.7
Zinc	114	87.9	118	95.9	179	144	127	55.2	67.4	71.1	116	116	94.2	70.3	691	549
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.01	0.02	0.02	0.02	0.02	0.0219	0.02	0.0662	0.02	0.02	0.01	0.02	0.02	0.02	0.0365	0.02
Aliphatics >C8-C10	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.403	0.02	0.02	0.01	0.02	0.02	0.02	0.0277	0.02
Aliphatics >C10-C12	0.01	0.02	0.02	0.02	0.02	0.02	0.02	1.33	0.02	0.02	0.01	0.02	0.02	0.02	0.0718	0.02
Aliphatics >C12-C16	0.1	2.26	1.27	1.69	0.1	1.05	1.06	58.4	0.999	0.1	0.1	1.58	0.472	0.1	56.1	14.9
Aliphatics >C16-C21	0.1	5.78	2.28	5.14	3.09	5.11	3.52	23	7.6	0.1	0.1	5.54	3.22	0.1	258	175
Aliphatics >C21-C35	0.1	33	6.31	33.9	26	35.1	16.7	297	54.7	0.1	0.1	28.5	23.8	4.46	316	357
Aliphatics >C35-C44	0.1	11.7	1.04	10.5	7.67	8.58	2.23	261	13.7	0.1	0.1	8.4	8.19	0.1	91.7	130
Aromatics >EC5-EC7	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.268	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.888	0.02	0.02	0.01	0.02	0.02	0.02	0.0479	0.02
Aromatics >EC12-EC16	0.1	2.64	0.581	2.3	0.1	0.1	2.92	21.2	0.765	0.1	0.1	1.59	2.42	0.713	635	105
Aromatics >EC16-EC21	0.1	14.1	1.97	10.8	2.81	5.95	32.5	41.3	4.78	0.1	0.1	6.68	11.2	1.12	3540	1210
Aromatics >EC21-EC35	1.97	48.4	5.09	38.6	34.2	50.2	116	737	30	0.1	4.17	21.4	38.6	5.13	4460	2350
Aromatics >EC35-EC44	0.128	14.9	0.4	12.3	8.71	4.9	30.9	559	18.1	0.1	0.982	6.27	16.6	0.396	926	538
Aromatics >EC40-EC44	0.1	4.75	0.1	4.15	3.04	0.1	7.04	250	7.92	0.1	0.1	2.08	8.5	2.78	220	162
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	12	202	13.7	85	51.6	37.9	83.5	0.24	44.9	12	12	182	296	12	24400	21600
Acenaphthene	8	39.9	8	21	8	8	8	3600	8	8	8	38.8	67.7	8	1360	1470
Anthracene	16	537	37.4	209	87.7	76.3	373	927	74.9	16	16	375	621	16	101000	103000
Benz(a)anthracene	14	1310	117	642	272	295	2640	360	204	14	33.4	680	1340	43.6	117000	154000
Benzo(a)pyrene	15	988	82.2	459	259	208	2360	300	168	15	15	545	1210	35.7	93600	117000
Benzo(b)fluoranthene	15	1620	143	649	445	411	5750	391	266	15	37.8	766	1900	63.8	132000	170000
Benzo(k)fluoranthene	14	700	71.4	279	159	132	2000	280	94.6	14	14	286	807	20.2	45000	66300
Benzo(g,h,i)perylene	24	743	57.4	321	195	163	2180	0.48	115	24	24	414	694	24	63600	89200
Chrysene	10	1270	118	541	273	320	2830	390	260	10	29.5	608	1360	73.5	113000	165000
Dibenzo(a,h)anthracene	0.023	201	0.023	58.3	50.5	36.7	729	0.46	29	0.023	0.023	122	179	0.023	16800	16300
Indeno(1,2,3-cd)pyrene	0.018	865	71	317	242	160	2850	0.36	129	0.018	0.018	529	904	25.3	79300	85400
Fluoranthene	24.4	2790	226	1400	513	555	7450	2410	494	0.017	87.4	1760	2950	92.7	294000	391000
Fluorene	10	191	13.7	91.1	34.1	33.7	10	1650	13.7	10	10	191	293	10	30900	21200
Naphthalene	9	494	43.1	275	105	66.9	1090	10000	205	9	9	643	787	48.8	17300	16800
Phenanthrene	15	1500	163	855	279	316	4960	6370	377	15	57.8	1580	2230	167	195000	215000
Pyrene	0.015	2.06	0.177	1.02	0.414	0.423	4.48	1.55	0.393	0.015	0.0569	1.25	2.2	0.063	216	278
PAH, Total Detected USEPA 16	0.118	15.5	1.33	7.22	3.38	3.23	39.8	27.7	2.87	0.118	0.303	9.97	17.8	0.634	1540	1910
Naphthalene-d8 % recovery**	94.9	89.2	84.3	82.2	91.9	87	90.7	97.9	79.8	80.9	75.6	79.6	83.1	81.5	78.9	93
Acenaphthene-d10 % recovery**	98.4	89.7	76.3	84.9	95.1	92	93.3	92	83.2	84.4	79.1	91.6	86.4	87.9	86.6	182
Phenanthrene-d10 % recovery**	0	88.1	87.8	84.9	99.2	93.5	97.2	85	86.5	87.6	77.8	94.2	89.8	91.4	84.5	111
Chrysene-d12 % recovery**	107	83.2	91.1	78.4	105	96.2	101	80.1	83.1	96.7	69.1	73.9	96.4	75.8	75.7	267
Perylene-d12 % recovery**	102	82.8	85.5	72.2	101	84.7	95.2	82.9	73.4	97.1	70.6	70.2	91.7	70.8	77.3	183
Total Aliphatics >C12-C44	0.1	52.8	10.9	51.2	36.7	49.9	23.5	639	77	0.1	0.1	44.1	35.6	4.46	722	677
Total Aromatics >EC12-EC44	2.09	80.1	8.04	64.1	45.7	61.1	183	1360	53.6	0.1	5.16	36	68.8	7.37	9560	4200
Total Aliphatics & Aromatics >C5-C44	2.09	133	18.9	115	82.4	111	206	2000	131	0.1	5.16	80	104	11.8	10300	4870
Metals - (Solid)																
Iron	36600	61100	40000	50100	24200	25100	73700	98400	176000	22100	33000	50800	45300	17900	65100	61400
Manganese	416	4990	1210	1720	1260	952	1870	20000	36900	586	577	2440	6530	913	1520	2020
Metals - (Liquid)																
Calcium	-	195000	-	121000	64900	-	39600	182000	205000	-	-	-	126000	-	-	36800
Magnesium	-	55700	-	48300	12700	-	6030	34200	41100	-	-	-	37100	-	-	6000
Phenols																
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0126	0.0126
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0109	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0756
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0882
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.108	-	0.117	0.481	-	0.291	0.0697	0.0099	-	-	-	0.0552	-	-	0.103
pH	7.72	9.9	8.64	9.02	8.38	8.11	7.97	12.7	12.4	8.27	7.43	9.7	10.2	8.65	7.97	12.8
Sulphate, Total																
Sulphur, Total	-	0.0927	-	0.134	0.179	-	0.324	0.461	0.0738	-	-	-	0.112	-	-	0.541
Sulphate, Total potential	-	0.278	-	0.402	0.537	-	0.972	1.38	0.221	-	-	-	0.336	-	-	1.62
Sulphate, acid soluble (total)	-	0.194	-	0.154	0.191	-	0.107	0.491	0.19	-	-	-	0.211	-	-	0.116
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	259	272
Exchangeable Ammonia as N	104	12	12	12	12	12	12	12	12	12	53.7	12	12	12	12	12
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	0.001
Date of Analysis	-	05/11/2018	-	05/11/2018	05/11/2018	-	05/11/2018	05/11/2018	05/11/2018	-	-	-	05/11/2018	-	-	05/11/2018
Analysed By	-	Marcin Magdziarek	-	James Richards	Lucy Caroe	-	James Richards	Marcin Magdziarek	Christian Hallam	-	-	-	Lucy Caroe	-	-	Andrzej Ferfecki
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	0.001
Additional Asbestos Components (Using TM048)	-	-	-	-	None	-	None	-	-	-	-	-	-	-	-	None
Analysts Comments	-	-	-	-	N/C	-	N/A	-	-	-	-	-	-	-	-	N/A
Asbestos Quantification - Total - %	-	-	-	-	0.001	-	0.001	-	-	-	-	-	-	-	-	0.001
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	Detected	-	Detected	Not Detected	Not Detected	-	-	-	Not Detected	-	-	Not Detected
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	-	-	Detected
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	-	-	Not Detected
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	-	-	Not Detected
Fibrous Tremolite	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	-	-	Not Detected
Fibrous Actinolite	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	-	-	Not Detected
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	Not Detected	-	Detected	Not Detected	Not Detected	-	-	-	Not Detected	-	-	Not Detected
Comments	-	-	-	-	Loose fibres in soil	-	Fibre bundles in soil	0	0	-	-	-	-	-	-	Loose fibres in soil
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	110	107	117	108	109	110	111	107	101	111	109	113	118	126	113	104
Toluene-d8**	98.8	96.9	96.7	99.6	98.1	92.2	93.9	98.2	96.1	102	101	97.3	95.5	94.9	90.5	88.1
4-Bromofluorobenzene**	96.1	87.7	86.2	90.5	83.5	79.8	72.2	84	91.6	102	90.3	85.9	81.6	82.7	74.2	71.4
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.152	2.25	0.13	0.13	0.13	0.194	0.154	0.13	1.3	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.8
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.06
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.6
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8.5
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.87
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.5
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.2

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3CJ3	3CJ3	3CJ3	3CJ1V	3CJ2V	3CJ3V	3CK1	3CK1	3CK1	3CK2	3CK2	3CK4	3CK4
Depth	0.5	1.5	2	1.8	1.3	3.4	0.5	1	1.5	0.5	1	0.5	1
Sampled Date	18/10/2018	18/10/2018	18/10/2018	22/10/2018	19/10/2018	18/10/2018	22/10/2018	22/10/2018	22/10/2018	19/10/2018	19/10/2018	24/10/2018	24/10/2018
Carbon													
Soil Organic Matter (SOM)	28.3	2.57	10.1	0.672	7.41	2.93	2.02	1.55	5.83	40	47.6	8.41	0.35
Metals (Solids)													
Arsenic	8.18	6	2.12	9.7	11.9	12.9	5.44	8.83	14.2	4.51	12.4	6	6
Cadmium	0.02	0.765	0.02	0.02	0.0489	0.343	0.15	0.2	1.1	0.02	0.02	1.66	1.02
Chromium	57	416	76.3	19.7	63.7	38.7	9.44	97.2	17.4	494	755	561	423
Copper	13.5	14	2.22	9	30.4	20.5	23.8	21.3	21.3	19.4	66.3	19.2	14
Lead	48.3	19.3	5.54	13.1	30.1	45.1	12.8	33.4	39.3	6.95	33.3	114	30.7
Mercury	0.14	1.4	0.14	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14	1.4	1.4
Nickel	13.8	12	1.96	28.7	39	34.3	24.5	19.1	28.2	70.9	307	15.7	10.5
Selenium	1.99	10	6.09	1	1	1	1	10	10	4.08	1	10	10
Vanadium	185	284	94.6	36.2	70.2	71	15	127	48.2	173	48.4	416	523
Zinc	203	62.9	28.5	73.8	131	146	60	75.3	118	41	99.4	396	137
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.0667	0.0367	0.02
Aliphatics >C8-C10	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.062	0.0291	0.02
Aliphatics >C10-C12	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.0421	0.027	0.02
Aliphatics >C12-C16	6.41	9.48	3.43	0.36	0.1	0.1	0.1	0.1	1.27	8.18	7.02	2.65	1.19
Aliphatics >C16-C21	11.1	33.6	17	0.1	0.1	0.1	0.764	0.1	10.8	41.2	27.3	13	4.04
Aliphatics >C21-C35	37.7	168	107	0.325	0.1	3.04	3.22	9.54	22.8	70.5	38.8	45	47.9
Aliphatics >C35-C44	4.93	81.4	46.5	0.188	0.1	0.1	0.1	0.1	0.1	16.3	4.24	6.4	2.94
Aromatics >EC5-EC7	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.041	0.02	0.02
Aromatics >EC10-EC12	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.0281	0.02	0.02
Aromatics >EC12-EC16	9.8	6.32	3.71	0.1	0.1	0.1	0.1	0.837	0.1	18.5	16.3	4.66	2.5
Aromatics >EC16-EC21	26.9	32.2	20.7	0.1	0.1	0.1	2.27	2.81	3.1	175	163	22	6.03
Aromatics >EC21-EC35	70.6	236	116	0.1	12.1	1.6	7.11	10.9	43.9	489	545	71.7	25.3
Aromatics >EC35-EC44	18.8	144	66.5	0.1	2.14	0.1	1.2	3.04	7.34	107	126	21.2	7.13
Aromatics >EC40-EC44	8.9	61.7	27.3	1.56	0.1	3	0.1	1.13	2.18	28.4	38.1	7.82	2.65
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	616	423	279	12	12	12	12.6	51.6	12	1620	4600	155	37.4
Acenaphthene	92.5	61.2	73.5	8	8	8	8	10.8	8	8	264	8	8
Anthracene	659	690	564	16	16	16	23.4	73.1	16	5930	8240	221	80.1
Benz(a)anthracene	1350	1610	1390	14	14	33	80.9	243	64	18900	30000	644	199
Benzo(a)pyrene	890	1160	1150	15	15	29.8	63.1	212	71.7	14100	21800	491	144
Benzo(b)fluoranthene	1800	1500	1830	15	15	44.9	116	330	132	14200	37700	961	270
Benzo(k)fluoranthene	612	609	651	14	14	14	41.9	126	43.3	7790	15500	334	103
Benzo(g,h,i)perylene	628	820	766	24	24	24	50	149	52.1	9190	15400	408	124
Chrysene	1460	1360	1500	10	10	37.5	112	276	86	15700	23600	729	246
Dibenzo(a,h)anthracene	149	197	144	0.023	0.023	0.023	0.023	37.2	0.023	3190	4990	109	30.1
Indeno(1,2,3-cd)pyrene	712	706	695	0.018	0.018	0.018	52.8	128	60.1	10000	19200	423	119
Fluoranthene	2960	3670	3350	0.017	35.5	70.2	141	450	146	34300	60600	1460	509
Fluorene	436	269	315	10	10	10	12.5	33.4	10	1900	1880	81.4	10
Naphthalene	2990	1670	1030	9	347	9	61.4	96.7	14.1	1250	1430	868	170
Phenanthrene	2990	2730	2590	15	15	57.2	211	289	70.9	18600	20100	1140	501
Pyrene	2.11	2.67	2.51	0.015	0.0295	0.0543	0.109	0.335	0.115	26.1	41.5	1.01	0.34
PAH, Total Detected USEPA 16	20.4	20.1	18.8	0.118	0.412	0.327	1.09	2.84	0.854	183	307	9.03	2.87
Naphthalene-d8 % recovery**	91.6	96.7	90.5	92.7	79.6	94.9	91.5	81.4	84.3	89.1	91.3	86.1	83.7
Acenaphthene-d10 % recovery**	96.5	96.1	97.2	91.6	85.5	95.1	93.4	80.9	87.2	93.4	90	87.9	85.2
Phenanthrene-d10 % recovery**	96.4	94.1	96.8	92.5	88.1	94.7	95.3	79.4	92.9	99.6	88.6	91	87.6
Chrysene-d12 % recovery**	93	92.5	94.8	88.2	77.7	92.2	99.3	77.3	98.8	98.2	83.8	83.4	81.3
Perylene-d12 % recovery**	78.5	85.6	86.9	87.4	78.9	90.1	92.5	71.5	94.1	84.8	82.8	78.6	75.3
Total Aliphatics >C12-C44	60.2	293	173	0.873	0.1	3.04	3.99	9.54	34.9	136	77.4	67	56.1
Total Aromatics >EC12-EC44	126	419	207	0.1	14.2	1.6	10.6	17.5	54.4	790	850	120	40.9
Total Aliphatics & Aromatics >C5-C44	186	711	380	0.873	14.2	4.64	14.6	27.1	89.2	926	927	187	97
Metals - (Solid)													
Iron	79400	97800	33200	27300	38000	31400	13200	115000	63100	73600	36600	133000	141000
Manganese	4630	25900	13600	1140	423	998	341	11900	8420	10400	1310	26800	29400
Metals - (Liquid)													
Calcium	-	219000	211000	-	-	-	2440	-	43000	115000	-	190000	233000
Magnesium	-	32100	27200	-	-	-	2210	-	14600	11900	-	6910	31700
Phenols													
Phenol	0.01	0.01	0.0213	0.01	0.01	0.01	0.01	0.01	0.01	0.0104	0.01	0.01	0.01
Cresols	0.0244	0.0112	0.01	0.01	0.01	0.01	0.01	0.01	0.0142	0.01	0.01	0.0108	0.0106
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.15	0.144	-	-	-	0.0402	-	0.225	0.0302	-	0.0743	0.004
pH	8.62	11.6	10.8	8.28	6.91	8.49	8.24	8.63	6.53	8.15	8.17	11.6	12.4
Sulphate, Total													
Sulphur, Total	-	0.4	1.05	-	-	-	0.0351	-	0.13	0.449	-	0.255	0.161
Sulphate, Total potential	-	1.2	3.15	-	-	-	0.105	-	0.39	1.35	-	0.765	0.483
Sulphate, acid soluble (total)	-	0.912	0.795	-	-	-	0.023	-	0.228	0.0343	-	0.305	0.296
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1.22	1
Exchangeable Ammonia as N	12	12	12	36.3	181	185	12	12	41.5	12	12	12	12
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	05/11/2018	05/11/2018	-	-	-	05/11/2018	-	05/11/2018	05/11/2018	-	07/11/2018	30/10/2018
Analysed By	-	Lucy Caroe	Christian Hallam	-	-	-	Marcin Magdziarek	-	Marcin Magdziarek	Lucy Caroe	-	Paul Poynton	Lucy Caroe
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Amosite (Brown) Asbestos	-	Not Detected	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	-	Not Detected	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	-	Not Detected	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	-	Not Detected	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	-	Not Detected	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	-	Not Detected	Not Detected	-	-	-	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected
Comments	-	0	0	-	-	-	-	-	-	0	-	0	0
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	99.4	105	107	112	113	104	123	122	134	97.2	92.2	99.5	94
Toluene-d8**	96.5	98.1	92	102	101	98	101	104	96.7	92.8	91.3	88.9	89.1
4-Bromofluorobenzene**	111	70	90.2	102	100	87.8	77.7	79.8	80.3	77.2	86.9	74.9	91.8
Methyl Tertiary Butyl Ether	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Benzene	1.8	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.18	0.18	0.09	0.09
Toluene	1.4	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.14	0.14	0.07	0.07
Ethylbenzene	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.08	0.04	0.04
p/m-Xylene	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
o-Xylene	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Naphthalene	2.6	0.506	0.265	0.13	0.13	0.13	0.13	0.13	0.13	0.26	0.26	0.194	0.13
Sum of BTEX	8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.8	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	19.8	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	16.9	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	19.6	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	16.3	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	1.16	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	13.9	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	14.9	-	-

Sample ID	3CK5	3CK5	3CK6	3CK6	3CK7	3CK7	3CK8	3CK8	3CK1V	3CK2V	3CK4V	3CK5V	3CK6V	3CK7V	3CK8V	3CL2	3CL2
Depth	0.5	1.5	0.5	1	0.5	1	0.7	1.8	1.7	1.2	4	3.5	2.5	2.2	2.8	0.5	1
Sampled Date	24/10/2018	24/10/2018	23/10/2018	23/10/2018	23/10/2018	23/10/2018	23/10/2018	23/10/2018	22/10/2018	19/10/2018	24/10/2018	24/10/2018	23/10/2018	23/10/2018	23/10/2018	19/10/2018	19/10/2018
Carbon																	
Soil Organic Matter (SOM)	2.16	4.12	27.8	20.3	17.6	20.2	19.3	15.2	1.36	5.4	3.02	4.86	1.41	0.895	2.12	2.84	86.4
Metals (Solids)																	
Arsenic	6	6	11.2	11.5	8.46	9.17	6	6	13.4	11.4	11.3	11.8	13.3	16.4	13.3	12.9	9.29
Cadmium	1.35	1.33	2.79	0.9	0.922	0.02	0.704	0.2	0.02	0.02	0.212	0.302	22.5	0.02	0.02	0.254	0.02
Chromium	463	991	299	277	159	84.4	539	366	31.6	39.3	34.2	37.9	37	38.6	36.5	114	8.5
Copper	32.5	14	37.9	26.6	27.1	506	15.3	19.8	16.4	17.7	17.1	18.4	81.4	18.6	22.7	14.3	33.5
Lead	90.5	71	329	58.9	62.8	43.7	36	37.4	21.1	31.5	27.9	35.7	172	24	20.8	49.3	38.9
Mercury	1.4	1.4	1.4	1.4	1.4	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	21.4	8.89	25.8	19.5	27.9	15.4	10.7	11.9	35.5	25.9	33.7	32.7	40.4	41.5	32.8	22.5	17.6
Selenium	10	10.1	10	10	10	3.07	10	11.7	1	1	1	1	1	1	1	1.97	1
Vanadium	804	582	229	224	282	99.4	404	787	52.5	62.7	55.7	62.1	52.7	58.8	57.8	109	28.4
Zinc	438	278	1110	145	234	118	58.6	87.5	105	113	109	123	1240	124	127	190	158
TPH Criteria Working Group (TPH CWG)																	
Benzene																	
Toluene																	
Ethylbenzene																	
sum of detected mpo xylene by GC																	
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.0234	0.02	0.0902	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.0234	0.02	0.0704	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.0445	0.02	0.0726	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.0201
Aliphatics >C12-C16	0.1	1.22	1.81	0.767	6.3	3.11	12.2	3.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	8.74
Aliphatics >C16-C21	2.39	8.17	5.63	4.92	40.1	18.4	27.4	10.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	69.2
Aliphatics >C21-C35	25.7	46.9	18.8	28.1	83.5	39.1	68.3	43.1	0.1	2.61	0.1	2.26	0.1	0.1	0.1	7.18	124
Aliphatics >C35-C44	8.03	9.21	2.81	5.38	20.6	9.18	11.1	8.04	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	30.5
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.02	0.02	0.0473	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.0293	0.02	0.0484	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02
Aromatics >EC12-EC16	0.1	2.19	2.41	1.26	28.8	10.6	15.1	4.51	0.1	0.1	0.1	0.1	0.1	0.359	0.1	0.1	58.6
Aromatics >EC16-EC21	4.04	15	8.14	7.67	296	127	42.2	18.2	0.1	0.1	0.1	0.1	0.1	3.61	0.1	0.1	966
Aromatics >EC21-EC35	29.4	69.9	24.8	27.8	718	428	93	70.5	2.61	18.6	3.74	9.45	3.19	11.3	6.36	15.9	1880
Aromatics >EC35-EC44	11.1	21.9	6.65	8.08	177	101	20.9	16.7	0.1	1.85	0.547	1.99	0.607	1.22	0.1	1.59	379
Aromatics >EC40-EC44	4.19	8.11	2.33	2.73	43.4	25.2	5.84	4.75	2.35	0.1	0.1	0.1	0.1	0.1	0.1	0.1	97.3
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	38	238	98.5	35	8130	3440	267	104	12	12	12	12	12	25.4	12	12	13100
Acenaphthene	22.3	86.4	20.9	8	472	206	56.5	46.2	8	8	8	8	8	8	8	8	721
Anthracene	70	866	150	82.7	118000	5720	430	238	16	16	16	16	16	38.6	16	16	58000
Benz(a)anthracene	290	1660	457	215	38700	21800	952	910	14	80.2	22.2	21.9	14	73.8	23.4	28	96500
Benzo(a)pyrene	285	1430	411	129	32800	19400	723	894	15	57.9	15	15	15	62.3	15	32.7	86000
Benzo(b)fluoranthene	446	2300	340	277	50600	32000	787	1120	15	96.3	15	27.6	21.2	58.9	29.8	58.2	117000
Benzo(k)fluoranthene	160	783	239	88.9	18000	8890	360	487	14	30.7	14	14	14	31.2	14	19	39100
Benzo(g,h,i)perylene	235	927	320	104	20700	16000	555	789	24	47.8	24	24	24	47.7	24	24	75700
Chrysene	350	1830	437	287	37300	19000	944	950	10	90.1	18.4	24.3	16.3	63.9	17.4	26.5	80700
Dibenzo(a,h)anthracene	46.5	284	72.8	28.5	5890	3710	138	148	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	13800
Indeno(1,2,3-cd)pyrene	222	1030	283	161	31500	17200	561	744	0.018	34.5	0.018	0.018	0.018	50.2	0.018	31.4	74900
Fluoranthene	503	2930	1150	840	91000	42200	2440	2010	0.017	176	55	42	29.1	206	40.2	49	287000
Fluorene	29.2	186	78.9	25.8	12900	1450	180	83.4	10	10	10	10	10	17.7	10	10	16000
Naphthalene	94.8	321	318	131	7040	2390	1720	494	9	9	9	16.6	9	82.8	9	9	5660
Phenanthrene	273	1370	738	756	45200	11700	2160	1050	15	51.7	29.6	30	15	105	15	21.8	156000
Pyrene	0.448	2.38	0.856	0.534	61.2	32	1.81	1.75	0.015	0.138	0.0375	0.037	0.0206	0.153	0.0288	0.044	226
PAH, Total Detected USEPA 16	3.51	18.6	5.97	3.7	580	237	14.1	11.8	0.118	0.802	0.163	0.199	0.118	1.02	0.14	0.311	1350
Naphthalene-d8 % recovery**	87.5	80.8	94.6	82.2	74.8	86.8	88.7	86.4	92.2	87.4	85.7	86.9	79.1	85.1	79.9	92	80.9
Acenaphthene-d10 % recovery**	88	88.9	89.7	84	77.9	83.4	87.9	84.9	85.8	90.1	95.1	89	84.2	83.6	81.8	94.2	88.8
Phenanthrene-d10 % recovery**	90.3	92.7	88	87	81.1	84.9	84.9	82.2	89.8	93.2	100	92.8	88.4	79.5	86.8	96.7	89.6
Chrysene-d12 % recovery**	86.1	74.2	83.8	82	76.4	77.3	78.2	77.5	84	88	86.9	88.5	75.7	73.1	74.7	103	88.6
Perylene-d12 % recovery**	86.1	70.4	76.5	70.4	74.2	77.2	70.6	75.3	86.6	80.3	83.9	86.5	70.7	71.4	70.8	100	90.3
Total Aliphatics >C12-C44	36.1	65.5	29.1	39.2	150	69.8	119	65.1	0.1	2.61	0.1	2.26	0.1	0.1	0.1	7.18	233
Total Aromatics >EC12-EC44	44.6	109	42	44.8	1220	667	171	110	2.61	20.5	4.28	11.4	3.8	16.5	6.36	17.5	3280
Total Aliphatics & Aromatics >C5-C44	80.6	175	71.1	84	1370	737	291	175	2.61	23.1	4.28	13.7	3.8	16.5	6.36	24.7	3520
Metals - (Solid)																	
Iron	113000	162000	88300	65900	61100	66200	89000	129000	26700	38500	27000	28400	36200	36700	32400	43900	36900
Manganese	26600	36800	14100	17300	15100	5690	23500	21500	453	445	393	496	267	445	378	3640	1250
Metals - (Liquid)																	
Calcium	226000	219000	98100	-	105000	-	163000	-	-	-	-	-	-	-	-	-	62800
Magnesium	20900	4350	12700	-	9610	-	17400	-	-	-	-	-	-	-	-	-	4540
Phenols																	
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0118
Cresols	0.01	0.01	0.01	0.0113	0.0117	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.0226	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	0.0872	0.0322	0.151	-	0.345	-	0.114	-	-	-	-	-	-	-	-	-	0.0853
pH	11.3	9.45	8.62	12	8.8	8.82	10.6	12	7.56	7.64	8.33	7.78	8.11	8.33	7.48	8.45	7.84
Sulphate, Total																	
Sulphur, Total	0.213	0.16	0.271	-	0.288	-	0.345	-	-	-	-	-	-	-	-	-	0.298
Sulphate, Total potential	0.639	0.48	0.813	-	0.864	-	1.04	-	-	-	-	-	-	-	-	-	0.894
Sulphate, acid soluble (total)	0.364	0.224	0.276	-	0.447	-	0.552	-	-	-	-	-	-	-	-	-	0.0722
Cyanide, Total	1	1	1	1	1	1.4	1	1	1	1	1	1	1	1.25	1	1	19.3
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	26.7	108	263	119	64	22	191	12	12
Asbestos																	
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	30/10/2018	07/11/2018	06/11/2018	-	06/11/2018	-	06/11/2018	-	-	-	-	-	-	-	-	-	05/11/2018
Analysed By	Lucy Caroe	Christian Hallam	Renata Bozhkov	-	Renata Bozhkov	-	Renata Bozhkov	-	-	-	-	-	-	-	-	-	Andrzej Ferfecki
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	Not Detected
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	Not Detected
Comments	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	103	106	94.4	97.3	104	88.4	85.2	99.5	113	106	105	113	111	105	112	125	99.5
Toluene-d8**	96	96.9	93	92.8	98.1	89.1	87.8	94.6	101	105	95.6	98.8	101	97.1	98.8	104	97.3
4-Bromofluorobenzene**	106	92.5	71.5	79.2	81.6	79.7	73.3	73.3	101	110	105	88.8	93.7	97.7	106	86.8	71.8
Methyl Tertiary Butyl Ether	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.18	0.09	0.18	0.09	0.18	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.14	0.07	0.14	0.07	0.14	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.08	0.04	0.08	0.04	0.08	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.26	0.13	0.26	0.638	0.26	0.34	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	1.78
Sum of BTEX	0.4	0.8	0.4	0.8	0.4	0.8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CL4	3CL4	3CL4	3CL5	3CL5	3CL5	3CL6	3CL6	3CL7	3CL7	3CL2V	3CL4V	3CL5V	3CL6V	3CL7V	3CM2	3CM2	3CM3	3CM4	3CM4	3CM4	3CM5
Depth	1	2.5	3	0.5	2	3	0.5	1	0.5	1	1.5	5.205.20	5.405.40	3	2.5	0.5	1	0.5	0.7	1.8	2.5	0.5
Sampled Date	24/10/2018	24/10/2018	24/10/2018	23/10/2018	23/10/2018	23/10/2018	23/10/2018	23/10/2018	22/10/2018	22/10/2018	19/10/2018	24/10/2018	23/10/2018	23/10/2018	22/10/2018	19/10/2018	19/10/2018	24/10/2018	24/10/2018	24/10/2018	24/10/2018	23/10/2018
Carbon																						
Soil Organic Matter (SOM)	5.24	17.9	20.9	2.9	2.26	1.19	24	18.4	9.88	12.3	1.6	1.39	88.8	3.26	8.31	6.86	25.9	1.09	6.05	21.9	0.76	2.48
Metals (Solids)																						
Arsenic	9.74	4.12	6.04	7.65	6	6	397	7.02	6.54	6.54	12	11.2	5.72	13.8	13.1	13.4	11.7	6	6	7.37	2.77	18.1
Cadmium	0.639	0.02	1.66	1.34	0.492	0.886	0.856	0.455	0.02	0.02	0.02	0.02	0.136	0.02	0.0685	2.15	0.2	1.94	1.11	0.427	0.02	8.99
Chromium	32.8	372	490	30.8	359	910	193	174	461	358	28	36.3	3.07	34.2	37.3	82.8	9	560	1040	629	756	153
Copper	15.5	9.82	36.4	15.6	15.2	14	144	16.3	11.3	10.5	11.9	15.4	36.6	20.2	21.1	22.7	38.7	22.3	16.4	14	6.02	51.9
Lead	67.2	17.9	136	91.7	197	16.2	80.6	34.6	23.2	15.7	20.2	24.9	24.9	22.4	31.8	69.9	27.7	121	52.8	22.2	4.99	1390
Mercury	0.14	0.14	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.15	0.14	0.14	1.4	1.4	1.4	1.4	1.4	0.14	1.4
Nickel	32.1	8.5	31.7	38.6	14.5	6.16	313	14.5	10	6.11	30.4	40.8	13	30	24.5	25.2	45.2	22.9	18	17.1	3.46	39.6
Selenium	1	7.23	10	10	12.2	16.7	51.7	2.5	7.05	11.7	1	1	2.22	1	1	10	10	10	10	12.6	11.2	10
Vanadium	50.8	262	557	77.5	324	600	278	123	344	394	48.1	65.5	10.9	61.4	52.7	124	125	647	498	344	672	356
Zinc	313	44.1	164	389	827	52.8	205	129	143	72.4	95.7	124	23.5	112	117	288	142	401	203	59.9	33	6160
TPH Criteria Working Group (TPH CWG)																						
Benzene																						
Toluene																						
Ethylbenzene																						
sum of detected mpo xylene by GC																						
Aliphatics >C5-C6	0.02	0.0507	0.02	0.02	0.02	0.0245	0.02	0.02	0.0278	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.0222	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.247	0.02	0.02	0.02	0.0705	0.088	0.0966	0.071	0.0353	0.01	0.02	0.02	0.02	0.02	0.02	0.0855	0.02	0.02	0.0746	0.02	0.02
Aliphatics >C8-C10	0.02	0.204	0.02	0.02	0.02	0.0531	0.109	0.0644	0.0722	0.0217	0.01	0.02	0.02	0.02	0.02	0.02	0.0588	0.02	0.02	0.0576	0.02	0.02
Aliphatics >C10-C12	0.02	0.236	0.02	0.02	0.02	0.0378	0.229	0.104	0.354	0.0365	0.01	0.02	0.02	0.02	0.02	0.02	0.04	0.02	0.02	0.0565	0.02	0.02
Aliphatics >C12-C16	0.1	19.4	19.7	0.411	0.932	1.79	8.58	7.81	9.69	6.6	0.1	0.415	6.04	0.1	2.88	2.89	2.93	1.4	0.972	19.2	0.96	0.444
Aliphatics >C16-C21	0.1	132	433	5.16	11	8.11	29.2	55.8	33	68.8	0.1	1.63	12.1	0.1	0.982	14.3	25.6	8.37	3.24	18.7	8.37	11.1
Aliphatics >C21-C35	7.99	93.2	151	30.2	50.5	38.2	54.6	72.7	75.4	77.8	0.1	3.89	35.7	0.1	10.6	54.6	33.2	42.7	16.4	29.7	41.8	50.6
Aliphatics >C35-C44	0.94	13.3	30.2	5.63	11.1	8.22	14	28.8	17.8	18.8	0.1	0.1	8.73	0.1	0.1	15.8	8.15	11.6	5.1	5.98	13.9	7.11
Aromatics >EC5-EC7	0.02	0.0224	0.02	0.02	0.02	0.0204	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.0696	0.02	0.02	0.02	0.0429	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.0233	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.137	0.02	0.02	0.02	0.0358	0.0726	0.0437	0.0477	0.0148	0.01	0.02	0.02	0.02	0.02	0.02	0.0389	0.02	0.02	0.0384	0.02	0.02
Aromatics >EC10-EC12	0.02	0.157	0.02	0.02	0.02	0.0256	0.153	0.069	0.236	0.0239	0.01	0.02	0.02	0.02	0.02	0.02	0.0266	0.02	0.02	0.0373	0.02	0.02
Aromatics >EC12-EC16	0.1	26.7	7.58	0.1	1.94	3.33	118	14.4	45.4	9.26	0.1	0.1	7.69	0.1	0.666	8.34	9.29	2.41	1.08	31.3	0.1	0.81
Aromatics >EC16-EC21	0.817	158	124	2.36	8.81	10.8	512	72.6	395	58.3	0.1	0.633	14.8	0.1	2.89	113	140	18.2	4.68	38.9	10.3	7.26
Aromatics >EC21-EC35	16.2	638	199	26.6	40.6	35.7	632	142	695	103	0.1	5.67	55.2	5.28	48.8	345	377	74.7	26.3	78	52.5	35.3
Aromatics >EC35-EC44	8.05	181	43.5	7.62	11.3	7.21	114	46.1	150	28.7	0.1	0.537	9.21	0.1	6.51	97.5	109	27.4	9	22.7	14.6	8.24
Aromatics >EC40-EC44	3.62	56.8	16.2	2.35	3.56	1.82	26.8	15.1	35.9	9.11	0.1	0.1	2.76	0.1	1.6	33	35.4	10.7	3.3	8.1	5.45	2.15
Polyaromatic Hydrocarbons (PAHs)																						
Acenaphthylene	13.8	226	96.5	16.8	15	238	3590	1340	4530	787	12	12	12	12	12	2230	7120	198	20.2	18.2	12	107
Acenaphthene	8	132	273	9.23	10.2	59.1	416	263	416	145	8	8	15	8	8	78.1	660	27.1	15.5	15.1	40	8
Anthracene	20.2	758	599	36.7	42.4	269	5250	2000	12700	2000	16	16	16	16	16	5600	39100	350	41.2	52.7	56.5	74.2
Benz(a)anthracene	88.7	3050	2800	131	129	739	10500	4150	18500	3250	14	22.6	34.7	14	21.8	17400	44800	1130	192	150	288	260
Benzo(a)pyrene	84.4	2750	2580	143	113	525	9230	3540	13200	2610	15	15	26.5	15	15	14800	26900	1060	206	127	252	362
Benzo(b)fluoranthene	152	3800	3450	167	176	584	11100	3510	21300	3900	15	38.7	70.2	15	42.6	20200	50900	1490	241	148	291	390
Benzo(k)fluoranthene	50.6	1480	1410	82.4	67.6	270	4730	1480	7670	1420	14	14	14	14	14	9000	19200	559	112	63.9	134	157
Benzo(g,h,i)perylene	67.5	1730	1850	138	121	411	6770	2780	8770	1580	24	24	30	24	24	12000	27800	738	153	93.3	193	428
Chrysene	105	2620	2800	139	174	697	8760	3550	19100	3210	10	25.8	172	10	36.3	17700	42700	1060	214	171	404	265
Dibenzo(a,h)anthracene	0.023	690	564	0.023	0.023	106	1350	669	2760	339	0.023	0.023	0.023	0.023	0.023	2820	8840	165	35.9	0.023	44.9	66.3
Indeno(1,2,3-cd)pyrene	70.8	1550	2560	130	113	409	6520	2860	10300	1790	0.018	0.018	0.018	0.018	0.018	11800	26200	1070	143	83.6	169	409
Fluoranthene	181	3240	5090	237	235	1990	29300	10200	54500	7590	0.017	27.8	95.2	27.7	54.9	39700	105000	2080	331	329	494	396
Fluorene	10	294	195	12.6	15.7	243	2800	1210	5180	1060	10	10	114	10	10	904	7170	114	22.1	34.9	23.3	18.6
Naphthalene	30	1960	336	47	69.3	980	11900	6870	7630	3690	9	9	290	9	9	983	2840	427	94.4	254	277	135
Phenanthrene	96.9	2560	3230	107	207	1910	15000	6520	28400	5390	15	15	597	15	36.6	9720	75000	944	208	466	411	206
Pyrene	0.143	2.67	4.01	0.191	0.214	1.35	21.3	7.55	39.5	5.68	0.015	0.0241	0.0888	0.015	0.0424	32	82.1	1.61	0.282	0.269	0.493	0.349
PAH, Total Detected USEPA 16	1.1	29.5	31.8	1.59	1.7	10.8	149	58.5	254	44.4	0.118	0.139	1.53	0.118	0.235	197	567	13	2.31	2.28	3.57	3.62
Naphthalene-d8 % recovery**	80.9	99.4	80.8	88.3	88.7	90.8	94	82.8	78.6	79.3	92.9	90.7	88.6	83.4	85	83.5	79.8	79.2	75.2	91.7	80.3	89.9
Acenaphthene-d10 % recovery**	88.6	91	86.8	85.7	93.4	89.5	88.3	82.8	85.1	87.8	87.7	85.9	92.6	82.1	90.9	89	88.5	80.4	76.4	90.8	81	93.3
Phenanthrene-d10 % recovery**	93.3	92.4	103	85.7	100	88.6	87.5	84.9	95.8	91	91.3	86.2	94.2	82.9	89.6	96.8	94.2	87.1	78.7	87.9	83.7	97.2
Chrysene-d12 % recovery**	79.7	88	96.4	80.4	93.9	85	75.4	77.9	97.8	83.7	85.8	77.7	82.6	82.4	82.1	110	84.8	86.8	72.3	85.3	79	86.3
Perylene-d12 % recovery**	74.5	86.5	87.6	74.1	80.2	82.4	71.7	72.7	89.3	72.7	87.4	83.1	52	75.5	79.4	96.7	86.5	75.9	70.3	82.3	77.1	72.4
Total Aliphatics >C12-C44	8.93	258	633	41.4	73.6	56.4	106	165	136	172	0.1	5.94	62.6	0.1	14.5	87.6	69.9	64	25.8	73.6	65.1	69.3
Total Aromatics >EC12-EC44	25.1	1000	374	36.6	62.6	57	1370	275	1290	199	0.1	6.84	86.9	5.28	58.9	564	635	123	41.1	171	77.4	51.6
Total Aliphatics & Aromatics >C5-C44	34	1260	1010	78	136	114	1480	440	1420	371	0.1	12.8	150	5.28	73.4	651	706	187	66.8	245	142	121
Metals - (Solid)																						
Iron	31500	99200	141000	82200	121000	165000	83600	48600	78100	126000	43800	34400	4500	42300	22400	115000	268000	112000	127000	103000	156000	233000
Manganese	947	18700	27300	2840	22400	64800	188000	12100	25400	36100	1260	912	162	577	506	11500	4570	23500	21700	21300	48500	17300
Metals - (Liquid)																						
Calcium	26400	176000	-	60600	-	248000	-	164000	-	180000	-	-	-	-	-	89800	-	161000	167000	-	288000	141000
Magnesium	9160	12800	-	10500	-	800	-	11400	-	8120	-	-	-	-	-	9740	-	11300	10700	-	14600	3490
Phenols																						
Phenol	0.01	0.0118	0.0102	0.01	0.01	0.0409	0.011	0.115	0.0555	0.125	0.01	0.01	0.012	0.01	0.0143	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.0115	0.0354	0.01	0.0115	0.01	0.0511	0.022	0.023	0.0222	0.0228	0.01	0.01	0.012	0.01	0.0286	0.01	0.01	0.0101	0.01	0.0113	0.01	0.01
Xylenols	0.015	0.0472	0.015	0.015	0.015	0.015	0.015	0.015	0.0333	0.015	0.015	0.015	0.036	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.0944	0.035	0.035	0.035	0.092	0.035	0.138	0.111	0.148	0.035	0.035	0.06	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																						
Soluble Sulphate 2:1 extract as SO4 BRE	0.0834	0.168	-	0.0777	-	0.0202	-	0.205	-	0.145	-	-	-	-	-	0.146	-	0.0757	0.0391	-	0.0769	0.0782
pH	8.04	12.2	12.5	8.46	11	13	10.6	10.9	10.4	11.3	7.84	7.98	7.31	7.59	6.88	8.48	8.62	9.47	8.4	12.2	11.9	8.68
Sulphate, Total																						
Sulphur, Total	0.055	0.457	-	0.185	-	0.286	-	0.371	-	0.365	-	-	-	-	-	0.229	-	0.137	0.124	-	0.219	0.182
Sulphate, Total potential	0.165	1.37	-	0.555	-	0.858	-	1.11	-	1.1	-	-	-	-	-	0.687	-	0.411	0.372	-	0.657	0.546
Sulphate, acid soluble (total)	0.0583	0.513	-	0.209	-	0.328	-	0.545	-	0.438	-	-	-	-	-	0.214	-	0.307	0.12	-	0.329	0.218
Cyanide, Total	1	1	1	1	6.46	1	1	1	1.66	1	1	1	1	1	1	3.12	2.05	1	1	1	1	9.2
Exchangeable Ammonia as N	12	12	12	12	12	12	19	12	12	12	28.9	35.3	46.3	172	297	12	12	79.8	12	12	12	12
Asbestos																						
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	31/10/2018	07/11/2018	-	06/11/2018	-	06/11/2018	-	06/11/2018	-	05/11/2018	-	-	-	-	-	05/11/2018	-	29/10/2018	07/11/2018	-	07/11/2018	06/11/2018
Analysed By	Christian Hallam	James Richards	-	James Richards	-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	-	-	-	-	-	Andrzej Ferfecki	-	Lucy Caroe	Christian Hallam	-	Paul Poynton	Barbara Urbanek-Walsh
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	N/C	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected
Comments	0	0	-	-	-	-	-	-	-	Loose fibres in soil.	-	-	-	-	-	0	-	0	0	-	0	-
Volatile Organic Compounds (VOCs)																						
Dibromofluoromethane**	101	92.3	105	115	117	102	95.7	81.5	106	93.9	125	104	100	113	108	107	104	103	111	110	79.5	107
Toluene-d8**	92.5	88	87.6	99.3	98.3	91.6	95.6	94.1	99.6	96.6	103	95.4	93.5	101	101	99.9	97.1	94.9	98.7	98.7	86.1	100
4-Bromofluorobenzene**	96.7	70.5	95.7	90	89.3	73.7	76.4	70.2	91.3	85.3	87.5	108	83.1	94.4	99.7	71	70.6	98.7	95.5	101	78	90.4
Methyl Tertiary Butyl Ether	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.2	2	0.1	0.1
Benzene	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	1.8	0.09	0.09	0.09	0.09	0.09	0.18	1.8	0.09	0.09
Toluene	0.07	0.175	0.07	0.07	0.07	0.139	0.07	0.07	0.07	0.07	0.07	0.07	1.4	0.07	0.07	0.07	0.07	0.07	0.14	1.4	0.07	0.07
Ethylbenzene	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.08	0.8	0.04	0.04
p/m-Xylene	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.2	2	0.1	0.1
o-Xylene	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.2	2	0.1	0.1
Naphthalene	0.13	1.07	0.13	0.13	0.13	0.13	1.74	18.4	8.37	1.37	0.13	0.13	2.6	0.13	0.13	0.154	0.257	0.13	0.26	2.6	0.245	0.13
Sum of BTEX	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	8	0.4	0.4	0.4	0.4	0.4	0.8	8	0.4	0.4
Subcontracted: Inorganics																						
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	3CM5	3CM5	3CM5	3CM6	3CM6	3CM7	3CM7	3CM7	3CM8	3CM8	3CM8
Depth	2	3	4	0.7	1.5	0.5	1	2	0.5	1	2
Sampled Date	23/10/2018	23/10/2018	23/10/2018	23/10/2018	23/10/2018	22/10/2018	22/10/2018	22/10/2018	22/10/2018	22/10/2018	22/10/2018
Soil Organic Matter (SOM)	6.09	5.48	10.4	2.41	5.28	12	14.9	28.8	9.95	7.76	16.7
Arsenic	6	6	8.13	10.6	6	8.16	7.57	8.7	18	10.8	6.3
Cadmium	0.2	0.972	0.867	0.289	0.2	0.363	0.02	0.02	0.02	0.02	0.02
Chromium	629	901	290	40.5	641	87.4	93.9	241	128	63	573
Copper	17.2	17.2	20.4	22.8	16.8	24.2	19.4	16.9	21.4	19.1	11.4
Lead	305	43.2	58.5	28.7	43.8	53.3	22.5	66.1	50.6	30.7	81.4
Mercury	1.4	1.4	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	10.3	18	20.6	46.2	16.9	12.8	13.8	11.7	22.9	20.1	8.24
Selenium	17.6	10.3	10	1	16	1.53	4.31	5.02	4.27	1	9.54
Vanadium	459	503	282	62.1	683	78.3	227	318	168	93.2	535
Zinc	1020	165	230	121	150	192	92.2	139	218	146	445
Benzene											
Toluene											
Ethylbenzene											
sum of detected mpo xylene by GC											
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.0278	0.0244	0.02	0.02	0.0217
Aliphatics >C6-C8	0.02	0.0757	0.0278	0.02	0.0509	0.02	0.132	0.0998	0.0259	0.02	0.0935
Aliphatics >C8-C10	0.02	0.0746	0.02	0.02	0.0328	0.02	0.0999	0.0789	0.0218	0.02	0.0958
Aliphatics >C10-C12	0.02	0.08	0.02	0.02	0.0452	0.02	0.21	0.132	0.0539	0.02	0.368
Aliphatics >C12-C16	2.56	1.4	7.23	0.1	3.98	3.72	15.8	6.38	2.49	3.16	6.02
Aliphatics >C16-C21	11	7.04	15.1	0.1	17	20	257	25.2	14.1	14.8	21.1
Aliphatics >C21-C35	57.5	48.2	52.2	0.1	36.3	50.7	210	57.5	39.5	39.3	71.4
Aliphatics >C35-C44	9.41	12.6	12.5	0.1	11.1	13.4	33.7	17.9	11.6	10.5	21.8
Aromatics >EC5-EC7	0.02	0.02	0.0206	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.0235	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.0501	0.02	0.02	0.0215	0.02	0.0666	0.0534	0.02	0.02	0.0638
Aromatics >EC10-EC12	0.02	0.0533	0.02	0.02	0.0305	0.02	0.14	0.0882	0.0363	0.02	0.245
Aromatics >EC12-EC16	4.32	1.67	5.41	0.1	5.58	17.9	21.2	14.5	12.5	7.81	9.43
Aromatics >EC16-EC21	12.4	8.64	13.1	0.1	27.7	145	144	63.3	104	74.8	57
Aromatics >EC21-EC35	47.8	42.4	52.4	6.37	76	351	186	161	289	232	165
Aromatics >EC35-EC44	10.7	12.2	12	0.431	20.7	89	43.6	53.4	78.5	64.3	49.6
Aromatics >EC40-EC44	3.06	3.77	3.34	0.1	5.73	28.9	16.7	19.3	21.6	17.8	14.3
Acenaphthylene	31.8	26.8	42.6	12	379	406	1980	471	2600	3170	1270
Acenaphthene	194	24.1	17.7	8	98.7	49	236	82	196	454	167
Anthracene	404	74.4	65.9	16	568	809	1930	953	6830	8700	1760
Benz(a)anthracene	1360	470	262	14	2090	2050	3100	1900	12700	19100	4620
Benzo(a)pyrene	1500	557	303	15	1980	1810	2400	1400	10200	17100	4410
Benzo(b)fluoranthene	1290	564	325	25.8	3130	2840	3990	2420	16000	25800	6570
Benzo(k)fluoranthene	632	267	155	14	1060	942	1350	842	6020	9660	2410
Benzo(g,h,i)perylene	963	463	215	24	1260	1190	1460	1010	6470	11500	3570
Chrysene	1290	537	324	14.7	1810	1990	3150	1930	11900	16600	4730
Dibenzo(a,h)anthracene	161	93.5	47.2	0.023	305	297	331	200	1680	2630	890
Indeno(1,2,3-cd)pyrene	993	452	229	0.018	1870	1360	1680	1050	5910	14300	4130
Fluoranthene	2430	763	454	33.3	4470	4640	7450	4580	28400	51400	10700
Fluorene	151	28.5	71	10	337	358	1660	472	1320	3260	924
Naphthalene	418	102	197	9	2000	514	6020	1180	4620	2840	4000
Phenanthrene	1720	564	545	21.7	2080	2330	6460	3710	25300	31600	4850
Pyrene	2.21	0.677	0.39	0.0245	3.63	3.33	5.33	3.27	21.2	37.8	8.09
PAH, Total Detected USEPA 16	15.8	5.66	3.64	0.12	27	24.9	48.5	25.5	161	256	63
Naphthalene-d8 % recovery**	87.6	90.3	91.4	86.9	78.3	76.2	81.5	88.4	77	93.7	92.5
Acenaphthene-d10 % recovery**	87.6	87.8	96	88.8	82	79.4	87.9	93.9	79.8	93.9	92.7
Phenanthrene-d10 % recovery**	87.2	86.7	102	89.6	86.1	79.6	90.1	94.9	83.4	97.1	92.4
Chrysene-d12 % recovery**	84.2	86.5	99.6	75.6	78	74.1	85.7	89.8	78.6	105	87.7
Perylene-d12 % recovery**	77.4	83	88.3	72.3	70.8	72.2	73.8	81.5	74.9	103	90.2
Total Aliphatics >C12-C44	80.4	69.2	87	0.1	68.2	87.8	517	107	67.8	67.7	120
Total Aromatics >EC12-EC44	75.3	64.9	82.9	6.8	130	602	395	292	484	378	281
Total Aliphatics & Aromatics >C5-C44	156	134	170	6.8	198	690	912	399	551	446	402
Iron	184000	133000	61800	29800	126000	31200	56200	95200	68300	65900	80200
Manganese	34700	29900	21000	509	28300	3300	9310	16800	12900	3980	32400
Calcium	-	225000	-	6180	-	109000	-	145000	-	96200	-
Magnesium	-	12500	-	11400	-	44400	-	18400	-	17300	-
Phenol	0.01	0.01	0.0121	0.01	0.0113	0.0113	0.366	0.209	0.01	0.0228	0.228
Cresols	0.01	0.0107	0.0484	0.01	0.0113	0.01	0.0555	0.0464	0.0104	0.0114	0.0798
Xylenols	0.015	0.015	0.0847	0.015	0.015	0.015	0.0333	0.015	0.015	0.015	0.0228
Phenols, Total Detected monohydric	0.035	0.035	0.145	0.035	0.035	0.035	0.455	0.255	0.035	0.035	0.331
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.0158	-	0.0553	-	0.115	-	0.175	-	0.197	-
pH	10.9	12.7	10.1	7.98	10.8	8.87	11.1	11.3	9.92	9.55	10.9
Sulphate, Total											
Sulphur, Total	-	0.269	-	0.0331	-	0.115	-	0.238	-	0.204	-
Sulphate, Total potential	-	0.807	-	0.0993	-	0.345	-	0.714	-	0.612	-
Sulphate, acid soluble (total)	-	0.491	-	0.0336	-	0.199	-	0.319	-	0.475	-
Cyanide, Total	5.73	1	1	1	1	1.14	1	1	1	2.36	3.37
Exchangeable Ammonia as N	12	12	34.7	152	12	12	12	12	12	12	16.1
Asbestos Quantification - Gravimetric - %	-	0.001	-	-	-	-	-	-	-	-	-
Date of Analysis	-	06/11/2018	-	06/11/2018	-	05/11/2018	-	05/11/2018	-	05/11/2018	-
Analysed By	-	Andrzej Ferfecki	-	Renata Bozhkov	-	Marcin Magdziarek	-	James Richards	-	Barbara Urbanek-Walsh	-
Asbestos Quantification - PCOM Evaluation - %	-	0.0409	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	None	-	-	-	-	-	-	-	-	-
Analysts Comments	-	N/A	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	0.0411	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Comments	-	loose fibres in soil	-	-	-	-	-	-	-	-	-
Dibromofluoromethane**	103	109	105	120	96.7	103	94.9	91.9	108	107	96.3
Toluene-d8**	98.8	95.4	98	100	96.8	99.8	94	93.1	100	97.2	92.4
4-Bromofluorobenzene**	103	79.8	101	91.1	87.9	91.6	76.8	75.5	80.9	77.6	80.1
Methyl Tertiary Butyl Ether	2	0.1	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	1.8	0.09	1.8	0.09	1.8	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	1.4	0.07	1.4	0.07	1.4	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.8	0.04	0.8	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	2	0.1	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	2	0.1	2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	2.6	0.13	2.6	0.13	4.32	0.567	1.7	0.87	1.01	0.583	7.55
Sum of BTEX	8	0.4	8	0.4	8	0.4	0.4	0.4	0.4	0.4	0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-

Sample ID	3CML1	3CML1	3CML1V	3CM2V	3CM3V	3CM4V	3CM5V	3CM6V	3CM7V	3CM8V
Depth	0.6	1	1.6	1.4	1.7	4.204.20	4.704.70	3.2	3.3	3.5
Sampled Date	22/10/2018	22/10/2018	22/10/2018	19/10/2018	24/10/2018	24/10/2018	23/10/2018	23/10/2018	22/10/2018	22/10/2018
Soil Organic Matter (SOM)	0.35	2.52	1.1	5.72	1.35	1.03	6.29	32.9	1.6	1.29
Arsenic	6.66	14.7	13.8	16	12.4	6.78	18.3	16.8	11.1	12.2
Cadmium	0.02	0.265	0.02	0.02	0.02	0.18	0.356	3.46	0.02	0.02
Chromium	9.6	13	25.1	38.3	29.1	28.1	34	38.8	38.3	30.9
Copper	15.9	12.6	13.7	19.7	10.2	7.84	22.4	26.7	18	11
Lead	15.7	28.4	20	39.1	21.8	16.4	37.8	762	24	22.3
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	17.1	28.4	32.5	29.5	40.5	29.8	28.3	20.7	40.8	35
Selenium	1	1	1	1	1	1	1	1.52	1	1
Vanadium	19.7	21.8	45.9	65.5	58	42.4	63.3	73.9	59	52.7
Zinc	79.8	199	94.6	125	112	78.6	120	2780	114	111
Benzene										
Toluene										
Ethylbenzene										
sum of detected mpo xylene by GC										
Aliphatics >C5-C6	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.817	1.51	0.1	0.1	0.1	0.1	0.1	9.19	0.1	0.1
Aliphatics >C16-C21	1.91	1.51	0.1	0.1	0.1	0.1	0.1	72.6	0.1	0.1
Aliphatics >C21-C35	12.4	5.97	0.1	4.1	0.1	0.1	4.87	99	0.754	0.1
Aliphatics >C35-C44	2.96	0.959	0.1	0.1	0.1	0.1	0.1	15.2	0.1	0.1
Aromatics >EC5-EC7	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	1.8	1.07	0.1	0.1	0.1	0.1	3.38	19	0.1	0.1
Aromatics >EC16-EC21	7.49	3.68	0.1	1.17	0.992	1	5.78	174	0.1	0.1
Aromatics >EC21-EC35	23.3	9.48	1.37	10.5	4.69	6.69	29	553	2.9	5.53
Aromatics >EC35-EC44	7.42	1.99	0.1	1.55	3.16	0.1	3.17	139	0.731	0.705
Aromatics >EC40-EC44	2.47	0.438	0.1	0.292	1.32	0.1	0.1	33.4	0.1	0.1
Acenaphthylene	92.9	29.3	12	12	12	12	12	2810	12	16.3
Acenaphthene	17.9	8	8	8	8	8	8	487	8	8
Anthracene	261	51.8	16	16	16	16	16	2850	16	16
Benz(a)anthracene	415	181	14	33	14	14	39	11800	14	64.3
Benzo(a)pyrene	360	121	15	32.4	15	15	37.5	13600	15	59.2
Benzo(b)fluoranthene	494	227	15	49.1	15	15	49.6	11300	15	98.7
Benzo(k)fluoranthene	178	69.8	14	14	14	14	20.5	6320	14	30.3
Benzo(g,h,i)perylene	297	86.3	24	24	24	24	42.8	12700	24	37.7
Chrysene	451	200	10	34.1	10	10	41.2	10700	10	51.5
Dibenzo(a,h)anthracene	50.7	0.023	0.023	0.023	0.023	0.023	0.023	2820	0.023	0.023
Indeno(1,2,3-cd)pyrene	264	79.1	0.018	29.4	0.018	0.018	33.4	12800	0.018	51.2
Fluoranthene	1110	400	0.017	73.2	0.017	0.017	88.7	20800	0.017	106
Fluorene	108	31.4	10	10	10	10	10	903	10	10
Naphthalene	236	94.9	9	9	9	9	13.2	4240	9	42.6
Phenanthrene	821	294	15	30.9	15	15	50.6	6540	15	51.4
Pyrene	0.774	0.293	0.015	0.0549	0.015	0.015	0.0667	16.3	0.015	0.0864
PAH, Total Detected USEPA 16	5.93	2.16	0.118	0.337	0.118	0.118	0.483	137	0.118	0.695
Naphthalene-d8 % recovery**	82.6	91.2	92.7	91.3	83.2	89.5	83.8	86.9	80	93.2
Acenaphthene-d10 % recovery**	88.6	96.6	89.3	94.2	82.1	86.6	84.4	81.4	80.9	96.1
Phenanthrene-d10 % recovery**	88.1	95.4	92.5	97.7	83.7	87	81	84.8	80.3	97.7
Chrysene-d12 % recovery**	80.3	90.6	83.5	107	74.1	76.5	76.7	78.7	75	103
Perylene-d12 % recovery**	75.7	79.6	85.2	104	78.4	83.2	72.6	79.4	76.9	99.6
Total Aliphatics >C12-C44	18.1	9.95	0.1	4.1	0.1	0.1	4.87	196	0.754	0.1
Total Aromatics >EC12-EC44	40	16.2	1.37	13.3	8.85	7.69	41.4	886	3.63	6.23
Total Aliphatics & Aromatics >C5-C44	58	26.2	1.37	17.4	8.85	7.69	46.2	1080	4.38	6.23
Iron	22800	28600	40000	31700	34300	23500	29200	99100	27100	34800
Manganese	724	1130	1220	342	724	746	283	5290	355	1220
Calcium	72000	-	-	-	-	-	-	-	-	-
Magnesium	34900	-	-	-	-	-	-	-	-	-
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Soluble Sulphate 2:1 extract as SO4 BRE	0.0588	-	-	-	-	-	-	-	-	-
pH	10	8.26	7.99	7.55	7.83	8.39	7.92	8.64	8.1	8
Sulphate, Total										
Sulphur, Total	0.0301	-	-	-	-	-	-	-	-	-
Sulphate, Total potential	0.0903	-	-	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.0998	-	-	-	-	-	-	-	-	-
Cyanide, Total	1	1	1	1.33	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	65.5	12	77	31.5	228	12	158	111
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-
Date of Analysis	05/11/2018	-	-	-	-	-	-	-	-	-
Analysed By	Marcin Magdziarek	-	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	-	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	-	-	-	-	-	-	-	-
Comments	-	-	-	-	-	-	-	-	-	-
Dibromofluoromethane**	117	117	125	133	107	103	116	107	112	109
Toluene-d8**	102	102	103	104	95.8	96.5	99.5	97	100	102
4-Bromofluorobenzene**	75	79.9	92	87.1	107	109	93.9	78.8	99.4	100
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.166	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-

Sample ID	4CA7	4CA8	4CA8	4CA9	4CA9	4CA9	4CA7V	4CA8V	4CA9V
Depth	0.5	0.5	1	0.5	1	1.5	2.6	2.3	2.3
Sampled Date	03/10/2018	04/10/2018	04/10/2018	04/10/2018	04/10/2018	04/10/2018	03/10/2018	04/10/2018	04/10/2018
Soil Organic Matter (SOM)	2	0.46	0.464	4.79	1.84	9.71	1.42	0.498	0.962
Arsenic	9.43	19	9.62	11	27.6	28.1	12	12.1	9.34
Cadmium	0.0281	1.42	2.17	0.02	0.02	0.02	0.02	0.02	0.02
Chromium	0.9	9	0.9	32.1	0.9	8.97	34.4	40.6	34.3
Copper	9.62	14	1.4	17.2	28.1	24.1	10.8	13.1	11.6
Lead	9.84	18.5	10.6	58	15.8	14.6	31.3	28.3	22.6
Mercury	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	13.6	12.2	2.11	16.4	30.6	22.9	43.3	45.1	37.3
Selenium	3.39	10	1	1.52	1	2.6	1	1	1
Vanadium	79.2	17.5	17	87.8	37.2	33.9	62.1	64.8	59.3
Zinc	56.8	54	28.7	211	85	33	145	117	118
Benzene									
Toluene									
Ethylbenzene									
sum of detected mpo xylene by GC									
Aliphatics >C5-C6	0.01	0.01	0.01	0.0115	0.01	0.0142	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.01	0.0645	0.01	0.0297	0.01	0.01	0.01
Aliphatics >C8-C10	0.01	0.01	0.01	0.0416	0.01	0.0245	0.01	0.01	0.01
Aliphatics >C10-C12	0.01	0.0142	0.01	0.0583	0.01	0.0219	0.01	0.01	0.01
Aliphatics >C12-C16	4.91	10.2	4.82	2.58	0.918	1.11	0.1	0.1	0.1
Aliphatics >C16-C21	13.9	5.78	15.5	8.55	1.69	1.85	0.1	0.1	1.46
Aliphatics >C21-C35	59.6	70.7	20.4	41.2	15.4	17.6	0.1	0.1	1.7
Aliphatics >C35-C44	43.3	32.8	7.05	14.4	5.29	5.68	0.1	0.1	0.1
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.0581	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.0297	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.0281	0.01	0.0155	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.0385	0.01	0.0142	0.01	0.01	0.01
Aromatics >EC12-EC16	1.37	4.53	1.1	2.44	0.1	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	5.49	8.06	4.31	14	1.31	0.1	0.1	0.1	0.1
Aromatics >EC21-EC35	67.3	64.3	12.2	47.8	7.77	5.27	0.1	1.44	1.5
Aromatics >EC35-EC44	53.9	51.7	6.84	19.4	2.44	0.1	0.1	2.85	0.1
Aromatics >EC40-EC44	22.2	20.1	2.53	7.34	0.829	0.1	0.1	1.84	0.1
Acenaphthylene	120	120	12	323	12	12	12	12	12
Acenaphthene	80	80	8	121	8	8	8	8	8
Anthracene	160	160	16	556	16	16	16	16	16
Benz(a)anthracene	140	140	14	1380	38.5	14	14	14	14
Benzo(a)pyrene	150	150	15	1110	33.5	15	15	15	15
Benzo(b)fluoranthene	150	150	15	1840	68.7	15	15	15	15
Benzo(k)fluoranthene	140	140	14	555	22.2	14	14	14	14
Benzo(g,h,i)perylene	0.24	0.24	24	732	29.9	24	24	24	24
Chrysene	0.1	117	10	1260	42.6	10	10	10	10
Dibenzo(a,h)anthracene	0.23	0.23	0.023	209	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	180	180	0.018	1030	40.2	0.018	0.018	0.018	0.018
Fluoranthene	200	292	0.017	3100	89.8	0.017	0.017	0.017	0.017
Fluorene	0.1	0.1	10	264	10	10	10	10	10
Naphthalene	90	90	9	577	21.8	13	9	9	9
Phenanthrene	150	150	15	1680	56	24.1	15	15	15
Pyrene	0.191	0.37	0.0209	2.34	0.07	0.015	0.015	0.015	0.015
PAH, Total Detected USEPA 16	1.18	1.18	0.118	17.1	0.513	0.118	0.118	0.118	0.118
Naphthalene-d8 % recovery**	92.3	79.8	86.7	91.9	88.2	54.5	97.8	78.4	93.1
Acenaphthene-d10 % recovery**	88.6	87.7	84.6	101	91.7	57.7	93.7	81.3	87.8
Phenanthrene-d10 % recovery**	98.7	93.6	83.2	106	97.2	33.6	102	83	97.4
Chrysene-d12 % recovery**	92.1	79.5	73.3	98	87.2	8.09	100	73.6	93.8
Perylene-d12 % recovery**	99.4	81.5	77.1	86	81.1	3.46	103	70.7	88.7
Total Aliphatics >C12-C44	122	119	47.8	66.7	23.3	26.2	0.1	0.1	3.15
Total Aromatics >EC12-EC44	128	129	24.5	83.6	11.5	5.27	0.1	4.29	1.5
Total Aliphatics & Aromatics >C5-C44	250	248	72.3	151	34.8	31.7	0.1	4.29	4.66
Iron	215000	276000	454000	77300	144000	19600	43900	36300	38000
Manganese	3540	15300	2930	3470	4840	367	399	321	561
Calcium	-	-	-	-	-	-	76100	-	87800
Magnesium	-	-	-	-	-	-	35500	-	15700
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.0112	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.0224	0.01	0.01
Xylenols	0.015	0.015	0.185	0.015	0.015	0.015	0.0448	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.185	0.035	0.035	0.035	0.0784	0.035	0.035
Soluble Sulphate 2:1 extract as SO4 BRE									
pH									
Sulphate, Total									
Sulphur, Total									
Sulphate, Total potential									
Sulphate, acid soluble (total)									
Cyanide, Total									
Exchangeable Ammonia as N									
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	17/08/2018	-	03/08/2018
Analysed By	-	-	-	-	-	-	James Richards	-	Andrzej Ferfecki
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)									
Analysts Comments									
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	Detected	-	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	-	Not Detected	-	Not Detected
Comments	-	-	-	-	-	-	Fibre bundles in soil	-	0
Dibromofluoromethane**	104	101	109	113	109	108	106	111	102
Toluene-d8**	100	99.6	98.6	99.2	99	95.3	93.3	99.4	97.5
4-Bromofluorobenzene**	101	98.5	98	97.4	95.1	83.5	75.7	92.4	89.9
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.84	0.149	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	4.82	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	4.41	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	4.68	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	4.09	-
Water Analytical M (ad)	-	-	-	-	-	-	-	0.5	-
Water Gross M(ex)	-	-	-	-	-	-	-	8.51	-
Water Total M(ar)	-	-	-	-	-	-	-	8.51	-

Sample ID	4CB6	4CB6	4CB6	4CB7	4CB7	4CB8	4CB8	4CB9	4CB9	4CB6V	4CB7V	4CB8V	4CB9V
Depth	0.5	1	1.5	0.6	1.2	0.5	1	0.5	1	2.3	3.4	2.1	2.3
Sampled Date	03/10/2018	03/10/2018	03/10/2018	03/10/2018	03/10/2018	04/10/2018	04/10/2018	04/10/2018	04/10/2018	03/10/2018	03/10/2018	04/10/2018	04/10/2018
Soil Organic Matter (SOM)	4.71	3.29	4.53	3.88	3.95	0.85	0.559	6.4	1.15	2.53	0.962	2.29	0.898
Arsenic	10.5	10.9	15.2	14.8	15.5	20.5	27.8	14.4	12.6	11.7	11	17.9	14.8
Cadmium	0.254	0.02	1.58	0.39	0.2	1.81	2.69	0.02	0.02	0.02	0.02	0.02	0.02
Chromium	58	81.9	53.7	41.4	193	0.9	9	22.6	9.67	37.7	29.9	36.7	30
Copper	22.4	20.5	28.9	42.9	31.5	4.36	256	26	28.1	14.9	10.3	12.6	12.1
Lead	49.8	27.3	54.7	48.3	57.9	28.5	219	40.2	21	28.4	25.4	27.5	23.3
Mercury	0.14	0.14	1.4	0.14	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	19.1	18.4	33.5	20.7	18.4	8.7	33.8	23.9	30.6	35.3	36.3	41	36.5
Selenium	5.95	4	10	5.75	10	1.32	10	5.41	2.52	1.02	1	1	1
Vanadium	149	132	186	151	402	66	87.4	47.5	23.6	61.2	53	64.7	51.7
Zinc	243	122	184	150	175	74.5	321	173	111	125	118	111	100
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0134	0.01	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	0.1	0.1	0.1	5.4	6.73	0.1	1.6	0.625	0.1	0.1	0.1	0.37	0.1
Aliphatics >C16-C21	2.74	0.1	1.88	15.9	19.2	2.88	3.58	6.53	0.1	0.1	0.1	0.376	1.54
Aliphatics >C21-C35	26	5.65	15.4	56.7	61.1	35.6	12.4	25	3.53	0.1	0.1	4.09	2.23
Aliphatics >C35-C44	6.15	1.22	5.46	11.2	20.8	5.55	2.14	8.66	0.1	0.1	0.1	0.1	1.07
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	0.95	0.404	0.435	5.73	4.98	0.306	0.589	2.05	0.1	0.1	0.192	0.1	0.188
Aromatics >EC16-EC21	6.25	2.35	4.07	38.8	20.2	1.44	1.76	13.2	0.1	0.538	0.436	0.1	0.1
Aromatics >EC21-EC35	33.2	12.4	22.4	81.5	62.5	13.2	14	47.7	0.12	3.71	0.48	3.86	0.669
Aromatics >EC35-EC44	15.8	4.98	12.1	27.9	24.9	12.2	8.67	20	0.1	0.1	0.1	1.81	0.248
Aromatics >EC40-EC44	6.67	1.98	5.33	10.8	8.73	6.32	3.93	8.04	0.1	0.1	0.1	0.729	0.121
Acenaphthylene	206	97	166	311	401	27.5	12	422	12	12	12	12	12
Acenaphthene	46.9	40	26.8	59.8	71.8	8	8	28.2	8	8	8	8	8
Anthracene	349	128	251	469	556	86.6	16	485	16	16	16	16	16
Benz(a)anthracene	1060	371	554	1080	1580	115	90.3	1530	14	14	14	14	14
Benzo(a)pyrene	887	332	500	894	1340	93	104	1240	15	15	15	15	15
Benzo(b)fluoranthene	917	514	858	1490	1200	124	131	2090	15	15	15	15	15
Benzo(k)fluoranthene	395	191	328	451	723	56.6	50.3	715	14	14	14	14	14
Benzo(g,h,i)perylene	644	244	353	641	902	66.7	82.7	812	24	24	24	24	24
Chrysene	893	350	570	1050	1190	123	100	1230	10	10	10	10	10
Dibenzo(a,h)anthracene	131	0.115	84.7	145	159	0.023	0.023	220	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	807	254	409	723	922	63.7	73.3	1220	0.018	0.018	0.018	0.018	0.018
Fluoranthene	2470	744	1360	2710	3900	239	147	3200	0.017	0.017	0.017	0.017	0.017
Fluorene	168	62.5	110	243	351	20.2	10	143	10	10	10	10	10
Naphthalene	333	211	329	896	1210	106	13.6	262	9	9	9	9	9
Phenanthrene	1410	437	675	1680	2190	122	40.9	1460	15	15	15	15	15
Pyrene	1.73	0.529	0.958	1.94	2.76	0.188	0.154	2.54	0.0163	0.015	0.015	0.015	0.015
PAH, Total Detected USEPA 16	12.5	4.46	7.53	14.8	19.5	1.43	0.987	17.6	0.118	0.118	0.118	0.118	0.118
Naphthalene-d8 % recovery**	97.6	89.4	91.2	90.5	97	86.8	85.4	91.7	91	94.2	90	82.2	85.7
Acenaphthene-d10 % recovery**	94.8	85.9	86.6	88.4	91.5	86.3	82.8	101	100	85.1	85.6	83.9	95.1
Phenanthrene-d10 % recovery**	105	83.2	83.3	85.6	106	86.8	82.3	106	97.7	86.1	85.5	85.2	98.5
Chrysene-d12 % recovery**	107	76.3	71.1	81.7	112	77.8	72.4	87.1	90	79.5	83.7	77.2	87
Perylene-d12 % recovery**	107	73.8	72.2	78.8	108	73.3	70.5	88.6	84.9	78.7	82.9	70.5	76.5
Total Aliphatics >C12-C44	34.9	6.86	22.7	89.3	108	44.1	19.7	40.8	3.53	0.1	0.1	4.83	4.84
Total Aromatics >EC12-EC44	56.2	20.1	38.9	154	113	27.1	25	82.9	0.12	4.24	1.11	5.77	1.1
Total Aliphatics & Aromatics >C5-C44	91.2	27	61.6	243	220	71.2	44.7	124	3.65	4.24	1.11	10.6	5.95
Iron	166000	131000	124000	245000	120000	432000	456000	59400	45500	32900	30500	42800	36700
Manganese	8780	5570	4580	8050	9350	10700	3460	12500	4300	372	821	389	1040
Calcium	-	-	-	-	-	-	38900	-	139000	-	-	137000	-
Magnesium	-	-	-	-	-	-	6090	-	13800	-	-	19900	-
Phenol	0.01	0.01	0.01	0.0246	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.0123	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	17/08/2018	-	03/08/2018	-	-	01/08/2018	-
Analysed By	-	-	-	-	-	-	Andrzej Ferfecki	-	Lucy Caroe	-	-	Lucy Caroe	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Amosite (Brown) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Anthophyllite	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Tremolite	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Actinolite	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Non-Asbestos Fibre	-	-	-	-	-	-	Trace	-	Detected	-	-	Not Detected	-
Comments	-	-	-	-	-	-	0	-	0	-	-	0	-
Dibromofluoromethane**	112	116	105	106	109	106	105	103	99	101	105	101	99.1
Toluene-d8**	98.7	98.4	100	99.4	99.1	96.5	97.3	97.3	96.6	97.2	99.7	96	96.6
4-Bromofluorobenzene**	94	97.7	103	94.1	94.8	93.5	84.9	89.8	89.3	88.7	94.5	86.8	80.2
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.548
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4CC5	4CC5	4CC6	4CC6	4CC7	4CC7	4CC8	4CC8	4CC5V	4CC6V	4CC7V	4CC8V	4CD4
Depth	0.6	1.2	0.6	1.2	0.5	1	0.5	1.3	2	2.3	3	2.2	0.4
Sampled Date	03/10/2018	03/10/2018	03/10/2018	03/10/2018	03/10/2018	03/10/2018	04/10/2018	04/10/2018	03/10/2018	03/10/2018	03/10/2018	04/10/2018	03/10/2018
Soil Organic Matter (SOM)	1.19	0.764	0.984	0.384	1.66	0.662	2.93	1.27	10.1	7.95	6.62	1.12	1.17
Arsenic	9.3	4.21	9.79	8.96	17.9	20	14.4	11.7	17.3	17.3	32.3	16.2	15.9
Cadmium	0.02	0.02	0.02	0.2	1.79	0.2	1.49	2.23	0.207	0.02	0.168	0.02	0.2
Chromium	0.9	193	0.9	9	15.3	9	18.1	0.9	37.2	37.5	32.6	31.9	9
Copper	60.4	165	130	29.8	348	65.5	25.3	37	19.7	17.8	19.6	10.3	49.2
Lead	22.3	11.6	21.7	7.57	22.8	32.4	41.8	27.9	54.5	36.6	50.8	26.2	20.7
Mercury	0.14	0.14	0.14	1.4	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	1.4
Nickel	22.5	9.69	47.1	24.3	45	36.8	28.4	6.97	30	29.7	28.7	37.7	49.9
Selenium	1.92	26.2	1	10	5.78	10	10	1	1	1	1	1	10
Vanadium	246	812	207	108	128	128	91.5	38.3	59.6	59.9	59.8	56	232
Zinc	108	26.2	113	43.3	135	145	127	55.8	155	125	175	108	63.1
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0113	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0243	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0194	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0113	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	0.1	0.237	0.1	0.1	0.614	2.06	2.09	1.91	0.1	0.702	0.1	0.1	5.12
Aliphatics >C16-C21	2.62	1.99	0.1	2.27	4.39	6.59	9.52	7.01	0.1	0.1	0.1	0.1	18.7
Aliphatics >C21-C35	28.3	6.71	14.1	14	26	23.4	58	49.2	4.25	0.1	0.1	0.1	96.1
Aliphatics >C35-C44	2.59	0.1	5.38	5.39	9.22	8.55	19.3	4.57	0.1	0.1	0.1	0.1	10.8
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.013	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	0.324	0.1	0.1	0.1	0.763	0.94	2.01	0.1	0.248	0.1	0.1	0.1	0.795
Aromatics >EC16-EC21	1.55	0.555	1.99	0.255	5.44	3.43	7.98	2.64	1.17	0.1	0.1	0.1	4.68
Aromatics >EC21-EC35	11.7	3.06	15.1	6.64	29.3	15	51.7	14.7	51.9	11.6	11.2	0.1	26.7
Aromatics >EC35-EC44	4.44	0.1	9.39	3.56	15.7	6.32	35.7	3.19	7.11	0.934	0.649	0.1	5.17
Aromatics >EC40-EC44	1.97	0.1	3.91	1.32	6.61	2.35	14.5	0.983	1.58	0.1	0.1	0.1	1.53
Acenaphthylene	12	12	42	12	92.5	40.5	101	12	12	12	12	12	19.5
Acenaphthene	8	8	8	8	17.1	8	17.5	18	8	8	8	8	8
Anthracene	16	16	58.8	16	113	53	77	85.1	16	16	16	16	30.3
Benz(a)anthracene	43	40.8	234	54.1	498	168	580	770	32.7	36.3	14	14	91.2
Benzo(a)pyrene	42	40.9	200	49.6	475	156	639	740	33.4	35.8	15	15	89.5
Benzo(b)fluoranthene	67.8	64.1	271	63.3	618	272	827	1000	48.2	80.5	36	15	188
Benzo(k)fluoranthene	25.4	27.9	130	28	217	97	308	434	14	23.6	14	14	65
Benzo(g,h,i)perylene	45.1	52.5	155	38.5	385	119	460	525	24	24	24	24	84.8
Chrysene	53.3	51.7	224	47.2	426	171	563	692	41.2	49.6	25.2	10	114
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	69	28.8	76.6	130	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	40.5	41.1	165	38.2	406	115	553	475	0.018	30	0.018	0.018	77.2
Fluoranthene	68.5	106	451	98.6	1080	346	828	1070	92.7	90	46.9	0.017	178
Fluorene	10	10	24.5	10	48.3	27.7	19	10	10	10	10	10	10
Naphthalene	20.9	9	118	25	157	80.9	88.4	14.1	9	9	9	9	43.1
Phenanthrene	54.6	68.9	199	46.9	470	204	256	386	50	45.3	25.6	15	89.6
Pyrene	0.0581	0.0886	0.478	0.0969	0.818	0.255	0.949	1.01	0.0708	0.0665	0.0348	0.015	0.172
PAH, Total Detected USEPA 16	0.519	0.583	2.75	0.586	5.89	2.13	6.34	7.35	0.369	0.457	0.169	0.118	1.24
Naphthalene-d8 % recovery**	90.1	98.8	98.8	98	98.8	95.1	98.8	88.1	97.6	90.8	87.3	84.8	89.1
Acenaphthene-d10 % recovery**	90.7	94.9	93.4	92.9	96	90.8	89.2	86.1	89.7	89.8	89.9	82.4	85.8
Phenanthrene-d10 % recovery**	98.4	105	103	104	105	92	96.5	85.2	93.9	91.2	90.6	81.3	83.6
Chrysene-d12 % recovery**	101	109	107	101	110	85.4	98.6	90.7	85.2	85.7	76.1	82.1	72.9
Perylene-d12 % recovery**	93.8	102	102	101	108	83.7	97.7	92	85.7	85.9	70.6	81.3	72.4
Total Aliphatics >C12-C44	33.6	8.94	19.5	21.7	40.3	40.6	88.9	62.7	4.25	0.702	0.1	0.1	131
Total Aromatics >EC12-EC44	18	3.61	26.4	10.5	51.2	25.7	97.4	20.5	60.4	12.6	11.8	0.1	37.3
Total Aliphatics & Aromatics >C5-C44	51.6	12.5	45.9	32.2	91.5	66.3	186	83.3	64.7	13.3	11.8	0.1	168
Iron	284000	196000	436000	487000	570000	386000	228000	591000	27500	28800	29600	32500	440000
Manganese	6880	59800	2910	2180	6150	4300	8700	6140	224	208	362	644	14000
Calcium	-	-	-	-	-	-	6080	-	145000	101000	-	184000	-
Magnesium	-	-	-	-	-	-	796	-	17100	16400	-	11900	-
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0888	0.0523	0.129	0.0805	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0234	0.0115	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0888	0.0523	0.152	0.092	0.035
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	17/08/2018	-	03/08/2018	01/08/2018	-	01/08/2018	-
Analysed By	-	-	-	-	-	-	Lucy Caroe	-	Andrzej Ferfecki	James Richards	-	Marcin Magdziarek	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Tremolite	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Actinolite	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Comments	-	-	-	-	-	-	0	-	0	0	-	0	-
Dibromofluoromethane**	116	106	104	110	105	113	109	103	99.1	109	104	102	111
Toluene-d8**	97.6	99.3	99.9	99.7	97.7	97	96.1	97.3	94.9	97.1	97.7	98.3	100
4-Bromofluorobenzene**	99.5	96	95.8	97.4	93.1	88.6	78.7	89.2	86.9	95.3	86.1	83.6	97.1
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.34	0.13	0.13	0.13	0.13	0.13	0.13	0.151	0.13	0.13	0.275	0.221	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	28.1	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	21	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	27.9	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	20.3	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	0.5	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	25.3	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	25.3	-	-	-	-	-	-

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4CD5	4CD5	4CD6	4CD6	4CD7	4CD4V	4CD5V	4CD6V	4CE4	4CE4	4CF2	4CF4	4CF4	4CF4	4CF4	4CF5	4CF5	4CF5
Depth	0.5	1	0.5	1	0.5	2.2	2.2	2.8	0.5	0.9	0.5	0.5	1	1.5	2	0.5	1	1.5
Sampled Date	04/10/2018	04/10/2018	04/10/2018	04/10/2018	04/10/2018	03/10/2018	04/10/2018	04/10/2018	03/10/2018	03/10/2018	11/10/2018	03/10/2018	03/10/2018	03/10/2018	03/10/2018	02/10/2018	02/10/2018	02/10/2018
Carbon																		
Soil Organic Matter (SOM)	4.02	0.812	5.55	1.22	5.28	4.81	3.47	1.74	5	2.52	1.55	12.6	2.76	3.03	1.81	3.57	3.69	1.76
Metals (Solids)																		
Arsenic	11.3	10.9	14.5	6.46	14.9	14.5	13.8	18.8	11.9	9.43	12	19	20	25.6	15.7	21	8.09	7.04
Cadmium	1.89	1.16	0.02	1.26	1.49	0.02	0.02	0.02	0.2	0.02	0.2	0.2	0.02	0.2	3.38	0.2	0.353	0.708
Chromium	104	0.9	30.3	9	18.5	43.4	40.3	38.4	560	448	356	212	0.9	70.4	9	120	101	78.3
Copper	23.6	10.5	18.4	22.2	35.2	18.9	14.4	15.4	14	19.1	42.1	19.9	31.5	19.9	14	29.8	18.9	18
Lead	125	26.8	97.2	26.8	176	36.9	32	31.3	25.1	30.4	7	42.1	30.4	38.1	35.6	45.7	20.7	31
Mercury	1.4	0.14	0.14	1.4	0.14	0.14	0.14	0.14	1.4	0.14	1.4	1.4	0.14	1.4	1.4	1.4	0.14	0.14
Nickel	29.3	11.2	15	29	96.2	38.7	35.3	42.6	16.8	16.1	16.2	32.6	13.2	32.2	22.8	23.9	14.4	11
Selenium	10	1	2.46	10	25.2	1	1	1	11	8.99	19.2	10	1.85	10	10	16.3	12.7	8.96
Vanadium	336	56.1	137	126	88.8	71.4	63.5	64.6	666	612	1150	222	143	401	84.5	562	454	298
Zinc	455	101	444	89.2	693	142	121	124	119	153	20.6	120	78.3	114	57.2	168	86.9	127
TPH Criteria Working Group (TPH CWG)																		
Benzene																		
Toluene																		
Ethylbenzene																		
sum of detected mpo xylene by GC																		
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.012
Aliphatics >C6-C8	0.0132	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0208	0.0234	0.04
Aliphatics >C8-C10	0.011	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0219	0.0468	0.036
Aliphatics >C10-C12	0.0121	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0658	0.166	0.091
Aliphatics >C12-C16	2.12	3.02	1.25	0.603	0.644	0.1	0.1	0.1	2.76	2.42	0.904	5.37	3.92	10.9	0.645	7.79	17.4	2.83
Aliphatics >C16-C21	9.27	16.9	11.1	7.44	4.13	0.1	0.388	0.827	20.4	18	4.05	23.2	13.4	33.2	6.93	17.2	31.2	7.7
Aliphatics >C21-C35	73.1	128	59.7	49.1	36.4	0.1	0.877	0.1	131	100	19.2	127	109	320	57.1	78.8	86.1	50.8
Aliphatics >C35-C44	29.8	35.3	25.6	17	12.3	0.1	0.1	0.1	44.4	32.6	7.56	54.9	20.7	71.9	7.13	13.7	27.5	8.2
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0142	0.0316	0.024
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0438	0.111	0.061
Aromatics >EC12-EC16	4.47	1.51	1.51	0.888	0.662	0.1	0.1	0.131	5.76	5.93	0.1	6.46	0.951	3.21	0.1	4.13	3.47	2.32
Aromatics >EC16-EC21	11.5	5.82	9.18	5.81	4.72	0.1	0.1	1.38	70	77.2	3.06	19.8	4.94	14.4	0.1	15.6	13.7	8.98
Aromatics >EC21-EC35	74.5	58.2	44.7	32.5	30.9	3.8	7.94	5.15	204	212	25.4	99.7	37.8	103	8.01	91.5	93.6	59.1
Aromatics >EC35-EC44	39.3	37.8	27.7	27.9	16	0.1	0.602	9.46	65.3	61.4	10.1	91.5	14.1	46.8	1.53	43.7	46.3	29.4
Aromatics >EC40-EC44	16	15.4	12.2	12.1	6.16	0.1	0.1	4.87	23.2	21	3.9	41.2	5.07	18.5	0.1	16.2	17.7	11.1
Polyaromatic Hydrocarbons (PAHs)																		
Acenaphthylene	80.5	20.1	60	96.3	101	12	12	12	1240	2010	12	120	12	94.3	12	52.6	125	25.9
Acenaphthene	139	10	40	12.1	16	8	8	8	205	127	9.93	80	8	22.9	8	40.2	35.5	22.6
Anthracene	265	30.5	80	155	116	16	16	16	3250	5500	22.5	160	23.6	180	16	128	357	62.5
Benz(a)anthracene	1480	119	288	414	343	14	14	14	7740	11900	311	461	87.4	459	42.4	809	1080	412
Benzo(a)pyrene	1990	121	255	356	344	15	15	15	6400	10400	459	398	96.9	429	41.5	907	1150	461
Benzo(b)fluoranthene	2600	154	312	486	567	15	15	15	8080	12300	917	539	159	695	47.5	1140	1260	591
Benzo(k)fluoranthene	942	65.8	113	195	214	14	14	14	3240	5040	275	215	52.8	244	21.5	502	460	233
Benzo(g,h,i)perylene	1360	101	176	231	274	24	24	24	4650	7230	499	348	77.9	323	34.8	777	991	413
Chrysene	1660	116	254	370	318	10	10	10	6980	10800	395	402	95	431	42	848	1060	456
Dibenzo(a,h)anthracene	301	0.023	0.115	41.7	63.8	0.023	0.023	0.023	875	1710	78.7	0.23	0.023	76.3	0.023	115	157	62.7
Indeno(1,2,3-cd)pyrene	1820	99.2	188	234	370	0.018	0.018	0.018	5510	6400	367	312	86	320	40.3	829	859	333
Fluoranthene	2430	214	589	665	808	0.017	0.017	0.017	19500	28600	550	1070	147	957	65.3	1440	2270	729
Fluorene	88	13.8	50	34.1	51.4	10	10	10	612	983	10	0.1	11.6	86.1	10	37.5	150	22.4
Naphthalene	193	51.8	45	101	190	9	9	9	946	1540	13.1	542	52.4	212	20.5	104	71.1	63.2
Phenanthrene	1100	122	262	256	482	15	15	15	7980	8910	170	836	103	680	38.7	593	1370	306
Pyrene	2.18	0.18	0.52	0.648	0.6	0.015	0.015	0.015	14.5	20.1	0.515	0.869	0.126	0.714	0.0627	1.3	1.85	0.669
PAH, Total Detected USEPA 16	18.6	1.42	2.96	4.3	4.86	0.118	0.118	0.118	91.7	134	4.58	5.99	1.12	5.92	0.457	9.62	13.2	4.86
Naphthalene-d8 % recovery**	86.6	89.5	88.8	87	87.3	82.3	93.9	71.3	91.8	87.9	94.2	91.4	82.3	93.8	90.2	81	95.5	80.4
Acenaphthene-d10 % recovery**	94.1	82.2	79.5	85.6	92.1	81.9	88.4	74.4	82.4	80.7	91.6	83.6	92.2	91	87.1	85.8	93.7	78.4
Phenanthrene-d10 % recovery**	101	84.2	81.7	86.3	91.4	83.2	99	78.8	84.2	84.5	92.1	86.9	94.8	94	95.3	91.1	91.8	78.3
Chrysene-d12 % recovery**	90.1	72.9	74.4	85.1	78.1	79.2	93.2	71.1	94.4	85.4	96	90.6	81.2	87.3	98.2	84	89.9	76.6
Perylene-d12 % recovery**	85.1	75	71.4	83.7	77.4	75.3	87.9	70.3	89.3	84.8	109	77.6	84.1	85.2	91.9	81.6	91.3	74.6
Total Aliphatics >C12-C44	114	183	97.6	74.1	53.5	0.1	1.26	0.827	199	154	31.8	211	147	436	71.8	117	162	69.6
Total Aromatics >EC12-EC44	130	103	83.1	67.1	52.3	3.8	8.54	16.1	345	357	38.5	218	57.8	167	9.54	155	157	99.9
Total Aliphatics & Aromatics >C5-C44	244	287	181	141	106	3.8	9.81	16.9	544	510	70.3	428	205	603	81.3	273	320	170
Metals - (Solid)																		
Iron	231000	315000	130000	255000	169000	33700	33900	39400	285000	215000	423000	165000	418000	380000	639000	302000	240000	273000
Manganese	14600	4400	7640	6880	91300	262	400	355	26400	25200	32600	9350	8190	13000	11400	28500	24900	16600
Metals - (Liquid)																		
Calcium	-	-	8780	-	141000	-	97000	-	-	159000	-	-	-	-	-	-	-	-
Magnesium	-	-	1700	-	17400	-	11700	-	-	13000	-	-	-	-	-	-	-	-
Phenols																		
Phenol	0.01	0.01	0.0118	0.01	0.0228	0.01	0.0565	0.106	0.01	0.196	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.0114	0.01	0.0113	0.0118	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0294	0.01
Xylenols	0.015	0.015	0.015	0.015	0.0228	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	1.16	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.057	0.035	0.0678	0.118	0.035	0.196	0.035	0.035	0.035	0.035	0.035	0.035	1.19	0.035
Inorganics																		
Soluble Sulphate 2:1 extract as SO4 BRE																		
pH																		
Sulphate, Total																		
Sulphur, Total																		
Sulphate, Total potential																		
Sulphate, acid soluble (total)																		
Cyanide, Total																		
Exchangeable Ammonia as N																		
Asbestos																		
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	17/08/2018	-	08/08/2018	-	01/08/2018	-	-	02/08/2018	-	-	-	-	-	-	-	-
Analysed By	-	-	Andrzej Ferfecki	-	Lucy Caroe	-	Lucy Caroe	-	-	Lucy Caroe	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																		
Analysts Comments																		
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	Not Detected	-	Trace	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	-	-	Not Detected	-	Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Fibrous Tremolite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Fibrous Actinolite	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	-	-	Trace	-	Not Detected	-	Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Comments	-	-	0	-	Loose fibres in soil	-	0	-	-	0	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																		
Dibromofluoromethane**	105	108	106	102	100	95.3	105	105	107	94.7	106	114	111	101	104	107	108	97.3
Toluene-d8**	98.8	97.4	98	98.3	97.7	95.8	98	98.5	99	95.9	98.3	95.6	100	99.3	99.7	99.7	92.5	95.8
4-Bromofluorobenzene**	95.6	82.6	97.1	91.7	88.4	78.3	92.6	90.4	99.2	72.5	94.9	88.5	97	94.3	100	94.3	81.8	74.5
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
Benzene	0.09	0.176	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.18
Toluene	0.07	0.146	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.14
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.574	0.08
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.39	0.2
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.651	0.2
Naphthalene	0.13	0.13	0.13	0.199	0.185	0.474	0.13	0.13	0.13	0.459	0.13	0.13	0.13	0.13	0.13	0.13	689	1.59
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	3.61	0.8
Subcontracted: Inorganics																		
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	25.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	20.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	24.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	20.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	16.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4CF6	4CF6	4CF7	4CF7	4CF4V	4CF6V	4CG4	4CG4	4CG4	4CG5	4CG5	4CG5	4CG6	4CG6	4CG6	4CG4V	4CG5V	4CG6V
Depth	0.6	1.2	0.6	1.2	2.3	2.3	0.5	1.2	1.8	0.5	1	1.5	0.3	1	1.5	2.4	2.8	2.9
Sampled Date	02/10/2018	02/10/2018	02/10/2018	02/10/2018	03/10/2018	02/10/2018	11/10/2018	11/10/2018	11/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	11/10/2018	02/10/2018	02/10/2018
Carbon																		
Soil Organic Matter (SOM)	5.33	2.74	4.71	4.62	1.43	5.17	5.05	6.62	0.436	5.45	7.9	2.21	2.83	0.974	1.44	2.69	1.72	43.6
Metals (Solids)																		
Arsenic	9.91	6.6	10.1	9.87	8.27	12.3	7.22	8.6	6.66	8.55	12.1	10.4	6.4	9.75	13.4	16.7	13.3	27.4
Cadmium	0.2	0.0287	0.2	2.58	0.02	0.02	0.944	0.02	1.18	0.261	0.2	0.711	0.154	0.966	0.02	0.432	0.02	0.02
Chromium	109	46.7	89.8	320	0.9	37.2	232	348	467	127	342	7.82	19.1	8.19	38.7	49.5	35.8	12.1
Copper	21.2	10.8	19.5	22.7	33.7	16	18.3	27.7	29.7	14.6	23.1	20.8	10.3	24.7	14.9	11.9	17.1	20.7
Lead	65.1	19.7	91.3	143	13.5	33.9	17.9	15.1	15.6	57.4	31.2	25	14.9	20.5	4.47	26.1	29.6	20.2
Mercury	1.4	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	25.8	14.4	24.1	37.7	11.6	25.8	14.8	15.6	12.8	13.7	57.8	15.1	41.5	14.3	4.71	33	42.8	27.3
Selenium	10	7.11	10	10	1.07	1	7.09	7.8	12.3	7.04	12.8	5.22	4.66	7.14	5.1	1	1.45	1.81
Vanadium	642	124	357	258	18	53.6	911	941	1890	363	894	169	250	143	121	84.6	57	37.6
Zinc	235	92.6	329	1380	50.8	126	73.6	50.6	61.4	275	131	99.4	344	126	53.7	102	135	130
TPH Criteria Working Group (TPH CWG)																		
Benzene																		
Toluene																		
Ethylbenzene																		
sum of detected mpo xylene by GC																		
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.0224	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.0112	0.0133	0.01	0.01	0.01	0.0714	0.01	0.01	0.01	0.0132	0.01	0.0239	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.0162	0.0102	0.01	0.01	0.01	0.581	0.01	0.01	0.01	0.01	0.01	0.0239	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.0122	0.0265	0.01	0.01	0.01	1.66	0.01	0.01	0.01	0.0121	0.01	0.0559	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C12-C16	0.1	4.37	2.53	3.85	0.96	0.659	1.29	0.1	0.1	21	29.2	43.3	1.99	2.24	1.34	0.1	0.1	0.459
Aliphatics >C16-C21	8.44	11	10.2	14.2	4.15	0.1	6.63	0.767	2.02	46.4	67.6	73.5	10.2	11.9	6.8	0.1	1.13	2.49
Aliphatics >C21-C35	76.7	61.9	123	118	48.8	2.29	73.7	20.6	33.6	165	199	141	82.6	87.6	46.4	0.1	3.84	111
Aliphatics >C35-C44	21.6	9.28	64.5	65.6	7.31	0.132	55.5	11.1	18.2	42.5	49.3	30.2	30.7	15.5	4.23	0.1	0.405	2.3
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.0101	0.01	0.01	0.01	0.01	0.388	0.01	0.01	0.01	0.01	0.01	0.016	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.0173	0.01	0.01	0.01	1.11	0.01	0.01	0.01	0.01	0.01	0.0365	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	2.19	3.7	4.5	2.67	0.1	3.66	1.98	0.449	0.1	7.9	9.11	7.91	2.98	0.967	1.88	0.1	0.746	6.3
Aromatics >EC16-EC21	12	14.8	12.6	11.7	0.785	1.4	9.97	2.7	4.35	23.9	27.7	22.2	10.5	5.39	6.94	0.1	1.38	13.1
Aromatics >EC21-EC35	65.5	99.3	92.8	91.7	19.9	23.8	113	19.7	41.1	112	143	75.2	63.5	42.8	31.5	0.186	13.9	546
Aromatics >EC35-EC44	38.6	38	92.4	79.8	3.09	2.63	109	9.57	21.5	60.9	65.5	30.6	48.9	22.6	15.2	0.1	4.3	367
Aromatics >EC40-EC44	14.9	13.1	41.8	35	0.555	0.1	46.7	3.58	8.09	23.7	24.6	11.6	20.8	9.07	5.96	0.1	1.49	50
Polyaromatic Hydrocarbons (PAHs)																		
Acenaphthylene	79.3	59.6	81	102	12	12	120	34	12	55.2	60	12	12	12	17.1	12	12	12
Acenaphthene	15.5	18.8	40	21.6	8	8	80	19	50.7	18.7	46.3	15	12.7	8	8	8	8	8
Anthracene	120	87.2	104	148	16	16	160	59	64.1	92.7	80	26.9	46.5	22.3	40.2	16	16	16
Benz(a)anthracene	324	365	360	523	14	14	140	507	1090	490	1070	152	222	114	196	14	14	48.4
Benzo(a)pyrene	310	413	347	505	15	15	150	550	1670	654	1590	178	274	122	139	15	15	15
Benzo(b)fluoranthene	358	638	720	645	15	15	150	723	2160	566	1700	206	300	148	306	15	15	82.2
Benzo(k)fluoranthene	146	237	293	236	14	14	140	301	734	277	633	93.7	123	53.1	111	14	14	14
Benzo(g,h,i)perylene	246	328	282	377	24	24	0.24	412	1170	539	1160	155	206	115	111	24	24	24
Chrysene	291	395	379	552	10	10	0.1	500	1280	502	1120	159	250	129	228	10	10	59.4
Dibenzo(a,h)anthracene	44.2	71.9	0.115	63.9	0.023	0.023	0.23	80.6	190	89	193	0.023	40.4	0.023	28.8	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	227	332	368	325	0.018	0.018	180	329	1220	509	1110	176	210	100	115	0.018	0.018	0.018
Fluoranthene	720	647	756	1050	0.017	0.017	0.17	581	1280	746	1160	248	274	181	269	0.017	0.017	155
Fluorene	50.7	32.9	50.9	54.5	10	10	0.1	22.8	16.5	56.9	50	17.3	18.1	10	10	10	10	10
Naphthalene	185	133	166	245	9	21.1	90	159	21.1	215	117	49.5	25.5	37	23.8	9	9	9
Phenanthrene	459	331	438	563	15	15	150	278	290	457	384	140	151	94	127	15	15	49.2
Pyrene	0.537	0.54	0.612	0.89	0.015	0.015	0.15	0.526	1.35	0.737	1.31	0.252	0.251	0.215	0.256	0.015	0.015	0.0943
PAH, Total Detected USEPA 16	4.11	4.63	4.96	6.3	0.118	0.118	1.18	5.08	12.6	6	11.6	1.87	2.4	1.33	1.97	0.118	0.118	0.488
Naphthalene-d8 % recovery**	80.9	82	81.7	95	92	94	90.8	95.3	87.1	86.9	83.3	79.7	17	83.4	79.2	85.4	75.8	83.6
Acenaphthene-d10 % recovery**	78	79.3	89.7	88.7	89.7	93.4	78	88.9	88.1	78.5	82.8	85.9	16.2	77.8	77.2	89.2	82.9	89.8
Phenanthrene-d10 % recovery**	77	80	88.5	89.5	91.1	93.4	82.4	89	95.3	79.9	78.6	83.2	16	78.9	75.5	92.5	87.9	94.7
Chrysene-d12 % recovery**	72.2	74.5	83.6	83.3	88.4	88.9	88.8	98.3	88.5	76.2	77.3	81.8	15.7	73.4	72.4	82.1	91.6	82.8
Perylene-d12 % recovery**	70.9	74.3	79	79.3	89.9	89.4	90.8	101	89.2	72.7	71.9	80.6	15.1	76.7	71.2	95.8	90.6	76.7
Total Aliphatics >C12-C44	107	86.6	200	201	61.3	3.08	137	32.5	53.8	275	345	288	125	117	58.8	0.1	5.37	117
Total Aromatics >EC12-EC44	118	156	202	186	23.8	31.5	234	32.4	66.9	205	245	136	126	71.8	55.5	0.186	20.3	933
Total Aliphatics & Aromatics >C5-C44	225	242	402	387	85	38.4	371	64.9	121	480	590	424	251	189	114	0.186	25.6	1050
Metals - (Solid)																		
Iron	158000	189000	226000	206000	58500	24300	133000	121000	154000	157000	155000	299000	249000	352000	96500	32400	32300	23500
Manganese	10700	11600	10400	10900	1610	175	21100	26500	46100	13100	22000	6530	6670	10000	10400	915	967	708
Metals - (Liquid)																		
Calcium	38700	158000	-	69600	102000	-	-	-	-	-	-	98300	130000	-	157000	146000	-	13600
Magnesium	6400	9980	-	6500	14200	-	-	-	-	-	-	11500	19500	-	44000	24200	-	7080
Phenols																		
Phenol	0.01	0.0222	0.0113	0.0605	0.0666	0.0113	0.01	0.01	0.01	0.01	0.01	0.01	0.0784	0.01	0.0112	0.01	0.01	0.01
Cresols	0.01	0.01	0.0113	0.0363	0.01	0.01	0.0147	0.01	0.01	0.01	0.01	0.01	0.0112	0.01	0.0112	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.0968	0.0666	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0896	0.035	0.035	0.035	0.035	0.035
Inorganics																		
Soluble Sulphate 2:1 extract as SO4 BRE																		
pH																		
Sulphate, Total																		
Sulphur, Total																		
Sulphate, Total potential																		
Sulphate, acid soluble (total)																		
Cyanide, Total																		
Exchangeable Ammonia as N																		
Asbestos																		
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	17/08/2018	06/08/2018	-	07/08/2018	02/08/2018	-	-	-	-	-	-	17/08/2018	07/08/2018	-	07/08/2018	01/08/2018	-	29/10/2018
Analysed By	James Richards	Andrzej Ferfecki	-	Renata Bozhkov	Andrzej Ferfecki	-	-	-	-	-	-	Lucy Caroe	Renata Bozhkov	-	Renata Bozhkov	James Richards	-	Christian Hallam
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																		
Analysts Comments																		
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	-	Detected	Not Detected	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Non-Asbestos Fibre	Not Detected	Trace	-	Not Detected	Not Detected	-	-	-	-	-	-	Detected	Not Detected	-	Detected	Not Detected	-	Not Detected
Comments	0	0	-	Loose fibres in soil	0	-	-	-	-	-	-	0	0	-	0	0	-	0
Volatile Organic Compounds (VOCs)																		
Dibromofluoromethane**	107	104	102	95.1	103	101	116	102	113	102	114	104	104	105	97.9	106	106	104
Toluene-d8**	96.7	95.7	98.2	94.2	98.6	98.1	100	99.8	99.2	98.9	98.7	95.4	99.8	96.8	97.1	98.9	98.8	98.3
4-Bromofluorobenzene**	75.8	85.7	91.7	79.9	98.1	96.8	102	96.1	102	102	92	80.4	101	86.7	90.8	91.6	92	94.9
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.165	0.994	0.13	2.65	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.156	0.13	0.232	0.37	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																		
Gross Calorific Value in Dry Matter Q(V/gr/d)	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	14.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	15.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	12.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	12.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4CH1	4CH1	4CH2	4CH2	4CH4	4CH4	4CH4	4CH5	4CH5	4CH5	4CH6	4CH6	4CH6	4CH7	4CH7	4CH7	4CH8	4CH8	4CH8
Depth	0.5	1	0.5	1	0.5	1	1.6	0.5	1	1.8	0.5	1	1.5	0.5	1	1.7	0.5	1	1.5
Sampled Date	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018
Carbon																			
Soil Organic Matter (SOM)	9.78	7.02	26	10.9	5.71	4.29	4.31	4.59	6.15	4.21	4.9	29.8	8.22	5.95	7.17	4.43	3.88	6.05	5
Metals (Solids)																			
Arsenic	10.1	12.2	11.2	15.7	13.9	14.8	10	16.8	13.8	12.4	16.1	10.7	11.1	75.5	30.8	89.2	5.32	9.16	8.37
Cadmium	0.2	0.02	0.998	0.2	0.2	0.2	0.02	0.2	0.2	0.2	0.558	0.2	0.174	1.03	0.513	0.2	0.02	2.38	0.534
Chromium	103	106	0.9	9	23.8	9.03	30.5	115	101	34.4	99.3	369	49.5	37.5	25.9	165	0.9	135	434
Copper	16.1	32.5	19.5	23.9	20.6	19.1	12.5	38.8	25.9	28.6	43.4	42.6	17.7	38.4	26	32.5	5.56	74.6	25.7
Lead	45.3	45.8	35.8	47.2	64.3	51.3	26	55.9	66.2	36.1	67.6	26.7	41.6	76.3	97.4	56.1	37.4	112	65.8
Mercury	1.4	0.14	1.4	1.4	1.4	1.4	0.14	1.4	1.4	1.4	0.14	1.4	0.14	0.14	0.14	1.4	0.14	1.4	0.14
Nickel	23.7	22.1	27.1	33.7	49.7	28	13.3	47.3	27.5	27.2	27	238	18	38.9	64	36	13.9	29.8	15.1
Selenium	10	1.71	1	10	10	10	1.25	10	10	10	6.15	10	3.89	20.9	7.99	25	1.7	10	9.23
Vanadium	148	143	56.4	49.4	142	132	87.5	205	176	104	309	281	92.1	137	75.8	166	54.9	143	322
Zinc	133	184	221	185	179	174	103	195	251	114	301	138	180	384	433	240	193	366	223
TPH Criteria Working Group (TPH CWG)																			
Benzene																			
Toluene																			
Ethylbenzene																			
sum of detected mpo xylene by GC																			
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0231	0.01	0.0117	0.0119	0.0107	0.0104	0.022	0.01
Aliphatics >C8-C10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0147	0.01	0.01	0.01	0.01	0.01	0.012	0.01
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0274	0.01	0.01	0.01	0.01	0.01	0.011	0.01
Aliphatics >C12-C16	3.2	3.06	1.2	1.98	2.1	2.21	1.96	0.453	1.39	0.1	4.72	37.2	2.05	0.1	1.5	1.24	0.1	0.1	0.1
Aliphatics >C16-C21	14.6	22.8	5	2.79	12.8	10.7	19.3	4.12	6.57	0.1	18.9	114	11.9	5.8	7.05	5.53	4.61	2.81	5.01
Aliphatics >C21-C35	88.6	49.5	52.1	34.7	129	126	339	53.4	57.3	11.8	83.8	92.5	60.5	64.2	49.4	34.9	64.5	33.8	40.7
Aliphatics >C35-C44	32.9	11.9	25.5	26.1	69	82.2	203	23.2	33.6	4.98	56.4	5.85	10.9	12.2	20.7	11.6	20	9.01	2.32
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0179	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC12-EC16	3.61	2.37	1.51	1.07	0.765	1.22	1.36	2.51	1.63	0.691	3.51	5.95	4.3	5.52	2.78	1.97	2.68	1.57	0.682
Aromatics >EC16-EC21	15.1	12.9	6.38	5.42	7.79	7.41	18.7	16.9	9.08	3.86	14.8	26	16.7	27.6	10.4	7.78	15.5	8.02	4.24
Aromatics >EC21-EC35	91.6	62.6	58.5	52.9	145	146	460	54.7	51.8	21.6	104	66.6	71.6	79.1	46.2	33.7	74.4	38.3	25.8
Aromatics >EC35-EC44	59.6	23.8	51.1	58.9	130	150	443	30.5	42.3	10.3	107	35.2	46.4	35.9	29.2	17.8	46.2	20.5	10.5
Aromatics >EC40-EC44	24.3	8.52	22.2	26.8	55.3	66.1	190	12.5	18.8	3.97	44.9	15.3	19.2	13.6	12.7	7.18	18.5	7.83	3.77
Polyaromatic Hydrocarbons (PAHs)																			
Acenaphthylene	112	102	0.24	120	60	182	120	458	271	74.5	120	115	179	287	172	45.9	196	158	42
Acenaphthene	22.8	75.1	160	80	40	40	80	160	40	16.3	80	24	26.1	81.9	26.6	11.2	37.6	40	11.7
Anthracene	171	254	<0.32	160	150	428	160	596	368	123	160	165	229	553	206	90.5	376	214	67.6
Benz(a)anthracene	561	1210	280	399	260	682	320	1550	969	288	320	498	708	1430	666	256	1030	703	206
Benzo(a)pyrene	582	1510	300	477	350	746	302	1750	1060	330	297	494	654	1220	615	237	923	651	190
Benzo(b)fluoranthene	1080	2020	300	720	322	740	410	1550	1020	346	323	662	1040	1500	1060	364	983	1040	325
Benzo(k)fluoranthene	358	645	280	298	129	365	162	825	547	163	154	277	324	588	340	135	468	335	114
Benzo(g,h,i)perylene	477	1000	0.48	364	290	582	0.24	1270	825	201	273	428	537	939	460	206	719	481	140
Chrysene	583	1140	0.2	472	308	684	353	1720	909	276	330	435	677	1220	665	248	1020	622	200
Dibenzo(a,h)anthracene	114	210	0.46	0.23	0.115	0.115	0.23	0.46	151	37.7	0.23	77	102	176	120	34.6	130	0.115	33.2
Indeno(1,2,3-cd)pyrene	461	1070	0.36	355	305	556	232	1260	956	220	232	510	465	1130	625	221	696	450	140
Fluoranthene	1100	1840	0.34	513	591	2360	662	4090	2470	696	630	1100	1330	3710	1510	648	2350	1500	419
Fluorene	73.2	95.1	0.2	0.1	50	198	0.1	270	162	54.2	0.1	77.7	83.8	480	129	36.5	168	82.6	31.1
Naphthalene	414	274	180	114	101	140	249	608	459	147	209	268	366	417	236	164	345	324	118
Phenanthrene	754	1010	300	335	279	1780	451	2120	1330	454	406	638	817	2890	1030	430	1340	751	256
Pyrene	0.768	1.55	0.3	0.456	0.484	1.68	0.476	2.82	1.62	0.49	0.491	0.814	0.999	2.52	1.1	0.505	1.88	1.18	0.346
PAH, Total Detected USEPA 16	7.63	14	2.36	4.5	3.57	11.1	3.62	20.9	13.1	3.92	3.67	6.58	8.53	19.1	8.95	3.63	12.7	8.49	2.64
Naphthalene-d8 % recovery**	91.3	85.2	92.8	86.6	91.3	90.8	88.6	91.6	93	87.2	90.3	77.5	96.4	80.7	80.2	107	84.4	88.6	93.9
Acenaphthene-d10 % recovery**	83.6	89.6	90.5	88.9	93.4	89.7	90.7	92.8	92.5	94.3	81.6	88.5	94.4	87.2	84.8	88.8	83.1	83.2	88.5
Phenanthrene-d10 % recovery**	91.4	94.2	92.8	88.9	101	97.8	91.7	98	93.5	102	78.8	84.7	93.4	87.2	86.7	91	80.9	82.4	90.9
Chrysene-d12 % recovery**	93.9	82.4	78	76.9	95.4	89.8	81.5	96.6	78.2	84.2	70.9	79	89.2	78.9	76.7	83.4	76.1	82.1	91.2
Perylene-d12 % recovery**	101	81.5	68.6	75.7	107	96	82.2	105	86.1	89.1	70.1	82.4	84.6	77.2	79.1	84.7	71.6	78.8	86.8
Total Aliphatics >C12-C44	139	87.3	83.8	65.6	213	221	564	81.2	98.8	16.8	164	250	85.3	82.2	78.6	53.2	89.1	45.6	48.1
Total Aromatics >EC12-EC44	170	102	118	118	283	305	923	105	105	36.4	229	134	139	148	88.7	61.2	139	68.4	41.2
Total Aliphatics & Aromatics >C5-C44	309	189	201	184	496	526	1490	186	204	53.2	393	384	224	230	167	114	228	114	89.3
Metals - (Solid)																			
Iron	189000	150000	136000	73800	187000	196000	127000	206000	164000	83300	226000	132000	166000	238000	135000	167000	79700	224000	194000
Manganese	9020	10600	3490	1690	10400	7880	5960	11800	9890	3000	10500	15500	6130	43000	15000	39900	2460	8710	18800
Metals - (Liquid)																			
Calcium	86300	-	138000	-	114000	-	151000	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	11800	-	29800	-	41600	-	12100	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																			
Phenol	0.01	0.0319	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0129	0.0875	0.01	0.01	0.01	0.01	0.0973	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0278	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0875	0.035	0.035	0.035	0.035	0.125	0.035	0.035	0.035	0.035	0.035
Inorganics																			
Soluble Sulphate 2:1 extract as SO4 BRE																			
pH																			
Sulphate, Total																			
Sulphur, Total																			
Sulphate, Total potential																			
Sulphate, acid soluble (total)																			
Cyanide, Total																			
Exchangeable Ammonia as N																			
Asbestos																			
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	09/10/2018	-	09/10/2018	-	09/10/2018	-	08/10/2018	-	-	-	-	-	-	-	-	-	-	-	-
Analysed By	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																			
Analysts Comments																			
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-
Comments	0	-	0	-	0	-	0	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																			
Dibromofluoromethane**	90.5	100	100	98.5	98	98.2	96.4	107	99.6	108	112	119	118	106	103	107	130	123	104
Toluene-d8**	91.7	93.8	97	96.2	95.9	95.2	96.6	100	97.9	95.1	97	88.1	91.2	96.2	99.2	96.3	98.8	98.7	101
4-Bromofluorobenzene**	81.2	82.1	87.8	86.5	86.6	83.6	81.6	99.8	95.7	88.5	83.4	70.4	85.4	88.4	91.3	90.6	104	96	103
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.009	0.009	0.009	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.007	0.007	0.007	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.004	0.004	0.004	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.137	1.57	0.26	0.013	0.013	0.013	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.04	0.04	0.04	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																			
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4CH1V	4CH2V	4CH4V	4CH5V	4CH6V	4CH7V	4CH8V	4CI1	4CI1	4CI2	4CI2	4CI2	4CI3
Depth	1.6	1.8	2	2.5	3.3	3.3	3	0.5	1.1	0.5	1	1.5	0.5
Sampled Date	11/10/2018	11/10/2018	11/10/2018	11/10/2018	02/10/2018	02/10/2018	02/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018	11/10/2018
Carbon													
Soil Organic Matter (SOM)	1.07	1.33	5.5	7.98	3.81	1.95	5.1	47.8	7.83	26.4	27.1	10.1	4.19
Metals (Solids)													
Arsenic	17.8	18.4	14.2	16.1	12.3	9.62	12.8	8.45	6	21.3	10.1	8.37	11.6
Cadmium	0.02	0.541	0.475	0.219	0.02	0.02	0.02	1.19	0.2	0.2	1.56	0.774	1.46
Chromium	27.8	32.7	35	39.8	36.3	34.6	37.8	36.4	109	214	12.5	171	91.8
Copper	10.5	11.2	14.6	17.6	16	14	17.9	21.7	17	27.8	36	22.6	17.8
Lead	25.4	28.7	33.7	45	52.2	28.8	34.5	76.9	25	113	127	25.5	53.1
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14	0.14
Nickel	34.3	43	27.1	29.7	37.2	37.2	25.8	25.1	11.5	28.6	22.6	15.1	18.7
Selenium	1	1	1	1	1	1	1.16	1.02	10	10	1.37	4.02	1.76
Vanadium	48.4	62.1	56.1	60.6	57.3	57.2	61.3	50.8	134	375	72.3	124	143
Zinc	115	128	111	153	143	133	136	261	68.3	394	593	117	223
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.0274	0.0116	0.01	0.01	0.01	0.0167	0.011	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.0638	0.0231	0.01	0.01	0.01	0.0622	0.0594	0.01	0.01	0.01	0.0344
Aliphatics >C8-C10	0.01	0.01	0.0851	0.0182	0.01	0.01	0.01	0.0544	0.0583	0.01	0.01	0.01	0.025
Aliphatics >C10-C12	0.01	0.01	0.0623	0.0198	0.01	0.01	0.01	0.0866	0.0759	0.01	0.01	0.01	0.0594
Aliphatics >C12-C16	0.1	0.1	0.1	0.1	0.1	0.983	0.49	46.4	22.4	6.49	5.67	2.64	3.95
Aliphatics >C16-C21	0.1	0.1	0.1	0.1	0.1	0.77	0.31	194	83.7	18.7	13.9	11.2	13.9
Aliphatics >C21-C35	0.1	0.1	0.1	4.21	1.99	1.53	6.53	154	543	394	215	89.1	135
Aliphatics >C35-C44	0.1	0.1	0.1	0.1	0.1	0.1	0.1	58.5	330	417	205	43.8	54.9
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0154	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.0562	0.0116	0.01	0.01	0.01	0.0355	0.0385	0.01	0.01	0.01	0.0167
Aromatics >EC10-EC12	0.01	0.01	0.041	0.0132	0.01	0.01	0.01	0.0577	0.0506	0.01	0.01	0.01	0.0396
Aromatics >EC12-EC16	0.1	0.1	0.1	0.1	0.1	0.1	0.1	13.3	6.54	7.45	6.21	2.04	4.27
Aromatics >EC16-EC21	0.1	0.1	0.248	0.1	0.1	0.1	2.34	109	34.8	34.3	20.8	12.5	18.4
Aromatics >EC21-EC35	0.1	0.1	21.8	22.5	12.6	4.87	50.5	159	488	527	247	90.7	65.7
Aromatics >EC35-EC44	0.1	0.1	4.28	3.36	1.19	1.11	11.8	62.6	346	597	272	54.3	35.6
Aromatics >EC40-EC44	0.1	0.1	1.46	0.1	0.1	0.1	4.23	24.5	136	258	119	22.2	14.3
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	12	12	12	12	12	12	535	120	600	453	60	153
Acenaphthene	8	8	8	8	8	8	8	80	107	160	160	40	114
Anthracene	16	16	16	16	16	16	16	492	160	751	535	80	376
Benz(a)anthracene	14	14	14	39.1	14	14	14	2320	549	2460	1560	266	900
Benzo(a)pyrene	15	15	15	39.8	15	15	15	2440	799	1990	1700	408	658
Benzo(b)fluoranthene	15	15	23.2	55.7	15	15	15	3890	646	3190	1960	614	913
Benzo(k)fluoranthene	14	14	14	14	14	14	14	1380	325	966	865	201	381
Benzo(g,h,i)perylene	24	24	24	24	24	24	24	1850	517	1360	1140	474	505
Chrysene	10	10	10	44.4	10	10	10	1990	682	2060	1600	294	815
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	0.023	430	0.23	0.46	0.46	0.115	112
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	31.7	0.018	0.018	0.018	2030	427	1440	1170	512	388
Fluoranthene	0.017	0.017	0.017	83.1	0.017	0.017	29.9	4260	1490	5640	3900	539	1940
Fluorene	10	10	10	10	10	10	10	0.1	111	253	0.2	50	198
Naphthalene	9	9	9	9	9	9	9	460	239	180	781	86.9	1210
Phenanthrene	15	15	15	43.3	15	15	15	1800	957	2790	1980	239	1810
Pyrene	0.015	0.015	0.015	0.064	0.015	0.015	0.0231	3.35	1.23	4.05	2.81	0.387	1.35
PAH, Total Detected USEPA 16	0.118	0.118	0.118	0.401	0.118	0.118	0.118	27.2	8.08	27.6	20.4	4.02	11.8
Naphthalene-d8 % recovery**	89.2	77.6	90.9	98.1	80.7	77.6	77.5	84.3	93.8	84.6	87.4	91.4	95.6
Acenaphthene-d10 % recovery**	79.1	81.9	90.8	94.5	77.9	85.1	78	74.3	91.7	79.8	94.2	91	94.7
Phenanthrene-d10 % recovery**	95.5	87.3	94.2	92.7	78.1	87.5	80.3	87.7	94.4	84.4	93.8	92.6	94.5
Chrysene-d12 % recovery**	85.6	80.1	91.6	99.2	75.5	78.1	78.7	78	75.8	72.7	85.4	87.6	104
Perylene-d12 % recovery**	86.3	78.8	113	110	76.5	74.8	76.8	76.9	90.6	66	85.4	96.3	101
Total Aliphatics >C12-C44	0.1	0.1	0.1	4.21	1.99	3.28	7.33	452	979	837	439	147	208
Total Aromatics >EC12-EC44	0.1	0.1	26.3	25.8	13.8	5.98	64.7	344	875	1170	547	160	124
Total Aliphatics & Aromatics >C5-C44	0.1	0.1	26.7	30.1	15.8	9.26	72	797	1850	2000	986	306	332
Metals - (Solid)													
Iron	34100	38000	28200	24100	28300	30500	26900	108000	83100	134000	134000	63500	169000
Manganese	719	782	271	422	289	353	583	3360	18200	11800	5070	7050	7680
Metals - (Liquid)													
Calcium	131000	-	91600	-	100000	-	8820	-	179000	-	182000	-	-
Magnesium	17500	-	18300	-	12400	-	6040	-	18300	-	34000	-	-
Phenols													
Phenol	0.01	0.01	0.0115	0.0117	0.01	0.0116	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.0102	0.0117	0.0115	0.0117	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0115	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	03/08/2018	-	07/08/2018	-	01/08/2018	-	29/10/2018	-	29/10/2018	-	24/10/2018	-	-
Analysed By	Lucy Caroe	-	Renata Bozhkov	-	Lucy Caroe	-	Christian Hallam	-	Paul Poynton	-	Paul Poynton	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Comments	Soil containing ACM debris	-	0	-	Fibre bundle in soil	-	0	-	0	-	0	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	105	109	95.2	103	107	108	108	105	109	103	107	111	105
Toluene-d8**	98.1	98.4	95.2	96.4	98.3	98.1	97.7	97.4	97.7	93.1	92.7	97.3	99.4
4-Bromofluorobenzene**	90.8	86.7	80.4	85.3	89.7	87.9	95.8	96	90.4	97.1	99.8	90	100
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.213	0.195	0.13	0.323	0.26	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4CI3	4CI4	4CI4	4CI5	4CI5	4CI6	4CI6	4CI7	4CI7	4CI8	4CI8	4CI2V	4CI4V
Depth	0.8	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	1.7	2.5
Sampled Date	11/10/2018	11/10/2018	11/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	11/10/2018	11/10/2018
Carbon													
Soil Organic Matter (SOM)	4.22	4.38	3.78	0.94	1.68	1.66	3.26	6.47	5.14	3.26	19.5	1.26	1.02
Metals (Solids)													
Arsenic	16.1	9.11	21.6	4.13	6.28	9.64	7.28	7.39	5.68	5.03	6.83	12.6	14.3
Cadmium	1.86	0.2	3.48	0.02	0.02	0.02	0.2	0.149	0.02	0.02	0.2	0.397	0.02
Chromium	116	52.1	54.4	19.6	22.3	21.7	462	41.5	207	32.4	30	28.5	30.1
Copper	17.4	25.7	32.7	4.45	22.2	12.1	18.8	11.1	10.4	3.88	17.6	9.96	11.6
Lead	34.4	49.9	96.7	3.53	8.16	29.1	24.4	45.8	23.2	10.7	48.2	23.5	24.1
Mercury	1.4	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	0.14	1.4	0.14	0.14
Nickel	19.3	19.6	37.9	2.96	18.6	16	13.1	8.84	6.72	5.19	20.8	37.3	39.5
Selenium	10	10	10	4.58	2.93	1	13.7	2.56	4.94	3.8	10	1	1
Vanadium	129	116	162	64.3	59.3	79	330	72.4	223	109	114	54.2	57.6
Zinc	137	163	315	32.8	49.4	154	60	203	138	57.7	118	117	118
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.012	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0129	0.0138	0.01	0.01
Aliphatics >C6-C8	0.0343	0.0469	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0247	0.0357	0.01	0.01
Aliphatics >C8-C10	0.231	0.0992	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0418	0.0575	0.01	0.01
Aliphatics >C10-C12	1.48	0.306	0.01	0.01	0.01	0.01	0.01	0.0236	0.01	0.19	0.208	0.01	0.01
Aliphatics >C12-C16	23.3	9.62	2.77	0.1	0.1	2.54	11.5	41	12	4.4	38.2	0.1	0.1
Aliphatics >C16-C21	15.4	11.8	11.2	2.1	4.18	11.4	27	116	59	9.62	157	0.1	0.1
Aliphatics >C21-C35	78.8	93.1	83.7	30.9	28.9	110	85.1	821	388	109	915	0.1	0.1
Aliphatics >C35-C44	44.1	60.6	28.8	33.9	8.43	38.2	26.2	226	98.3	129	258	0.1	0.1
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0253	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0173	0.01	0.01
Aromatics >EC8-EC10	0.154	0.0665	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0279	0.038	0.01	0.01
Aromatics >EC10-EC12	0.984	0.204	0.01	0.01	0.01	0.01	0.01	0.015	0.01	0.126	0.139	0.01	0.01
Aromatics >EC12-EC16	10.2	6.33	1.46	0.1	0.198	2.76	3.35	15.8	6.8	11.1	15.9	0.1	0.1
Aromatics >EC16-EC21	10.9	15.3	6.65	2.16	1.92	8.29	15.7	53.7	31.9	15.1	72.5	0.1	0.1
Aromatics >EC21-EC35	40.8	84.8	42.4	29.9	19	60.1	77.6	252	165	146	356	0.1	0.1
Aromatics >EC35-EC44	40.4	75.9	26.3	42.5	9.94	39.1	37.4	103	78	210	137	0.1	0.1
Aromatics >EC40-EC44	21.5	33.4	11	20.2	3.55	16.7	14.9	40.3	31.4	93.7	50.7	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	108	120	89.3	12	60	23.8	20.1	145	75.5	120	134	12	12
Acenaphthene	210	80	40	8	40	17.4	42.7	43	28.2	94.3	403	8	8
Anthracene	189	160	117	16	80	65.6	93.2	225	123	178	358	16	16
Benz(a)anthracene	392	140	398	49.8	87.9	269	571	766	488	140	2470	14	14
Benzo(a)pyrene	331	150	532	49.5	98.9	333	747	604	520	150	2600	15	15
Benzo(b)fluoranthene	474	150	474	78.2	93.5	446	779	864	682	150	2750	15	15
Benzo(k)fluoranthene	158	140	254	27.5	70	141	335	300	230	140	844	14	14
Benzo(g,h,i)perylene	267	0.24	475	51.8	120	260	550	526	404	0.24	1780	24	24
Chrysene	365	0.1	436	50.4	126	286	582	729	459	0.1	2110	10	10
Dibenzo(a,h)anthracene	55.5	0.23	0.115	0.023	0.115	59.1	123	125	74	0.23	423	0.023	0.023
Indeno(1,2,3-cd)pyrene	263	180	396	33.3	90	173	388	443	566	180	1460	0.018	0.018
Fluoranthene	1030	0.17	898	82.7	146	502	1000	1260	784	339	2850	0.017	0.017
Fluorene	170	0.1	50	10	50	19.4	29.5	166	58	0.1	328	10	10
Naphthalene	456	90	170	17.3	45	106	114	459	167	305	907	9	9
Phenanthrene	870	150	485	43.9	75	385	560	1010	545	439	1730	15	15
Pyrene	0.72	0.15	0.709	0.0697	0.148	0.423	0.908	1.42	0.833	0.292	2.55	0.015	0.015
PAH, Total Detected USEPA 16	6.06	1.18	5.43	0.554	0.7	3.51	6.84	9.09	6.04	1.65	23.7	0.118	0.118
Naphthalene-d8 % recovery**	86.8	85.3	91	95.1	94.5	94.9	91	92.4	83.2	89.4	92.2	75.4	91.3
Acenaphthene-d10 % recovery**	91.6	82.1	94.4	95.5	96.6	94.5	92.2	96.7	85.6	86.4	92.2	77.9	85.3
Phenanthrene-d10 % recovery**	96.2	76	101	99.2	97.8	99.3	95	99.8	93.4	91	95.1	82.8	87.4
Chrysene-d12 % recovery**	81.3	77.4	96.5	98	95.3	95.3	91.3	97.8	91.9	84.9	97.2	86.9	88.2
Perylene-d12 % recovery**	80.9	79.7	105	92.5	91.4	88.1	86	89	88.9	80.4	89.2	100	92.9
Total Aliphatics >C12-C44	162	175	126	66.9	41.5	162	150	1210	557	252	1370	0.1	0.1
Total Aromatics >EC12-EC44	102	182	76.8	74.5	31.1	110	134	424	282	382	581	0.1	0.1
Total Aliphatics & Aromatics >C5-C44	267	358	203	141	72.5	273	284	1630	839	634	1950	0.1	0.1
Metals - (Solid)													
Iron	90900	95900	281000	22800	43000	93400	98000	57000	108000	28200	174000	36700	39300
Manganese	9750	8740	8840	6680	4520	4630	29500	5450	19100	6960	8060	638	1380
Metals - (Liquid)													
Calcium	-	-	-	-	-	-	-	-	-	-	56300	-	230000
Magnesium	-	-	-	-	-	-	-	-	-	-	8790	-	13500
Phenols													
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.0268	0.0116	0.01	0.01	0.791	0.0696	0.0103
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.0134	0.0116	0.01	0.01	0.484	0.209	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0354	0.441	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	1.31	0.719	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	-	17/08/2018	-	17/08/2018
Analysed By	-	-	-	-	-	-	-	-	-	-	James Richards	-	Lucy Caroe
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Comments	-	-	-	-	-	-	-	-	-	-	0	-	0
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	99.9	116	121	107	115	105	101	102	104	113	101	84.5	103
Toluene-d8**	93	96.8	97.9	92.4	99.9	97.9	96.9	99	99.8	99.6	101	85.6	96.2
4-Bromofluorobenzene**	82.8	84.9	89.7	95.4	104	95.8	92	93	97.8	95.9	90.9	72.1	94.8
Methyl Tertiary Butyl Ether	0.1	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Benzene	0.09	0.009	0.009	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.698	0.09
Toluene	0.07	0.007	0.007	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.334	0.07
Ethylbenzene	0.04	0.004	0.004	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.04
p/m-Xylene	0.1	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.51	0.1
o-Xylene	0.1	0.01	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Naphthalene	0.13	0.013	0.013	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	2.6	0.206
Sum of BTEX	0.4	0.04	0.04	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.54	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	22.4	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	19	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	21.9	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	18.1	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	0.5	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	15.6	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	15.6	-

Sample ID	4CI6V	4CI7V	4CI8V	4CJ1	4CJ1	4CJ1	4CJ2	4CJ2	4CJ2	4CJ3	4CJ3	4CJ3	4CJ4
Depth	2.2	1.8	1.9	0.5	1	2	0.5	1	2	0.5	1	1.5	0.5
Sampled Date	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018
Carbon													
Soil Organic Matter (SOM)	3.88	1.61	1.91	15.4	11.7	19.3	32.1	10.2	12.3	9.79	59.1	14.9	2.24
Metals (Solids)													
Arsenic	13.6	14.9	12.4	8.54	5.87	11.4	9.25	8.72	10.5	9.31	9.53	8.6	7.08
Cadmium	0.02	0.02	0.02	0.155	0.0664	0.2	0.184	0.02	0.2	0.02	3.14	0.02	0.168
Chromium	33.1	31.6	35.8	39.8	14.9	9	40.1	81.7	47.2	18.2	9.74	121	32.8
Copper	15.4	12.6	17.9	17.3	11.2	21.2	17.9	14.5	25.7	43.6	28.8	15.9	10.2
Lead	30.4	25.5	26.3	60.4	12.5	28.5	67.1	62.1	56.4	84.5	56.5	41.5	25.6
Mercury	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	0.14	0.14	0.14	0.14
Nickel	31.6	30.9	30.4	19.1	6.66	15.7	15	13.3	35.2	14.3	19.5	13.6	9.27
Selenium	1	1	1	2.66	3.1	10	1.87	3.76	10	1.25	1	3.55	3.2
Vanadium	53.3	57	55.7	49.6	42	129	72.9	124	86.2	65.9	60.5	126	58.9
Zinc	113	107	136	187	50	81.8	258	248	448	302	239	188	113
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C6-C8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C8-C10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aliphatics >C10-C12	0.0138	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0263
Aliphatics >C12-C16	0.1	0.1	0.1	3.35	4.65	4.31	4.25	2.46	2.22	0.685	1.45	1.16	9.48
Aliphatics >C16-C21	0.1	0.1	0.1	19.5	32.6	86.9	10.7	9.21	15.5	4.74	5.54	8.23	21.6
Aliphatics >C21-C35	5.78	3.64	2.95	91.8	134	80.6	45.4	30.7	39.2	27.1	24.8	22.8	55.1
Aliphatics >C35-C44	0.1	0.1	0.1	25.4	23.5	3.84	12.6	12	13.7	12.1	5.51	2.27	29.2
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0175
Aromatics >EC12-EC16	0.1	0.1	0.1	4.88	2.42	6.68	0.583	2.3	0.1	0.1	3.95	2.27	2.16
Aromatics >EC16-EC21	1.97	0.1	0.332	21.2	13.1	57.4	7	10.2	5.42	4.23	47.2	13.3	7.15
Aromatics >EC21-EC35	38.5	9.17	16	90.9	85.1	80.4	30.3	53.5	15.4	10.7	114	43	37.6
Aromatics >EC35-EC44	7.74	3.64	3.99	35.4	39	18.7	2.97	28.6	1.61	1.21	31.3	13.5	35.4
Aromatics >EC40-EC44	2.6	1.28	0.802	13.4	16	7.33	0.1	12.7	0.1	0.1	11.4	5.38	16.3
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	12	12	205	26.5	142	291	101	137	132	138	273	60
Acenaphthene	8	8	8	39.5	15.3	485	58.7	33.5	27.6	15.7	21.4	16.1	40
Anthracene	16	16	16	352	77.7	158	469	150	219	196	195	409	118
Benz(a)anthracene	22.5	14	14	1550	418	370	1870	851	792	672	719	1370	329
Benzo(a)pyrene	22.2	23	15	1320	426	330	1660	904	690	559	702	1180	271
Benzo(b)fluoranthene	32.1	21.1	15	2020	560	446	1990	1220	783	755	1060	1480	313
Benzo(k)fluoranthene	14	14	14	728	188	128	651	389	332	283	349	530	122
Benzo(g,h,i)perylene	24	24	24	960	366	255	1150	641	469	436	552	832	197
Chrysene	22.1	19	10	1390	398	323	1500	793	750	581	695	1260	313
Dibenzo(a,h)anthracene	0.023	0.023	0.023	236	82.5	74.8	306	135	107	104	126	159	0.115
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	846	446	211	1060	967	645	378	487	1080	224
Fluoranthene	38.9	0.017	0.017	2870	618	685	3270	1500	1750	1310	1550	3820	692
Fluorene	10	10	10	123	31.5	358	240	62.5	111	61.6	77.6	175	50
Naphthalene	14.5	9	9	463	91.8	348	446	297	198	291	221	116	52.2
Phenanthrene	26.4	15	15	1310	366	870	1800	534	999	724	906	2360	282
Pyrene	0.0314	0.015	0.015	2.21	0.495	0.478	2.61	1.35	1.28	1	1.17	2.83	0.589
PAH, Total Detected USEPA 16	0.21	0.118	0.118	16.6	4.6	5.66	19.4	9.92	9.29	7.5	8.97	17.9	3.5
Naphthalene-d8 % recovery**	91.2	90.3	84.1	96.2	83.3	93	93.9	80.7	83.4	95.4	94	81	82
Acenaphthene-d10 % recovery**	90.5	91.1	82.1	95.5	84.9	92.9	93.4	82.3	85.7	94	91.2	83.6	84.2
Phenanthrene-d10 % recovery**	94.1	91.1	85.5	94.6	90.6	95.2	95.4	88.5	89.8	94.4	90.4	87.2	85.1
Chrysene-d12 % recovery**	96	90.5	82.8	96.7	83.1	98.7	97.6	83.7	82.5	95.1	86.9	85.1	79
Perylene-d12 % recovery**	96.5	91.1	82.3	91.4	81.1	94.6	94.1	76.9	85.5	87.9	79.3	73	79.3
Total Aliphatics >C12-C44	5.78	3.64	2.95	140	194	176	72.9	54.4	70.7	44.5	37.3	34.5	115
Total Aromatics >EC12-EC44	48.2	12.8	20.3	152	140	163	40.9	94.6	22.4	16.1	197	72.2	82.3
Total Aliphatics & Aromatics >C5-C44	54	16.4	23.3	292	334	339	114	149	93.1	60.7	234	107	198
Metals - (Solid)													
Iron	29600	29900	33500	40300	19500	217000	90300	73800	93600	78600	70500	81500	50600
Manganese	575	547	644	3950	4360	14300	4730	10500	4800	4880	3010	9220	4990
Metals - (Liquid)													
Calcium	-	81100	-	-	126000	-	-	-	-	-	-	-	-
Magnesium	-	10100	-	-	16900	-	-	-	-	-	-	-	-
Phenols													
Phenol	0.0113	0.0113	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.0113	0.0226	0.0116	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.0678	0.0348	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.102	0.0464	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE													
pH													
Sulphate, Total													
Sulphur, Total													
Sulphate, Total potential													
Sulphate, acid soluble (total)													
Cyanide, Total													
Exchangeable Ammonia as N													
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	17/08/2018	-	-	24/10/2018	-	-	-	-	-	-	-	-
Analysed By	-	James Richards	-	-	Paul Poynton	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048													
Analysts Comments													
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Fibrous Tremolite	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Fibrous Actinolite	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-
Comments	-	0	-	-	0	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	101	65.3	102	102	101	104	107	108	116	109	107	126	110
Toluene-d8**	96.4	70.3	98.9	92.5	91.3	99.6	94.3	99.6	101	96.8	100	100	96.4
4-Bromofluorobenzene**	78.5	36.2	104	84.3	88.3	99.9	95	98.6	103	98.8	101	105	90.5
Methyl Tertiary Butyl Ether	0.2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.18	0.109	1.8	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.14	0.07	1.4	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.08	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.2	0.1	2	0.1	0.1	0.1	0.194	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.2	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	2.53	0.13	2.6	0.13	0.13	0.13	0.56	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.8	0.4	8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	21.6	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	18.5	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	21	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	17.7	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	14.4	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	14.4	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4CJ4	4CJ4	4CJ5	4CJ5	4CJ1V	4CJ3V	4CJ4V	4CJ5V	4CE2	4CE2	4CE5	4CE5	4CE6
Depth	1	1.4	0.5	1	2.7	1.9	2	1.7	0.5	0.7	0.5	1	0.5
Sampled Date	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	17/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018
Carbon													
Soil Organic Matter (SOM)	1.65	7.31	8.28	8.03	0.712	1.95	1.26	5.24	3.55	1.3	4.86	3.09	4.29
Metals (Solids)													
Arsenic	6	6	17.2	13.5	14.8	15.6	20.4	12.1	9.91	6	8.8	8.51	6
Cadmium	0.2	0.2	0.2	0.2	0.02	0.02	0.02	0.02	0.2	1.3	0.2	1.68	1.62
Chromium	810	449	238	115	27.5	36.4	33.8	49.5	55.2	359	26	9	84.6
Copper	18	30.4	32.7	61.3	24.6	10.5	11.4	17.4	31.3	14	14.9	17.4	14
Lead	7	24.3	47.8	70.9	24.3	27.7	29.9	35.7	165	9.38	42.9	80.1	51.2
Mercury	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	1.4	1.4	1.4	1.4	1.4
Nickel	8.79	12.9	22.2	25.1	44.9	38.8	42.6	29.5	46.3	9.19	22	32.8	33.4
Selenium	16.5	18.5	14.4	10	1	1	1	1	10	10	10	10	10
Vanadium	354	394	268	171	51.2	64.3	62.5	68.4	231	1020	109	111	221
Zinc	23.3	63.3	110	318	108	111	115	132	574	19	132	202	159
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.0333	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.01	0.01	0.01	0.01	0.142	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.01	0.01	0.01	0.01	0.662	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.01	0.01	0.01	0.01	1.8	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	2.27	0.1	1.75	0.1	9.35	0.1	0.1	0.1	2.01	0.1	0.1	3.12	1.77
Aliphatics >C16-C21	8.96	7.83	9.72	5.82	167	0.1	0.1	0.1	11.3	2.03	8.31	13.6	12.2
Aliphatics >C21-C35	26.7	41.1	77.1	43.8	90.9	0.1	0.1	5.29	98	9.43	78.7	75.4	54.5
Aliphatics >C35-C44	6.27	9.38	42.1	14.7	0.1	0.1	0.1	0.1	49.4	0.812	25.1	22.5	22.3
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.01	0.01	0.01	0.01	0.442	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.01	0.01	0.01	0.01	1.2	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	1.46	1.15	1.62	2.52	14.2	0.1	0.1	0.1	1.62	0.1	2	1.1	1.32
Aromatics >EC16-EC21	13.6	9.86	9.71	11.7	126	0.1	0.1	0.1	8.37	4.51	11.7	5.39	12.1
Aromatics >EC21-EC35	68.8	46.7	70.7	63.4	78.2	0.454	1.57	19.8	64.5	43.6	71.4	41	50.1
Aromatics >EC35-EC44	20.5	17.2	53.4	46.5	1.93	0.858	0.1	7.45	38.9	13.2	41.9	23.8	25.3
Aromatics >EC40-EC44	7.31	6.88	22.7	20.1	1.13	0.496	0.1	2.42	15.1	4.56	16	9.43	10.2
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	20.3	12	87.7	25.8	132	12	12	12	21.5	12	131	71.6	162
Acenaphthene	16.8	14.5	40	8	698	8	8	8	37.1	21.5	34.6	14	28.3
Anthracene	193	128	102	42.7	135	16	16	16	139	37	220	106	191
Benz(a)anthracene	1820	830	492	472	26.9	14	14	14	354	359	776	357	675
Benzo(a)pyrene	1790	752	530	486	15	15	15	15	280	474	670	262	626
Benzo(b)fluoranthene	2610	989	619	523	20.5	15	15	15	472	478	857	517	882
Benzo(k)fluoranthene	798	366	278	218	14	14	14	14	194	188	291	170	291
Benzo(g,h,i)perylene	1370	602	457	405	24	24	24	24	206	426	493	246	473
Chrysene	1690	855	556	439	23.6	10	10	10	395	369	645	420	632
Dibenzo(a,h)anthracene	325	157	0.115	89.6	0.023	0.023	0.023	0.023	38	50	110	42.5	99.6
Indeno(1,2,3-cd)pyrene	1800	517	314	278	0.018	0.018	0.018	0.018	188	356	749	245	387
Fluoranthene	2520	1270	906	410	213	0.017	0.017	0.017	641	645	1330	803	1140
Fluorene	27.9	23.9	50	10	405	10	10	10	47.3	10	77.1	36	83.6
Naphthalene	122	123	139	74.8	145	9	9	9	106	10.3	262	150	193
Phenanthrene	930	544	465	221	948	15	15	15	389	206	768	445	644
Pyrene	1.86	0.908	0.807	0.637	0.139	0.015	0.015	0.015	0.659	0.604	1.07	0.626	1.01
PAH, Total Detected USEPA 16	17.9	8.08	5.75	4.32	2.89	0.118	0.118	0.118	4.17	4.22	8.49	4.51	7.52
Naphthalene-d8 % recovery**	80.6	94.9	90	94.3	83.2	94.9	95.4	87.7	87.7	81	84.9	82	96.9
Acenaphthene-d10 % recovery**	84.2	93.7	87.2	94.6	86.9	94	95.3	88.2	91.3	85.4	87.6	89.7	96.7
Phenanthrene-d10 % recovery**	90.2	93.4	94.1	96.9	94.6	95.3	94.9	94.1	92.3	86.7	95.7	92.7	99.5
Chrysene-d12 % recovery**	85.4	98.1	89.7	96.6	92.6	102	100	92.1	85.4	79	93.1	83.7	99
Perylene-d12 % recovery**	79.6	96	82.6	94.9	86.9	102	99.8	88.8	75.1	80.6	90.7	71.9	97.8
Total Aliphatics >C12-C44	44.2	58.3	131	64.3	267	0.1	0.1	5.29	161	12.3	112	115	90.7
Total Aromatics >EC12-EC44	104	74.9	135	124	220	1.31	1.57	27.3	113	61.3	127	71.3	88.8
Total Aliphatics & Aromatics >C5-C44	149	133	266	188	491	1.31	1.57	32.5	274	73.6	239	186	180
Metals - (Solid)													
Iron	167000	148000	108000	109000	41600	27800	38800	28700	174000	225000	159000	184000	193000
Manganese	34400	43700	31700	14700	1630	519	995	1180	8680	40600	13300	11600	12300
Metals - (Liquid)													
Calcium	-	17700	151000	-	121000	150000	-	71100	-	316000	-	64800	116000
Magnesium	-	11600	24200	-	43300	10000	-	9530	-	11800	-	8770	16100
Phenols													
Phenol	0.01	0.01	0.0112	0.448	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.0127	0.01	0.01	0.01	0.01	0.01	0.01	0.0137	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.448	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE									-	0.046	-	0.317	0.141
pH									11.1	12.1	8.57	9.96	10.1
Sulphate, Total													
Sulphur, Total									-	0.189	-	0.185	0.125
Sulphate, Total potential									-	0.567	-	0.555	0.375
Sulphate, acid soluble (total)									-	0.407	-	0.368	0.412
Cyanide, Total									1	1	1	1	1
Exchangeable Ammonia as N									12	12	12	12	12
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	19/06/2018	19/06/2018	-	21/06/2018	21/06/2018	-	21/06/2018	-	05/11/2018	-	05/11/2018	05/11/2018
Analysed By	-	Christian Hallam	Christian Hallam	-	Barbara Urbanek-Walsh	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	James Richards	James Richards
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048										-		-	-
Analysts Comments										-		-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	Not Detected	-	Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Amosite (Brown) Asbestos	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Comments	-	0	0	-	Loose fibres in soil.	0	-	0	-	0	-	0	0
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	100	116	105	109	102	109	102	107	105	108	110	109	108
Toluene-d8**	98.8	95.9	96.1	94	101	95.7	98.8	97.8	97.5	98.7	97.9	98.7	97.4
4-Bromofluorobenzene**	96.6	88.1	94.9	89.6	90.7	97.2	99	91.8	81.9	95.7	84.1	97.2	93.6
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4CE6	4CE7	4CE7	4CE7	3CE1V	3CE3V	3CE4V	3CE5V	4CE5V	4CE6V	4CG8	4CG8	4CG8V	4CK1	4CK1	4CK2	4CK2
Depth	1	0.5	1	1.4	1.8	2.7	3	3.4	2	2	0.5	1	2.6	0.5	1	0.5	1
Sampled Date	18/10/2018	18/10/2018	18/10/2018	18/10/2018	23/10/2018	19/10/2018	19/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	18/10/2018	24/10/2018	24/10/2018	18/10/2018	18/10/2018
Carbon																	
Soil Organic Matter (SOM)	0.771	3.28	1.63	1.24	3.26	5.95	4.29	1.26	1.08	1.1	3.62	4.76	2	9.15	2.33	4.97	3.33
Metals (Solids)																	
Arsenic	6.99	13.7	25.7	20.8	8.95	13.9	13.9	12.8	14.4	12.2	7.92	12.1	13.1	9.61	6	9.24	5.93
Cadmium	0.2	1.01	1.25	0.2	0.02	0.137	0.02	0.02	0.02	0.02	0.02	1.74	0.332	0.2	0.962	0.0834	0.144
Chromium	9	9	9	9	26.1	37.7	34.7	30.9	34.6	30.8	38.3	46.4	30.9	103	476	51.8	8.4
Copper	14	23.3	103	75.7	13.7	21	18	10.6	10.4	10	9.56	40.3	13.6	34.3	14	27.8	8.04
Lead	7	42	98.4	50.7	18.7	41	35.1	20.9	29	23.4	14.7	91.1	50	84.1	19.3	71.3	55.5
Mercury	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4	1.4	0.14	0.14
Nickel	13.5	26.6	31.7	24.5	29.4	27.3	25.8	35.5	40.6	33.7	11.2	28.4	40.6	34.2	54.7	20.2	9.13
Selenium	10	10	10	10	1	1	1	1	1	1	2.08	10	1	10	10	1	1
Vanadium	51.1	90.4	143	171	43.1	64.9	53.6	58.2	61.4	53.3	169	120	59.8	196	290	64.7	21.3
Zinc	56.1	190	261	190	106	131	112	91.7	123	102	60.7	151	187	287	121	244	90
TPH Criteria Working Group (TPH CWG)																	
Benzene																	
Toluene																	
Ethylbenzene																	
sum of detected mpo xylene by GC																	
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.308	2.09	0.982	2.47	0.1	0.1	0.1	0.1	0.1	0.1	4.48	3.53	0.1	1.81	3	1.29	0.1
Aliphatics >C16-C21	4.24	5.48	4.31	6.53	0.1	0.1	0.1	0.1	0.1	0.1	23.7	22.6	0.1	10.2	16.6	11.3	1.65
Aliphatics >C21-C35	23.6	20.5	27.9	48.3	1.45	6.67	1.62	0.1	0.1	1.84	175	182	0.1	71.1	125	105	37.1
Aliphatics >C35-C44	10	5.63	9.4	17.9	0.1	0.1	0.1	0.1	0.1	3.21	42.5	55.3	0.1	25.7	29.2	30.3	10.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	0.1	0.1	0.1	0.762	0.1	0.1	0.1	0.1	0.1	0.1	3.03	2.22	0.1	2.46	2.94	0.1	0.444
Aromatics >EC16-EC21	0.248	2.05	0.1	3.1	0.1	0.1	0.1	0.1	0.1	0.1	15	11.4	0.1	19.1	12.4	1.82	2.35
Aromatics >EC21-EC35	0.371	15.2	4.51	21	0.1	21.9	12.9	1.68	2.55	1.2	92.9	110	3.41	86.2	63.8	22.3	20.4
Aromatics >EC35-EC44	0.242	3.42	0.614	11.2	0.1	3.29	0.369	0.1	0.426	0.676	53.7	87	0.963	42	29.4	3.1	12.5
Aromatics >EC40-EC44	0.111	0.909	0.1	4.12	0.1	0.1	0.1	0.1	0.1	0.1	22.7	37.8	0.1	17.7	11.6	0.1	7.68
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	19.1	12	62.9	12	12	12	12	12	12	12	125	60	12	255	70.6	114	39.2
Acenaphthene	8	14.4	53.2	31.6	8	8	8	8	8	8	40	40	8	40.7	14.2	21.3	8.76
Anthracene	31.8	22.7	112	35.4	16	16	16	24.9	16	16	231	130	16	571	131	123	53.9
Benz(a)anthracene	114	69.3	508	95.6	57.2	14	14	62.6	14	14	889	406	14	1290	385	520	203
Benzo(a)pyrene	94.7	50.3	298	72.6	68.5	15	15	38.4	15	15	703	392	15	1160	315	458	193
Benzo(b)fluoranthene	172	81.9	542	96.4	107	40.9	15	101	15	15	1240	517	15	1980	15	863	218
Benzo(k)fluoranthene	70.9	28.7	188	40.8	28.1	14	14	38.6	14	14	418	185	14	721	199	289	107
Benzo(g,h,i)perylene	71.5	42.8	204	75	86.2	24	24	44.9	24	24	578	338	24	875	242	434	193
Chrysene	124	65.3	453	103	64	30.5	10	79.5	10	10	1010	374	10	1410	377	635	194
Dibenzo(a,h)anthracene	0.023	0.023	47.5	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.115	0.115	0.023	225	56.3	79.8	31.1
Indeno(1,2,3-cd)pyrene	85.4	51.1	201	66.2	79.6	0.018	0.018	52.1	0.018	0.018	479	355	0.018	986	297	404	158
Fluoranthene	189	194	1160	372	135	51.1	0.017	206	0.017	0.017	1720	802	0.017	2870	771	883	423
Fluorene	14.4	11.5	58.2	18.4	10	10	10	10	10	10	88	50	10	161	46.5	46.1	20
Naphthalene	26.1	21.1	50.7	23.6	9	9	9	9	9	9	205	111	9	294	306	378	95.7
Phenanthrene	91.4	117	739	222	58.7	15	15	188	15	15	791	359	15	1360	504	491	206
Pyrene	0.207	0.154	0.8	0.284	0.112	0.0441	0.015	0.146	0.015	0.015	1.54	0.778	0.015	2.16	0.601	0.74	0.336
PAH, Total Detected USEPA 16	1.31	0.923	5.47	1.54	0.796	0.167	0.118	0.982	0.118	0.118	10	4.75	0.118	16.4	4.32	6.48	2.48
Naphthalene-d8 % recovery**	84.6	82.8	83.2	81.9	87.2	79.7	92.7	80.1	96.6	79.1	83.7	77.2	88.8	80	83.6	83.9	85.6
Acenaphthene-d10 % recovery**	88.5	86.8	89.5	88	86.9	85	86.3	91	95.9	83.1	88	83	92.1	89.1	81.7	88.7	89.9
Phenanthrene-d10 % recovery**	93.4	90.7	93	89.9	85.7	89	95.1	96.7	97.4	85.5	90.3	85.8	92.1	93.2	87.5	90.7	89.5
Chrysene-d12 % recovery**	98.6	85.6	86.5	84.9	86.1	99.8	100	79.1	101	81.1	88.1	78.2	88.4	74.6	86.4	83.9	82.9
Perylene-d12 % recovery**	92.8	81.6	74	87.7	84	96.9	101	74.1	96.9	77.6	76.3	76.7	83.6	73.1	71.8	70.7	83.6
Total Aliphatics >C12-C44	38.2	33.7	42.6	75.2	1.45	6.67	1.62	0.1	0.1	5.05	245	264	0.1	109	174	148	48.9
Total Aromatics >EC12-EC44	0.86	20.7	5.13	36.1	0.1	25.2	13.2	1.68	2.97	1.87	165	211	4.37	150	109	27.2	35.7
Total Aliphatics & Aromatics >C5-C44	39.1	54.4	47.7	111	1.45	31.9	14.9	1.68	2.97	6.92	410	474	4.37	259	282	175	84.5
Metals - (Solid)																	
Iron	387000	212000	315000	395000	22900	27800	22300	33900	43300	32200	87500	218000	26800	161000	114000	63600	27900
Manganese	3130	10500	6280	11300	392	603	449	892	315	735	8620	9290	498	8370	19200	3270	873
Metals - (Liquid)																	
Calcium	51200	49800	54800	-	-	-	-	-	-	-	219000	94400	-	95500	167000	181000	-
Magnesium	8960	7810	5970	-	-	-	-	-	-	-	17600	10900	-	9130	22800	12400	-
Phenols																	
Phenol	0.01	0.0113	0.0111	0.0114	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	0.257	0.471	0.205	-	-	-	-	-	-	-	0.237	0.199	-	0.175	0.0234	0.167	-
pH	9.86	10.1	10.5	10.9	8.52	7.9	8.03	9.1	7.82	8.23	11.8	9.55	7.71	10.9	11.8	11.4	11.2
Sulphate, Total																	
Sulphur, Total	0.262	0.307	0.196	-	-	-	-	-	-	-	0.218	0.146	-	0.197	0.149	0.14	-
Sulphate, Total potential	0.786	0.921	0.588	-	-	-	-	-	-	-	0.654	0.438	-	0.591	0.447	0.42	-
Sulphate, acid soluble (total)	0.325	0.413	0.433	-	-	-	-	-	-	-	0.537	0.371	-	0.34	0.214	0.267	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	172	164	198	154	166	81.7	12	12	188	12	12	12	12
Asbestos																	
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Date of Analysis	05/11/2018	05/11/2018	05/11/2018	-	-	-	-	-	-	-	05/11/2018	05/11/2018	-	29/10/2018	29/10/2018	05/11/2018	-
Analysed By	Marcin Magdziarek	Christian Hallam	Barbara Urbanek-Walsh	-	-	-	-	-	-	-	Christian Hallam	Barbara Urbanek-Walsh	-	Lucy Caroe	Lucy Caroe	Marcin Magdziarek	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	None	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/C	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Comments	0	0	0	-	-	-	-	-	-	-	0	0	-	0	0	Loose fibres in soil	-
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	113	110	110	111	109	112	109	111	175	129	109	112	109	110	101	110	110
Toluene-d8**	98.8	99.7	98.9	99	99.3	97.8	97.4	100	100	100	95.5	98.7	100	98.7	89.8	92	98.5
4-Bromofluorobenzene**	99.8	99	87.9	95.4	88.7	94.9	94.8	90.5	101	90.9	93.4	89.6	93.1	87.2	85.3	84.5	96.7
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	W12601	W12602	W12603	W12604	W12605	W12606	W12607	W12608	W12609	W13101	W13102	W13103	W13104
Depth	0	0	0	0	0	0	0	0	0	0	0	0	0
Sampled Date	04/01/2018	04/01/2018	04/01/2018	04/01/2018	04/01/2018	04/01/2018	04/01/2018	04/01/2018	04/01/2018	23/01/2018	23/01/2018	23/01/2018	23/01/2018
Carbon													
Soil Organic Matter (SOM)	2.98	3.24	4.47	6.55	2.59	2.31	2.74	2.36	2.88	3.12	13.6	17.9	11.9
Metals (Solids)													
Arsenic	5.94	9.8	9.2	21.8	7.41	7.89	7.58	6.48	8.63	10.7	10.3	8.36	11.1
Cadmium	0.149	0.869	0.633	0.311	0.309	0.404	0.429	0.351	0.228	0.372	0.44	0.405	1.12
Chromium	0.9	10.2	9	29.2	0.9	17.1	0.9	8.69	1.83	25.3	32.5	51.3	81.2
Copper	15.1	32	17.1	15	19	12.4	28.5	19.6	17.8	11.3	15.8	21.5	24
Lead	15.8	48.9	42.9	37.6	25.8	33.5	23.4	39.1	30.3	35	55.8	78.5	87.6
Mercury	0.14	1.4	1.4	0.14	0.14	0.14	0.299	0.14	0.14	0.14	0.14	1.4	1.4
Nickel	9.68	18.8	9.22	13.1	9.35	14.5	12.5	13.7	13.6	13	18.4	23.8	27.7
Selenium	1.29	10	10	3.12	2.11	1.82	1.58	1	1.85	2.81	3.62	10	10
Vanadium	19.3	52.5	26.1	194	13.2	43.7	24.4	21.7	19.4	63.6	87.6	143	140
Zinc	69.6	183	156	149	64.3	222	116	142	104	128	222	263	284
TPH Criteria Working Group (TPH CWG)													
Benzene	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.04
Toluene	0.002	0.002	0.002	0.00348	0.002	0.002	0.002	0.002	0.002	0.008	0.008	0.008	0.008
Ethylbenzene	0.003	0.003	0.003	0.00928	0.003	0.003	0.003	0.003	0.003	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.0104	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.01	0.0101	0.01	0.0568	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.0432	0.04
Aliphatics >C8-C10	0.01	0.0381	0.01	0.498	0.0146	0.01	0.01	0.01	0.01	0.04	0.0413	0.0597	0.04
Aliphatics >C10-C12	0.01	0.0874	0.01	1.57	0.0202	0.01	0.01	0.01	0.01	0.04	0.085	0.0648	0.04
Aliphatics >C12-C16	4.33	5.92	4.16	55	6.8	4.71	4.72	5.61	2.84	0.1	1.07	0.712	0.503
Aliphatics >C16-C21	17.7	21.1	13	76.9	22.7	19.3	19.4	22.6	17.8	0.1	5.15	3.58	3.4
Aliphatics >C21-C35	56.3	39.9	31.6	42.9	58.8	47.4	66.3	69.1	39	3.52	17.6	27.6	19.8
Aliphatics >C35-C44	22.8	13.2	10.9	7.1	16.5	16.8	27	34.4	16.6	0.1	5.12	13.1	6.07
Aromatics >EC5-EC7	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.01	0.028	0.01	0.356	0.0101	0.01	0.01	0.01	0.01	0.04	0.0413	0.0521	0.04
Aromatics >EC10-EC12	0.01	0.0582	0.01	1.05	0.0134	0.01	0.01	0.01	0.01	0.04	0.0563	0.0432	0.04
Aromatics >EC12-EC16	1.12	2.15	1.57	27	1.72	1.45	1.52	2.39	1.56	0.1	11.6	454	7.4
Aromatics >EC16-EC21	7.02	9.37	6.46	31.9	8.72	9.61	8.79	9.39	6.92	1.09	71.2	1020	81.7
Aromatics >EC21-EC35	44	33.2	26.4	37.9	32.1	37.1	51.2	55.8	44	7.98	150	1200	160
Aromatics >EC35-EC44	31.2	21	17.4	20.5	18	21.7	34.8	52.3	29.4	2.56	39.5	267	46.7
Aromatics >EC40-EC44	12.5	9.03	7.63	9.35	7.71	9.62	15.6	23.9	12.2	1.14	12.9	81.9	16.2
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	75.4	40	78.6	86.8	90.5	77.7	228	41	96.3	216	1190	4420	1790
Acenaphthene	16.6	36.3	31.8	34.9	44.5	21.3	36	9.77	30.6	21.3	124	328	193
Anthracene	93.5	99.4	203	180	166	141	406	53	162	681	3240	6840	3480
Benz(a)anthracene	508	406	570	577	624	513	774	222	693	1750	4290	10500	6120
Benzo(a)pyrene	450	358	435	538	538	441	554	174	602	1440	3280	7980	4250
Benzo(b)fluoranthene	764	599	720	948	800	660	937	249	907	2320	4870	11300	6160
Benzo(k)fluoranthene	283	222	280	300	297	282	363	101	341	728	1830	4120	2380
Benzo(g,h,i)perylene	273	218	238	475	378	382	310	151	445	940	1860	4370	2190
Chrysene	464	402	522	566	531	454	853	189	581	1630	4160	8790	5440
Dibenzo(a,h)anthracene	80.7	65.3	76.3	139	104	87.1	99.4	52.6	126	251	636	1490	787
Indeno(1,2,3-cd)pyrene	258	191	215	394	335	302	284	124	395	897	1830	4320	2260
Fluoranthene	881	744	1280	981	1010	1010	2190	323	922	5270	10200	25200	15700
Fluorene	35.6	56.6	77.3	70.2	62.9	55.6	496	19.1	59.9	283	1930	6380	4000
Naphthalene	129	148	155	200	175	183	128	60.9	159	526	5980	14900	6450
Phenanthrene	278	377	641	547	503	538	2330	160	433	2920	7810	22300	15900
Pyrene													
PAH, Total Detected USEPA 16	5.3	4.55	6.51	6.86	6.46	5.93	11.4	2.2	6.79	23.4	59.8	149	86.4
Naphthalene-d8 % recovery**	104	102	105	104	92.2	90.8	104	86.2	93.6	90.3	91.5	87.4	91.4
Acenaphthene-d10 % recovery**	103	101	104	103	95.7	90.8	102	93.1	96.7	78.2	81.7	79.4	84.3
Phenanthrene-d10 % recovery**	101	100	103	103	96.6	95.3	101	95.8	105	73.5	79.6	79.7	82.9
Chrysene-d12 % recovery**	96.8	95	98.1	103	116	99.9	96.2	105	116	75.1	85.8	88	90.6
Perylene-d12 % recovery**	98.5	96.3	99.7	104	123	105	96.9	113	123	75.7	87.3	91.3	93.7
Total Aliphatics >C12-C44	101	80.2	59.7	182	105	88.2	117	132	70	3.52	28.9	44.9	29.8
Total Aromatics >EC12-EC44	83.3	65.8	51.9	117	60.5	69.9	96.3	120	81.9	11.6	273	2940	295
Total Aliphatics & Aromatics >C5-C44													
Metals - (Solid)													
Iron	28900	63200	53100	111000	34400	47100	38300	21300	33100	28800	49700	47000	58900
Manganese	1130	2450	1380	6000	2770	3410	1270	942	2090	4200	3820	3470	5510
Metals - (Liquid)													
Calcium	130000	-	147000	-	165000	-	129000	-	105000	147000	-	77500	-
Magnesium	36000	-	18500	-	40700	-	19600	-	28500	18400	-	10900	-
Phenols													
Phenol	0.01	0.0112	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.229	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.47	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.584	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	1.28	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	0.162	-	0.21	-	0.15	-	0.229	-	0.19	0.302	-	0.326	-
pH	11.2	11.2	11.3	11.1	11.4	11.7	11.4	11.4	11.2	8.58	9.21	8.73	8.78
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.145	-	0.217	-	0.193	-	0.156	-	0.132	0.418	-	0.258	-
Sulphate, Total potential	0.435	-	0.651	-	0.579	-	0.468	-	0.396	1.25	-	0.774	-
Sulphate, acid soluble (total)	0.231	-	0.267	-	0.279	-	0.378	-	0.193	0.891	-	0.187	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1.01	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12	12	12
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	0.001	-	0.001	-
Date of Analysis	09/01/2018	-	09/01/2018	-	09/01/2018	-	09/01/2018	-	09/01/2018	03/02/2018	-	03/02/2018	-
Analysed By	James Richards	-	James Richards	-	James Richards	-	James Richards	-	James Richards	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	0.001	-	0.001	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	None	-	None	-
Analysts Comments	-	-	-	-	-	-	-	-	-	N/C	-	N/C	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	0.001	-	0.001	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Detected	-	Detected	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Comments	0	-	0	-	0	-	0	-	0	Loose fibres in soil.	-	Loose fibres in soil.	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of BTEX	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	3.16	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	2.51	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	2.91	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	1.84	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	1.02	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	19.8	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	20.6	-	-

Sample ID	W13301	W13302	W13303	W13304	SPJC01	SPJC02	4AB1	4AB1	4AB2	4AB4	4AB4	4AB4	4AB5	4AB5	4AB5	4AB6	4AB6
Depth	0	0	0	0	0	0	0.5	1.3	0.5	0.5	1	2	0.5	1.4	2.5	0.5	1
Sampled Date	23/01/2018	23/01/2018	23/01/2018	23/01/2018	01/08/2018	01/08/2018	02/04/2019	02/04/2019	03/04/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019	13/03/2019	13/03/2019
Carbon																	
Soil Organic Matter (SOM)	11	10.8	15.3	10.2	2.19	2.47	16.7	93.8	25.2	8.79	13.6	6.93	6.14	97.2	10.6	8.91	18.8
Metals (Solids)																	
Arsenic	6.54	11.4	8.85	7.8	4.71	7.31	8.63	3.16	7.15	40.8	37.1	16.5	10.7	6.24	7.98	6	8.33
Cadmium	1.6	2.38	1.97	1.04	0.02	0.02	1	0.154	0.186	9.32	11.6	5.25	1.79	0.168	2.22	1.11	1.32
Chromium	80.9	204	222	155	174	113	19.4	8.05	8.93	230	77.1	52.5	192	20.9	599	539	387
Copper	20.7	21.8	22.7	103	9.18	11.5	34.5	15.1	16	105	87.3	42.6	29.3	30.6	25.6	18.3	17.3
Lead	264	199	293	201	21.1	36.1	48	16.3	13.1	1340	1940	703	252	54.4	232	22.3	62.9
Mercury	1.4	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	1.4	1.4	1.4	0.14	0.14	1.4	1.4	1.4
Nickel	21.1	22	22.7	28.6	8.02	11.8	20.4	8.05	8.61	161	74.1	56.4	23.9	10.7	19.8	8.71	20.9
Selenium	10	12	10	10	4.03	2.29	10	1.51	2.47	10.4	10	10	6.7	2.7	16.9	16.4	10
Vanadium	148	425	200	181	273	159	53.3	16.7	20	115	120	105	438	25.5	452	401	297
Zinc	865	683	1070	555	93.5	152	147	63.1	62.7	5560	7140	2470	1240	52.3	865	63.4	201
TPH Criteria Working Group (TPH CWG)																	
Benzene	0.04	0.04	0.04	0.04													
Toluene	0.0216	0.0118	0.0218	0.0189													
Ethylbenzene	0.012	0.012	0.012	0.012													
sum of detected mpo xylene by GC	0.009	0.009	0.009	0.009													
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.01	0.01	0.02	0.0945	0.02	0.02	0.02	0.02	0.01	0.02	0.0469	0.02	0.02
Aliphatics >C6-C8	0.04	0.04	0.0557	0.059	0.01	0.01	0.02	0.345	0.02	0.02	0.02	0.02	0.01	0.02	0.15	0.02	0.02
Aliphatics >C8-C10	0.04	0.04	0.0424	0.0566	0.01	0.01	0.02	0.155	0.02	0.02	0.02	0.02	0.01	0.02	0.0917	0.02	0.02
Aliphatics >C10-C12	0.0864	0.04	0.0932	0.114	0.01	0.01	0.02	0.173	0.02	0.02	0.02	0.02	0.01	0.02	0.097	0.02	0.02
Aliphatics >C12-C16	1.56	1.65	1.63	2.92	0.804	1.48	14.1	120	13.5	0.884	1.33	0.1	1.68	32.3	4.48	7.93	1.34
Aliphatics >C16-C21	11.9	27.4	16.2	20.7	6.68	13.8	25.8	182	68.8	28.1	15.8	3.95	6.92	81.8	62	146	11.4
Aliphatics >C21-C35	23.4	39.6	40.7	47.1	34.2	57.3	110	441	141	96.8	77.9	60.1	75.9	103	108	37.4	21.4
Aliphatics >C35-C44	5.54	9.47	15.3	12.9	12.8	29.4	22.7	50	18.6	15.3	10.7	18.8	21.3	21.1	24.8	3.87	5.47
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.01	0.01	0.02	0.0409	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.0576	0.04	0.0641	0.072	0.01	0.01	0.02	0.103	0.02	0.02	0.02	0.02	0.01	0.02	0.0608	0.02	0.02
Aromatics >EC10-EC12	0.0576	0.04	0.0629	0.0755	0.01	0.01	0.02	0.116	0.02	0.02	0.02	0.02	0.01	0.02	0.065	0.02	0.02
Aromatics >EC12-EC16	4.91	4.74	3.72	6.49	1.07	1.05	23.1	126	35.4	1.35	2.14	0.339	2.08	34.7	3.92	1.33	9.66
Aromatics >EC16-EC21	25.4	38.1	29.7	9.82	6.39	7.61	66.7	290	161	10.1	10.1	5.69	10.4	91.8	39.8	36.6	97.1
Aromatics >EC21-EC35	56.8	93	90.6	36	38	41.6	161	521	402	49.1	43.3	50.2	77.1	161	157	19.9	191
Aromatics >EC35-EC44	17.2	30.6	35.9	16.7	22.8	35	53.8	136	106	16	12.4	23	40.7	36.7	38.6	3.2	49.1
Aromatics >EC40-EC44	5.87	11.4	13.6	6.2	9.65	16.2	19.2	46.8	30.2	5.5	4.31	8.16	15.3	12.3	13.3	1.05	15.9
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	900	1050	1280	1610	89.3	110	1180	3460	2140	157	189	122	55.6	72.5	62.4	34	1210
Acenaphthene	154	217	241	280	27.7	24.6	121	416	457	13.6	8	36.2	68.6	112	145	9.46	164
Anthracene	2020	2160	3460	4070	171	214	1920	4610	4950	157	131	88.9	165	333	239	21.6	2260
Benz(a)anthracene	4740	5200	7510	8260	684	649	2710	6060	8590	474	287	600	633	230	1480	78.4	8890
Benzo(a)pyrene	4220	4760	6720	7190	700	691	1900	4530	8140	539	337	661	607	109	1280	96.3	7760
Benzo(b)fluoranthene	6180	6340	9610	9830	1080	788	3320	7550	12700	1080	557	1180	1200	261	1220	112	7240
Benzo(k)fluoranthene	2160	2720	3390	3880	392	345	1160	2800	5260	269	251	384	536	70.5	572	48.5	3990
Benzo(g,h,i)perylene	2680	3180	3930	4490	576	545	1290	2570	5560	581	406	520	501	73.3	996	108	5580
Chrysene	4430	5270	6370	7010	716	645	2640	5550	8220	536	379	680	824	498	1670	88.9	7120
Dibenzo(a,h)anthracene	793	925	1280	1260	140	121	273	741	1340	120	70.4	119	99	32.2	233	0.023	1070
Indeno(1,2,3-cd)pyrene	2350	2850	3700	4030	629	545	1400	2530	4970	421	294	462	399	42.7	728	63.7	3980
Fluoranthene	9730	11700	14900	16500	1110	1300	7720	17000	17900	748	496	1020	1540	799	2150	117	20900
Fluorene	1150	1190	1570	2110	45.7	71.4	1010	2880	1420	38.1	30.7	31.5	71.1	360	99.6	23.2	739
Naphthalene	6950	7980	11900	11200	204	326	6660	21200	4790	192	220	50.8	72.3	1310	233	172	2240
Phenanthrene	6220	7070	9370	11400	477	641	6850	19300	11400	419	319	315	730	1920	1280	135	7010
Pyrene					0.957	1.03	5.23	12.1	13.7	0.52	0.371	0.813	1.13	0.587	2.13	0.114	15.5
PAH, Total Detected USEPA 16	61.3	70.9	95.7	105	8	8.05	45.4	113	112	6.26	4.34	7.09	8.63	6.81	14.5	1.22	95.7
Naphthalene-d8 % recovery**	93.1	103	122	104	97.6	90.7	93.4	97.4	101	83.5	90.8	93.3	97.8	93.6	106	92.9	79.3
Acenaphthene-d10 % recovery**	87.2	101	109	99.2	106	87.4	93	98.7	97.9	86.6	89.3	90.2	96.8	95.4	105	92.5	74.1
Phenanthrene-d10 % recovery**	86.8	103	104	99.1	111	86.5	98	103	103	87.4	92.2	92.8	107	98.3	105	91.9	71.5
Chrysene-d12 % recovery**	94.8	105	109	102	105	81	80.7	84.8	84.6	75.6	69.8	92.4	93.1	75.4	109	97.8	96
Perylene-d12 % recovery**	98.5	99.2	110	107	94.6	81	75	79.6	77.9	70.3	54.7	87.2	82.8	53.8	106	94.1	77.3
Total Aliphatics >C12-C44	42.4	78.2	74	83.7	54.4	102	173	794	242	141	106	82.8	106	238	199	196	39.7
Total Aromatics >EC12-EC44	104	166	160	69	68.2	85.3	305	1070	705	76.6	67.9	79.2	130	324	240	61.1	347
Total Aliphatics & Aromatics >C5-C44					123	187	478	1870	946	218	174	162	236	563	439	257	387
Metals - (Solid)																	
Iron	85100	108000	95400	93400	70700	75200	67100	4360	23100	214000	305000	149000	99800	6800	158000	131000	94800
Manganese	8440	14900	13600	11100	10700	7870	3110	462	2090	11400	7670	4770	10600	676	25200	31900	16100
Metals - (Liquid)																	
Calcium	105000	-	108000	-	-	156000	133000	49600	163000	-	-	-	-	-	-	-	-
Magnesium	16400	-	12700	-	-	25900	19300	2290	25100	-	-	-	-	-	-	-	-
Phenols																	
Phenol	0.01	0.01	0.0121	0.0118	0.0348	0.01	0.01	0.0141	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.0116	0.0106	0.01	0.01	0.01	-	-	-	-	-	-	-	-
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	-	-	-	-	-	-	-	-
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.0464	0.035	0.035	0.035	0.035	-	-	-	-	-	-	-	-
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	0.182	-	0.148	-			0.102	0.109	0.0526	0.0277	-	0.045	0.051	-	0.159	0.116	0.11
pH	10.6	9.34	10	9.33			8.77	8.47	8.48	8.19	8.28	8.08	8.57	8.03	11.5	11.2	10.7
Sulphate, Total	-	-	-	-													
Sulphur, Total	0.255	-	0.212	-			0.307	0.272	0.262	0.0861	-	0.0867	0.107	-	0.181	0.512	0.196
Sulphate, Total potential	0.765	-	0.636	-			0.921	0.816	0.786	0.258	-	0.26	0.321	-	0.543	1.54	0.588
Sulphate, acid soluble (total)	0.483	-	0.207	-			0.413	0.0643	0.526	0.0876	-	0.0687	0.0816	-	0.328	0.716	0.279
Cyanide, Total	1.04	1.51	1	1.2			1	1	1	20.9	27.6	4.98	5.29	1	2.22	1	1.28
Exchangeable Ammonia as N	12	31.8	12	12			12	12	12	-	-	-	-	-	-	-	-
Asbestos																	
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	03/02/2018	-	01/02/2018	-	-	18/07/2018	16/04/19	16/04/19	16/04/19	18/03/19	-	18/03/2019	18/03/2019	-	18/03/2019	20/03/2019	20/03/19
Analysed By	James Richards	-	Eva Guerra	-	-	James Richards	Christian Hallam	Christian Hallam	Christian Hallam	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	Lucy Caroe
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	Detected
Comments	0	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	-	-	-	-	95.5	88.8	99.1	102	89.1	103	103	102	97.7	99.8	101	102	98.8
Toluene-d8**	-	-	-	-	91.8	94.8	96.3	96.7	91.5	101	102	101	97.9	95.9	96.8	98.8	96.8
4-Bromofluorobenzene**	-	-	-	-	82.8	87.3	85.1	96.4	72.4	93	92.5	95	85	83.9	91.4	86.2	71.2
Methyl Tertiary Butyl Ether	-	-	-	-	0.1	0.1	0.1	2	0.2	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1
Benzene	-	-	-	-	0.09	0.09	0.09	1.8	0.18	0.09	0.09	0.09	0.09	0.09	1.8	0.09	0.09
Toluene	-	-	-	-	0.07	0.07	0.07	1.4	0.14	0.07	0.07	0.07	0.07	0.07	1.4	0.07	0.07
Ethylbenzene	-	-	-	-	0.04	0.04	0.04	0.8	0.08	0.04	0.04	0.04	0.04	0.04	0.8	0.04	0.04
p/m-Xylene	-	-	-	-	0.1	0.1	0.1	2	0.2	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1
o-Xylene	-	-	-	-	0.1	0.1	0.1	2	0.2	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1
Naphthalene	-	-	-	-	0.475	0.753	0.13	2.6	0.664	0.13	0.13	0.13	0.13	0.13	2.6	0.13	0.521
Sum of BTEX	-	-	-	-	0.4	0.4	0.4	8	0.8	0.4	0.4	0.4	0.4	0.4	8	0.4	0.4
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	2.57	3.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	2.16	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	2.42	2.93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	1.66	2.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	0.95	1.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	15.3	13.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	16.1	14.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4AB1V	4AB2V	4AC1	4AC1	4AC2	4AC2	4AC4	4AC4	4AC4	4AC5	4AC5	4AC5	4AC6	4AC6
Depth	1.7	1	0.5	1	0.5	1	0.5	1	3	0.5	1.5	3	0.5	1
Sampled Date	02/04/2019	03/04/2019	02/04/2019	02/04/2019	03/04/2019	03/04/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019	11/03/2019
Carbon														
Soil Organic Matter (SOM)	7.26	2.93	7.72	6.95	21.6	82.1	21.2	14.3	13.3	11.9	8.24	2.64	19.7	32.1
Metals (Solids)														
Arsenic	13.6	13.2	6.66	8	1.92	4.81	38.5	25.7	45.4	14.3	10.4	6	8.04	9.9
Cadmium	0.79	0.184	0.231	0.22	0.02	0.155	31.3	17.3	20.9	1	0.509	0.432	0.219	1.47
Chromium	30.9	28.8	7.93	10.6	8.42	10.3	10.6	54.5	332	27.4	242	962	159	95.2
Copper	22.4	12.8	11.7	23.7	3.32	13.9	83.4	62	58.5	111	59.3	24.7	24.7	25.1
Lead	41.4	20.2	26.3	25.3	1	13.2	4140	2480	2360	193	115	38.6	63.6	115
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4	0.14	0.14	1.4	0.14	1.4
Nickel	31.4	33.8	11.7	21.3	2.67	8.08	64.3	47.4	56.8	27.7	21.2	6.48	20.3	27.4
Selenium	2.28	1.25	3.19	1.34	3.78	1.54	11.3	10.1	19.4	2.04	5.33	21.5	7.52	10
Vanadium	52.1	51.4	32.2	24.8	10.6	18.9	147	214	395	40.5	166	673	236	126
Zinc	163	101	95.5	52.9	24.5	44.1	13300	8110	7800	551	531	108	221	425
TPH Criteria Working Group (TPH CWG)														
Benzene														
Toluene														
Ethylbenzene														
sum of detected mpo xylene by GC														
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0357	0.0285
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.182	0.112
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.299	0.107
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.235	0.196
Aliphatics >C12-C16	0.1	0.343	2.02	0.662	5.45	17.4	1.02	0.53	2.47	0.771	0.709	1.15	11.6	3.6
Aliphatics >C16-C21	2.23	20	5.62	1.71	13.6	39.3	16.6	9	20.2	2.3	2.63	6.07	54	18
Aliphatics >C21-C35	14.2	15.6	37.3	5.21	35.4	82.3	83.9	35.1	73.3	23.5	22.2	21.8	74.5	37.3
Aliphatics >C35-C44	5.29	0.442	8.45	0.851	3.98	11.5	11.6	3.81	13.5	13.1	9.6	5.67	31.7	9.56
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0288	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.038	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.199	0.0718
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.156	0.131
Aromatics >EC12-EC16	0.1	1.92	2.5	0.351	10.5	25.4	1.85	1.27	1.69	1.39	1.38	0.804	9.78	9.26
Aromatics >EC16-EC21	1.66	5.61	7.81	1.82	29.1	66.5	10.4	6.38	10.2	8.98	9.5	7.3	36	100
Aromatics >EC21-EC35	21.5	25.2	31.4	5.54	66.4	172	47.3	22.7	42.2	60.6	63.1	37.2	76.7	265
Aromatics >EC35-EC44	6.01	0.119	11.2	0.772	17.9	44.4	13	3.77	11.6	37.9	31.4	9.83	43.6	78.1
Aromatics >EC40-EC44	1.98	1.54	4.13	0.165	5.56	14.3	4.39	1.3	4.36	16.5	12.7	3.57	20.2	26.8
Polyaromatic Hydrocarbons (PAHs)														
Acenaphthylene	12	44.4	72.8	48.8	12	840	42.1	41	23.6	60	120	24	1070	1670
Acenaphthene	8	8	11.5	10.2	8	8	8	11.4	30.5	198	192	126	143	118
Anthracene	16	24.3	99.7	68.9	771	4420	95.8	72.7	109	162	190	201	1050	2630
Benz(a)anthracene	14	19.9	309	201	1490	2650	205	171	241	1020	1350	862	1650	7490
Benzo(a)pyrene	15	15	255	232	1250	2280	205	164	198	1090	1250	685	1320	6940
Benzo(b)fluoranthene	28.3	30.3	501	366	2340	4340	470	334	439	1830	1920	789	2300	10400
Benzo(k)fluoranthene	14	14	173	120	841	1470	162	115	176	728	635	287	963	4430
Benzo(g,h,i)perylene	24	24	248	185	929	1620	202	140	187	736	987	457	765	4510
Chrysene	29.6	35.3	390	195	1550	2620	289	217	366	1320	1380	891	1730	7590
Dibenzo(a,h)anthracene	0.023	0.023	46.6	43	252	460	42.7	31	43.2	228	0.23	116	199	1250
Indeno(1,2,3-cd)pyrene	0.018	0.018	238	170	925	1550	145	113	138	637	673	329	743	4220
Fluoranthene	53.4	47.4	657	429	3920	5770	411	288	493	1910	2240	1320	4390	18600
Fluorene	10	32.6	52.4	32.2	284	339	29.3	20	31.9	133	147	93.3	899	750
Naphthalene	9	173	253	139	2850	3160	82.4	94.2	74.8	80	90	173	4510	1690
Phenanthrene	30.6	140	465	274	3860	4580	272	196	399	869	1090	965	3470	5540
Pyrene	0.0395	0.0339	0.461	0.31	2.65	4.14	0.322	0.22	0.412	1.41	1.68	1.21	3.48	13.7
PAH, Total Detected USEPA 16	0.181	0.581	4.23	2.82	23.9	40.2	2.98	2.23	3.36	12.4	13.7	8.51	28.7	91.6
Naphthalene-d8 % recovery**	91	93.4	91	100	102	101	91	90.1	92.9	93	91	104	85	90.3
Acenaphthene-d10 % recovery**	88.8	87.1	88	94.9	95.8	94.6	88.3	87.5	92	89.8	86	104	88.9	88.4
Phenanthrene-d10 % recovery**	92.3	91.7	92.5	102	103	91.9	83.8	85.8	92.4	87.5	93.1	108	98.5	91.7
Chrysene-d12 % recovery**	76.8	78	81.5	91.5	91	85.5	70.5	73.2	79.2	84.5	101	119	89.9	96.7
Perylene-d12 % recovery**	81.2	79	77.3	87.9	82.1	79.2	50.8	56.6	61.4	77.1	93.4	112	81.8	91.6
Total Aliphatics >C12-C44	21.7	36.4	53.4	8.43	58.4	151	113	48.4	110	39.6	35.1	34.7	172	68.5
Total Aromatics >EC12-EC44	29.2	32.8	52.8	8.48	124	308	72.5	34.1	65.7	109	105	55.1	166	453
Total Aliphatics & Aromatics >C5-C44	50.9	69.2	106	16.9	182	458	186	82.5	175	148	140	89.8	339	522
Metals - (Solid)														
Iron	22300	34600	31600	22900	5310	8250	335000	275000	277000	38800	85800	136000	70300	116000
Manganese	253	787	2310	748	2860	1180	10700	9730	29200	1430	8000	37200	10200	5640
Metals - (Liquid)														
Calcium	-	-	133000	27700	179000	-	-	-	-	-	-	-	-	-
Magnesium	-	-	22200	6550	31300	-	-	-	-	-	-	-	-	-
Phenols														
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.023	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	-	-	-	-	-	-	-	-
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	-	-	-	-	-	-	-	-
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	-	-	-	-	-	-	-	-
Inorganics														
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	0.0525	0.0422	0.0411	-	-	0.108	-	-	0.08	-	-	0.0769
pH	6.55	8.44	8.86	8.43	8.96	8.18	8.2	8.49	12.2	8.22	8.51	12.7	10.9	9.92
Sulphate, Total														
Sulphur, Total	-	-	0.238	0.0885	0.412	-	-	0.0954	-	-	0.0927	-	-	0.103
Sulphate, Total potential	-	-	0.714	0.266	1.24	-	-	0.286	-	-	0.278	-	-	0.309
Sulphate, acid soluble (total)	-	-	0.515	0.113	0.574	-	-	0.115	-	-	0.117	-	-	0.131
Cyanide, Total	1	1	1	1	1	1	34.3	29.4	19.2	1	1	1	1	1
Exchangeable Ammonia as N	99	17.5	12	12	12	12	-	-	-	-	-	-	-	-
Asbestos														
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	17/04/2019	17/04/19	16/04/19	-	-	18/03/19	-	-	18/03/2019	-	-	18/03/19
Analysed By	-	-	Paul Poynton	Christian Hallam	Christian Hallam	-	-	Christian Hallam	-	-	Barbara Urbanek-Walsh	-	-	Christian Hallam
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Amosite (Brown) Asbestos	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Fibrous Anthophyllite	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Fibrous Tremolite	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Fibrous Actinolite	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Non-Asbestos Fibre	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)														
Dibromofluoromethane**	110	103	100	102	83.6	109	98.1	103	99.3	89	95.4	102	77	102
Toluene-d8**	98.9	98.6	93.5	98.4	85.7	99.4	99.2	99.8	100	90.9	95.2	100	91.6	96.9
4-Bromofluorobenzene**	90	97.4	84.5	88.6	70.1	99.1	84.3	90.2	89.4	72.1	78	94.8	70.6	81.2
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.2	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.18	1.8	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.14	1.4	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.08	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.2	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.2	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.26	2.6	0.13	0.13	0.13	0.13	0.13	0.13	1.14	0.462
Sum of BTEX	0.4	0.4	0.4	0.4	0.8	8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics														
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4AC1V	4AC2V	4AC6V	4AD1	4AD1	4AD2	4AD5	4AD5	4AD5	4AD1V	4AD2V	4AE1	4AE1	4AE2	4AE1V	4AE2V
Depth	1.7	1.3	2.6	0.5	1	0.5	0.5	1.2	2	2	0.8	0.5	1	0.5	1.7	0.8
Sampled Date	02/04/2019	03/04/2019	11/03/2019	02/04/2019	02/04/2019	03/04/2019	11/03/2019	11/03/2019	11/03/2019	02/04/2019	03/04/2019	02/04/2019	02/04/2019	03/04/2019	02/04/2019	03/04/2019
Carbon																
Soil Organic Matter (SOM)	5.47	0.726	3.72	2.91	5.5	38.1	16.8	46.2	9.55	0.522	0.865	5.45	26.5	18.1	7.1	0.717
Metals (Solids)																
Arsenic	14.2	7.45	10	5.32	11.1	6.8	10.4	8.8	6	13.2	10.7	6.6	18.7	11.4	16.2	10.6
Cadmium	0.384	0.159	0.193	0.338	0.18	0.281	1.29	0.773	0.375	0.21	0.119	0.859	0.623	0.304	0.55	0.171
Chromium	37.2	24.9	41.9	6.21	9.8	29.8	69.2	136	1140	39.3	40.6	57.9	5.57	22.2	41.2	30.9
Copper	19.1	8.24	24.1	14.4	29.7	16.1	39.4	34.9	14	18.1	18.3	14	31.6	17.7	24.4	12.7
Lead	31.5	19.1	23	12.7	25.5	26.3	177	83.6	31.2	20.4	18.7	42.8	61.5	29.3	37.6	26.9
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	0.14	0.14	0.14	0.14
Nickel	33	31.2	39.9	13.9	27.8	11.8	25.4	16.3	6.78	35.6	40.4	11.6	36.8	24.9	28.5	38.8
Selenium	1.32	1	2.05	1.81	2.21	3.4	3.53	4.42	21.9	1.2	1.33	10	1.68	2.15	1.65	1
Vanadium	58.2	44	62.2	34.8	29.3	36.6	83.5	116	748	61.3	62.5	54.1	51.2	43.4	75.2	54.3
Zinc	124	85.9	110	61.5	68.5	247	695	326	45.7	111	118	144	71.5	103	120	110
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.02	0.02	0.0342	0.0309	0.025	0.02	0.02	0.0286	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.02	0.02	0.0403	0.025	0.022	0.02	0.02	0.0201	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.02	0.02	0.0403	0.02	0.022	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.1	0.115	0.1	1.64	0.1	17.2	5.37	1.64	0.512	0.1	0.1	1.91	1.11	3.28	0.1	0.1
Aliphatics >C16-C21	0.1	0.1	0.1	3.9	0.1	33.7	12.1	29.3	7.63	0.1	0.1	8.6	2.16	40.7	0.1	0.1
Aliphatics >C21-C35	4.18	0.221	0.1	19.8	0.1	91.3	38.1	32.2	11.7	2.51	0.1	67.5	8.77	40.8	3.83	0.1
Aliphatics >C35-C44	0.1	0.1	0.1	5.37	0.1	16.2	12.8	9.56	3.41	0.209	0.1	15.4	1.42	1.42	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.02	0.02	0.0266	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.02	0.02	0.0268	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	0.1	0.1	0.1	2.21	0.1	14.8	4.87	2.93	0.852	1.47	0.1	2.97	0.881	6.13	0.1	0.1
Aromatics >EC16-EC21	0.1	0.1	0.1	6.04	0.1	63.6	16.2	19.1	11.1	3.02	0.1	17	3.79	24.5	0.1	0.1
Aromatics >EC21-EC35	9.16	1.2	4.29	21	5.57	165	74.2	64.8	54.1	18.1	0.1	71	12.1	49.3	21.2	0.1
Aromatics >EC35-EC44	2.06	0.173	0.1	8.05	0.1	42.6	34.5	26.8	17.8	5	0.1	26.9	2.84	10.7	3.72	0.1
Aromatics >EC40-EC44	0.1	0.156	0.1	3.12	0.1	12.6	13.6	10.9	5.88	1.41	0.1	9.12	0.801	3.49	0.545	0.1
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	12	12	79.8	75.6	12	1270	218	42.1	43.7	12	12	179	16.3	246	12	12
Acenaphthene	8	8	8	8	8	57.7	233	26.3	54.5	8	8	35.5	8	32.3	8	8
Anthracene	16	16	88.6	146	16	1130	438	154	206	16	16	319	16	336	16	16
Benz(a)anthracene	31.3	14	253	379	14	3070	1960	442	802	45	14	1000	77.9	426	37.4	14
Benzo(a)pyrene	33.1	15	200	344	24.5	2580	2080	433	839	47.6	15	877	65.4	377	39.7	15
Benzo(b)fluoranthene	61.5	15	316	604	35.6	4940	3280	722	1360	85.5	15	1440	127	624	70.8	15
Benzo(k)fluoranthene	21.7	14	111	198	14	1620	1460	275	491	31.5	14	585	41.6	242	14	14
Benzo(g,h,i)perylene	33.2	24	127	240	24	2260	1380	309	661	70.2	24	618	49	286	42	24
Chrysene	32.9	10	206	441	32.4	3070	2220	513	837	52.8	10	982	87.1	477	38.5	10
Dibenzo(a,h)anthracene	0.023	0.023	0.023	60.4	0.023	488	297	89	154	0.023	0.023	124	0.023	67.2	0.023	0.023
Indeno(1,2,3-cd)pyrene	23.5	0.018	117	225	0.018	2440	1190	250	529	29.4	0.018	559	42.9	256	34.2	0.018
Fluoranthene	74.7	0.017	534	821	31.9	7490	3510	677	1150	109	0.017	2150	160	1290	96.2	0.017
Fluorene	10	10	25.2	10	10	353	233	45.5	72.8	10	10	156	10	212	10	10
Naphthalene	9	9	106	243	22.4	4790	359	245	62.5	16.1	9	28.9	27.3	974	9	9
Phenanthrene	46.1	15	194	545	63.3	5680	1640	519	598	61.3	15	1180	141	1270	49.5	15
Pyrene	0.0591	0.015	0.372	0.596	0.0246	5.12	2.76	0.523	0.877	0.0822	0.015	1.63	0.112	0.946	0.0735	0.015
PAH, Total Detected USEPA 16	0.417	0.118	2.73	4.92	0.235	46.3	23.2	5.27	8.73	0.631	0.118	11.9	0.947	8.06	0.482	0.118
Naphthalene-d8 % recovery**	104	102	93.5	102	103	85.4	94.8	86.9	89.7	105	89.8	103	99.5	100	93	93.7
Acenaphthene-d10 % recovery**	98.7	95.3	89.9	96.8	96.4	87.1	92.8	87.7	87.7	99	87	96.4	93.5	94	91.9	87.7
Phenanthrene-d10 % recovery**	104	106	90.4	101	103	93	89.3	89.5	90.9	109	85.6	97.6	97.6	103	97.8	91.1
Chrysene-d12 % recovery**	94.5	100	83.8	98.4	90.3	89.5	89.9	80.7	91.1	108	70.5	93.4	86.5	96.2	87.3	78.3
Perylene-d12 % recovery**	100	101	81.9	93.7	87.9	75.8	83.9	78.5	85.9	104	73.8	94.5	73.8	93.4	100	82.7
Total Aliphatics >C12-C44	4.18	0.335	0.1	30.7	0.1	158	68.5	72.8	23.2	2.72	0.1	93.4	13.5	86.2	3.83	0.1
Total Aromatics >EC12-EC44	11.2	1.37	4.29	37.3	5.57	286	130	114	83.8	27.6	0.1	118	19.6	90.7	25	0.1
Total Aliphatics & Aromatics >C5-C44	15.4	1.7	4.29	68.1	5.57	444	198	186	107	30.3	0.1	211	33.1	177	28.8	0.1
Metals - (Solid)																
Iron	30300	27100	30200	39500	22700	24800	66600	49600	173000	32200	35100	71500	41700	15800	22400	33000
Manganese	357	846	409	2370	1230	2720	4670	5580	36200	375	524	2470	1670	482	400	635
Metals - (Liquid)																
Calcium	-	-	-	-	37600	140000	-	-	-	-	-	180000	-	77700	-	-
Magnesium	-	-	-	-	11300	18300	-	-	-	-	-	44900	-	7260	-	-
Phenols																
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0106	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	-	0.01	0.01	0.01	-	-	-	0.01	0.01	0.0212	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	-	0.015	0.015	0.015	-	-	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	-	0.035	0.035	0.035	-	-	-	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	0.0968	0.157	0.048	-	0.0172	-	-	0.0549	-	0.0523	-	-
pH	6.71	8.1	7.43	9.35	8.61	8.84	8.98	11.8	12.8	6.8	7.61	10	8.48	8.13	6.17	8.11
Sulphate, Total																
Sulphur, Total	-	-	-	-	0.105	0.34	0.0947	-	0.218	-	-	0.129	-	0.118	-	-
Sulphate, Total potential	-	-	-	-	0.315	1.02	0.284	-	0.654	-	-	0.387	-	0.354	-	-
Sulphate, acid soluble (total)	-	-	-	-	0.198	0.283	0.0869	-	0.259	-	-	0.197	-	0.0969	-	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	75.7	20.1	-	12	12	12	-	-	-	78.8	12	12	12	12	98.1	12
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	16/04/2019	16/04/2019	18/03/2019	-	18/03/19	-	-	17/04/19	-	16/04/2019	-	-
Analysed By	-	-	-	-	Paul Poynton	Paul Poynton	Barbara Urbanek-Walsh	-	Christian Hallam	-	-	Christian Hallam	-	Paul Poynton	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	None	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	N/C	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-
Amosite (Brown) Asbestos	-	-	-	-	Not Detected	Not Detected	Trace	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	-	-	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	-	-	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	-	-	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	-	-	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	-	-	-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	-
Comments	-	-	-	-	-	-	Loose fibres in soil.	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	115	105	104	104	107	81.7	94.6	106	97.2	110	105	101	109	100	105	103
Toluene-d8**	97.4	96.8	101	97.8	99	90.3	94.1	99.7	97.8	97.7	102	94.8	94.2	94.7	98.2	100
4-Bromofluorobenzene**	94.7	103	95.3	91.7	95.3	76.4	75.7	90.4	85.8	97.5	101	86	84.5	75.4	95.8	98.7
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	-	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.18	0.09	0.09	-	0.09	0.09	0.09	0.09	0.18	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.14	0.07	0.07	-	0.07	0.07	0.07	0.07	0.14	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.08	0.04	0.04	-	0.04	0.04	0.04	0.04	0.08	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	-	0.1	0.1	0.1	0.1	0.2	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	-	0.1	0.1	0.1	0.1	0.2	0.1	0.1
Naphthalene	0.13	0.13	-	0.13	0.13	2.56	0.13	0.13	-	0.13	0.13	0.13	0.13	0.26	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.4	-	0.4	0.4	0.4	0.4	0.8	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4AF1	4AF1	4AF1	4AF2	4AF2	4AF1V	4AF2V	4AG1	4AG1	4AG1	4AG2	4AG2	4AG1V	4AG2V	4AH1	4AH1	4AH1	4AH10	4AH10	4AH2
Depth	0.4	1	1.5	0.5	1.2	2.1	1.6	0.5	1.1	1.4	0.5	1	1.5	1.6	0.5	0.8	1.1	0.5	1	0.5
Sampled Date	02/04/2019	02/04/2019	02/04/2019	03/04/2019	03/04/2019	02/04/2019	03/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	02/04/2019	10/04/2019	10/04/2019	02/04/2019
Carbon																				
Soil Organic Matter (SOM)	4.83	34.1	3.17	14.7	6.79	0.957	0.991	3.14	5.28	4.4	8.45	8.91	8.41	1.15	9.72	49.5	1.62	9.67	0.557	19
Metals (Solids)																				
Arsenic	11.8	7.68	7.03	2.72	8.54	12.8	12.1	11.3	8.18	8.25	6.04	11	19.1	13.6	4.11	5.92	7.01	6	11.2	7.85
Cadmium	1.99	0.911	0.342	0.0919	0.285	0.122	0.155	1.87	0.676	1.03	0.824	0.415	0.598	0.116	0.242	0.0625	0.153	0.205	0.02	0.608
Chromium	69.4	94	84.8	60.6	11.8	36.7	41.5	94.2	17.2	15.4	465	66.4	43.7	40.8	25.2	130	10.8	311	1050	31.2
Copper	18.6	14	10.9	5.83	11.5	17.5	15.4	14	13.7	14.4	14	19.1	22	15.8	6.5	11	9.01	22.5	13.7	16.4
Lead	98.2	53.4	19	4.9	21.4	19.2	22	33.9	43.5	46.4	15.7	78.9	37.3	23.2	20.5	16	16	34.6	11	57.6
Mercury	1.4	1.4	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14
Nickel	32.2	12.1	14.8	6.16	11.8	36.3	39.8	25.5	15.9	14.8	15.6	20.2	28.3	39.1	5.22	6.59	18.9	8.72	6.97	14.9
Selenium	10	10	2.97	4.02	1.53	1.09	1	10	2.23	2.52	10	3.87	1.56	1.26	3.47	4.08	2.26	10	17.7	4.96
Vanadium	122	103	105	77.8	25.9	53.7	67.2	149	42.3	41.6	281	141	82	66.6	30.6	217	31.6	268	617	36.7
Zinc	334	115	82	50.7	66.5	106	124	111	70.3	65	137	328	137	119	95.3	78.8	67	190	36.9	289
TPH Criteria Working Group (TPH CWG)																				
Benzene																				
Toluene																				
Ethylbenzene																				
sum of detected mpo xylene by GC																				
Aliphatics >C5-C6	0.02	0.0319	0.0291	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.191	0.0614	0.02	0.02	0.02	0.02	0.02	0.02	0.0459	0.02	0.02	0.02	0.02	0.02	0.0289	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.177	0.0701	0.02	0.02	0.0203	0.02	0.02	0.02	0.109	0.02	0.02	0.02	0.02	0.02	0.0233	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.253	0.1	0.02	0.02	0.02	0.02	0.02	0.02	0.188	0.02	0.02	0.02	0.02	0.02	0.0377	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	1.07	35.4	3.85	12.6	4.3	0.321	0.1	2.2	2.66	1.79	2.46	1.47	0.1	0.1	5.38	24.2	0.432	5.36	1.88	6.38
Aliphatics >C16-C21	6.56	253	33.4	29	15.4	0.163	0.1	12.3	9.3	4.34	9.22	6.21	0.1	0.1	24.6	90.1	1.2	18.2	6.06	28.9
Aliphatics >C21-C35	62.2	482	62	66	39.8	1.04	0.446	78.4	37.6	16.2	31.5	38.9	6.48	0.1	59.6	203	7.36	82.1	26.7	53.7
Aliphatics >C35-C44	21.2	52.1	8.53	8.9	9.33	0.156	0.172	21.7	6.4	3.09	6.47	20.4	0.1	0.1	8.79	25.7	1.4	25.9	9.16	5.05
Aromatics >EC5-EC7	0.02	0.072	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.046	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.118	0.0464	0.02	0.02	0.02	0.02	0.02	0.02	0.0717	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.169	0.0668	0.02	0.02	0.02	0.02	0.02	0.02	0.125	0.02	0.02	0.02	0.02	0.02	0.0255	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	2.37	70	7.5	14.7	6.44	0.1	0.929	4.15	3.12	0.976	4.25	2.19	0.1	0.1	12.1	58	2.18	9.71	0.386	16.2
Aromatics >EC16-EC21	7.8	253	34.6	45.2	17.7	0.151	1.65	15.9	11.5	3.26	18.1	9.91	1.29	0.1	53.3	291	5.72	58.2	6.47	52.2
Aromatics >EC21-EC35	47.7	506	79.7	120	43.5	3.84	4.54	62.7	38.1	10.4	58	53	22.3	0.1	136	679	14.7	202	56.5	225
Aromatics >EC35-EC44	31.2	119	24.8	37.1	14.7	0.577	0.954	33.3	14.4	2.37	17.9	39.7	4.02	0.1	40.1	178	4.51	65.3	25	64.4
Aromatics >EC40-EC44	12.9	38.4	7.99	11.9	4.98	0.1	0.199	13.5	5.3	0.696	5.43	16.6	1.17	0.1	12.1	50	1.36	22.1	9.66	19.4
Polyaromatic Hydrocarbons (PAHs)																				
Acenaphthylene	153	4700	545	455	99.8	12	12	324	410	42.5	304	113	12	12	1050	8580	35.9	1250	60	1830
Acenaphthene	44.5	682	8	39.1	85	8	8	34.2	48.8	11.5	82.6	11.3	8	8	137	1840	8	227	40	702
Anthracene	268	5760	653	448	143	16	16	426	884	59.8	537	109	16	16	1900	22600	84.4	2470	80	1540
Benz(a)anthracene	759	7250	1040	1310	180	14	14	1370	1550	182	1280	432	28.5	14	3230	42600	169	6590	857	6640
Benzo(a)pyrene	725	6780	1080	1120	162	15	15	1290	1440	170	1210	414	25.9	15	3130	41800	154	7480	1230	17100
Benzo(b)fluoranthene	1280	12000	1750	2280	314	15	15	2210	2300	297	2070	675	58.5	15	5610	63100	264	11000	1680	22600
Benzo(k)fluoranthene	505	3550	771	695	95.1	14	14	778	780	117	737	212	21	14	1890	23100	84.3	3910	698	7760
Benzo(g,h,i)perylene	578	5220	871	1010	137	24	24	1110	1100	122	905	321	32.4	24	2400	28800	125	5400	978	12700
Chrysene	722	7430	848	1490	254	10	10	1390	1360	183	1310	456	34.7	10	2610	37300	156	6510	1110	18900
Dibenzo(a,h)anthracene	117	1020	177	224	0.023	0.023	0.023	207	225	32.5	230	59.2	0.023	0.023	563	6680	28.3	267	183	3520
Indeno(1,2,3-cd)pyrene	536	5810	761	1160	155	0.018	0.018	964	1230	115	876	340	0.018	0.018	2130	25600	107	4540	738	14800
Fluoranthene	1460	23700	2720	3270	441	0.017	0.017	2710	3920	362	2760	892	67.9	0.017	7360	104000	361	12400	953	7560
Fluorene	126	3650	433	178	135	10	10	186	271	36.2	176	44.2	10	10	563	5120	27.7	927	50	731
Naphthalene	550	24400	3000	1100	610	9	9	681	1200	182	1180	174	9	9	2990	10900	120	3370	45	7160
Phenanthrene	920	21700	2400	2300	718	15	15	1500	2190	278	2000	410	39.6	15	5340	39900	268	7820	240	4780
Pyrene	1.18	15.9	1.89	2.2	0.29	0.015	0.015	1.95	2.76	0.261	2.04	0.65	0.053	0.015	5.28	73.8	0.276	10.2	1.06	9.95
PAH, Total Detected USEPA 16	9.93	150	19	19.3	3.82	0.118	0.118	17.1	21.7	2.45	17.7	5.31	0.362	0.118	46.2	536	2.26	84.4	9.73	138
Naphthalene-d8 % recovery**	100	100	103	93.5	96	98.8	91	90.3	90	73.6	97.1	91.5	87.8	101	100	91.5	102	101	84.2	96.9
Acenaphthene-d10 % recovery**	95.8	96.9	97.6	89.7	89.3	92.7	85.6	91.9	87.5	68.9	92.4	85.7	0	95	96.3	79.7	95.8	86.1	72.6	89.9
Phenanthrene-d10 % recovery**	105	101	94.4	98.3	92.1	103	86.8	110	97.2	70.4	97.9	90	95.8	105	102	85.8	104	105	79.7	96.3
Chrysene-d12 % recovery**	93.3	84.1	90.3	94.6	70.6	104	71.5	104	95.1	73	86.1	79.2	91.3	95.7	91.6	90.3	91.7	85.2	82.3	90.4
Perylene-d12 % recovery**	89.3	70.9	91.5	91.3	70.1	99.8	72.5	109	93.7	70.3	86.3	80.6	86.9	97.1	87.4	83.9	90.2	82.9	79	83.1
Total Aliphatics >C12-C44	91	823	108	116	68.9	1.68	0.618	115	56	25.4	49.7	66.9	6.48	0.1	98.4	343	10.4	132	43.8	94
Total Aromatics >EC12-EC44	89	947	147	216	82.3	4.57	8.07	116	67.1	17.1	98.3	105	27.6	0.1	242	1210	27.1	335	88.4	358
Total Aliphatics & Aromatics >C5-C44	180	1770	255	333	151	6.26	8.69	231	123	43	148	172	34.1	0.1	340	1550	37.5	467	132	452
Metals - (Solid)																				
Iron	157000	84300	54600	23600	17400	28000	40200	212000	22500	21600	93000	48400	29400	35000	33800	51600	34500	67500	159000	29500
Manganese	6120	9550	5650	4470	1310	316	620	8850	1900	1920	15200	4420	376	504	3800	6930	1670	20000	35300	6970
Metals - (Liquid)																				
Calcium	79200	187000	129000	191000	-	-	-	67700	83400	-	-	96100	-	-	190000	-	49800	-	205000	102000
Magnesium	11800	13300	14300	27400	-	-	-	6560	10100	-	-	16000	-	-	33500	-	6780	-	8000	10800
Phenols																				
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0435	0.01	0.01
Cresols	0.01	0.0826	0.0108	0.025	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0137
Xylenols	0.015	0.0354	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.118	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0435	0.035	0.035
Inorganics																				
Soluble Sulphate 2:1 extract as SO4 BRE	0.0838	0.149	0.0757	0.0721	-	-	-	0.0302	0.122	-	-	0.189	-	-	0.179	-	0.0711	-	0.0845	0.0426
pH	9.38	9.15	9.7	8.51	8.63	7.72	8.1	10.4	9.41	9.5	8.99	8.31	7.32	8.06	9.78	6.68	9.02	12.1	12.2	8.13
Sulphate, Total																				
Sulphur, Total	0.135	0.277	0.141	0.226	-	-	-	0.0889	0.235	-	-	0.174	-	-	0.368	-	0.141	-	0.266	0.333
Sulphate, Total potential	0.405	0.831	0.423	0.678	-	-	-	0.267	0.705	-	-	0.522	-	-	1.1	-	0.423	-	0.798	0.999
Sulphate, acid soluble (total)	0.131	0.295	0.232	0.197	-	-	-	0.0992	0.657	-	-	0.175	-	-	0.78	-	0.77	-	0.384	0.125
Cyanide, Total	1	4.2	1	1	1	1	1	1	1	1	1	1	1	1	1	1.55	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	110	12	12	12	12	12	12	238	21.4	12	12	12	12	12	12
Asbestos																				
Asbestos Quantification - Gravimetric - %	0.0382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	17/04/19	16/04/19	16/04/19	16/04/19	-	-	-	17/04/19	17/04/19	-	-	17/04/19	-	-	17/04/19	-	16/04/2019	-	25/04/19	16/04/19
Analysed By	Christian Hallam	Christian Hallam	Christian Hallam	Christian Hallam	-	-	-	Christian Hallam	Christian Hallam	-	-	Christian Hallam	-	-	Christian Hallam	-	Paul Poynton	-	Christian Hallam	Christian Hallam
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	N/C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	0.0384	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Comments	Soil containing material typical of asbestos gasket.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																				
Dibromofluoromethane**	101	83.8	86.1	98.9	97.4	104	103	100	94.6	105	89.1	101	107	105	75.4	86	105	90.9	106	95.7
Toluene-d8**	94.8	87.2	92.5	87.5	97.2	99	98.8	93.2	95.1	97.9	86.7	96.2	97.5	98.5	89.8	88.3	98.7	88.9	98.5	93.4
4-Bromofluorobenzene**	88.2	70.6	77.2	71.8	80.7	96.9	104	84.1	81.5	91.3	71.6	89.6	94	98.3	70.5	73.2	96.2	77.9	101	81.9
Methyl Tertiary Butyl Ether	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.18	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.14	0.07	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.08	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.26	0.532	0.26	0.13	0.13	0.13	0.13	0.198	0.13	0.13	0.13	0.13	0.13	0.23	0.666	0.13	0.449	0.13	0.13
Sum of BTEX	0.4	0.8	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																				
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

												Sample ID	4AH2	4AH3	4AH3	4AH3	4AH3	4AH4	4AH4	4AH4	4AH5	4AH5	4AH5	4AH6	4AH6	4AH7	4AH7	4AH7	4AH8	4AH8	4AH8	4AH9	4AH9	4AH1V	4AH2V	4AH4V	4AH5V	4AH6V	4AH7V	4AH8V	4AH9V	4AH10V	4AI1	4AI1	4AI1	4AI1V	4AJ1	4AJ1	4AJ1V	4AL1	4AL1	4AL2	4AL2	4AL2	4AL2	4AL1V	4AL2V	4AM1	4AM1	4AM1V	4EA7	4EA7	4EA8
												Depth	1	0.4	0.9	1.5	2.5	0.4	1	1.7	0.4	1	1.4	0.3	0.8	0.5	1	1.5	0.5	0.8	1.4	0.5	1	2	2.8	3.8	3.8	3.8	4	3.4	3.4	3.4	0.4	1	1.5	2.5	0.5	1.2	2.2	0.25	0.8	0.4	0.8	1.2	1.6	2.4	3.4	0.3	0.9	2.2	0.4	0.9	0.5
												Sampled Date	02/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	02/04/2019	02/04/2019	08/04/2019	08/04/2019	08/04/2019	08/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	10/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	11/04/2019	01/11/2018	01/11/2018	31/10/2018
Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00	9.17	14.2	32.9	20	12.9	16.9	22.6	6.52	47.6	30.9	29.5	33.6	9.17	25.7	3.02	13.1	6.5	8.03	14.9	0.379	0.593	2.57	1.23	1.27	1.34	0.941	2.57	1.66	3.26	2.12	2.26	95.2	12.8	1.05	74.6	17.1	2.95	4.95	>100	4.71	3.81	11.1	1.97	0.972	2.59	52.2	23.8	0.869	6.81	8.45	51.4
Metals (Solids)
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93	9.55	14.1	6	6	6	6	6	6	6	2.93	6	6	6	6	6	6	3.41	1.43	6	7.74	6.95	13	13.5	13.6	15.2	17.1	9.73	16.4	12.4	15.2	1.66	6	3.46	14.7	7	7.52	12.6	6.15	6	8.77	2.76	7.95	6	12.7	16.5	8.26	6.33	7.87	13.6	6	6
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47	0.229	1.88	0.2	0.619	0.2	0.665	0.2	0.532	0.757	0.26	0.257	0.624	0.2	0.47	0.2	0.626	0.245	0.02	0.2	0.2	1.13	0.194	0.147	0.298	0.346	0.361	0.3	0.0712	0.265	0.125	0.0403	0.703	0.12	0.126	0.371	0.392	0.168	0.329	1.17	0.2	0.265	0.0402	0.612	0.119	0.221	0.159	0.279	0.133	0.2	0.2	0.2
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09	111	474	379	276	478	358	3090	849	698	250	291	570	691	342	816	829	146	13.3	217	820	915	38	35.1	39.2	37.6	37.1	44.4	31.5	41.3	35	64.6	157	20.2	34.8	44.5	94.1	33.9	108	96.6	128	51.2	84.4	347	40.8	70.9	58.5	25	22.6	188	359	9
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00	17	41.6	32.2	14	16.6	14	15.3	14	14	6.87	14	79	21.4	14	24.3	15.3	10.5	1.4	14.8	43.1	24.8	20.2	12.8	14.5	15.6	10.4	17.8	12.5	22.4	18.2	1.4	17.6	5.02	16.3	30.6	18	22.6	21.5	22.4	16.3	7.16	19.7	14	18.2	21.4	15.4	14.8	8.1	25.1	20	14
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66	19.8	31.8	33.6	25.2	17.1	13.4	7	25.4	21.6	7.91	21.2	17.5	7	12	7	14.5	23	0.7	22.3	21.1	22.4	19.5	27.8	25.2	27.8	26.7	22.9	28	23.4	25.4	4.66	32.9	9.43	24.8	33.6	70.2	20.4	63.1	36.4	91.2	8.42	22.4	18.8	23.1	22.6	23.7	32.2	15.5	86.7	36	41.9
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82	0.14	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.14	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.08	1.4	0.14	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87	22.1	42.7	16.7	8.84	12.3	4.01	2	2	5.19	3.8	2.73	7.18	6.46	8.83	2.49	5.9	8.38	1.65	5.53	12.3	15.1	35	38	38.9	38.8	42.8	32.3	38.5	36	33.3	2.52	9.01	5.57	43	12.9	14	28.5	10.2	13.6	17.6	5.6	12.7	8.17	41	38.5	9.73	12.6	29.2	21.6	14.6	37.5
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93	2.35	11	10	10	10	10	10	16.9	10	6.89	10	12.2	10.7	10	10	16.4	5.19	4.21	10	19	28.8	1.61	1.02	1	1	1	1	1	1	1	4.68	10	2.97	1	1.93	10	1	10	10	10	1.59	4.5	17	1	1	2.15	3.49	1	10	10.9	10
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57	81.4	598	467	272	313	344	549	773	319	211	205	338	627	249	827	1250	144	39.1	196	730	694	60.2	57.2	58.1	60	65.4	64.3	57	62.8	59.5	58.6	130	31.2	56.4	46	137	56.9	132	88.2	305	53.8	86.7	548	60.1	61.4	73.4	56.6	40.8	276	419	163
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57	96.6	98.9	129	101	76.7	51.2	19	35.7	86.9	29.9	28.7	44.7	50.5	62.4	26.7	44.1	86.7	11	109	88.4	53.3	96.6	117	113	118	129	96.5	111	113	115	44.1	129	44.1	122	131	272	120	799	205	282	87.2	87.8	81.9	116	284	105	164	83.3	346	85.9	145
TPH Criteria Working Group (TPH CWG)
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00	0.02	0.0216	0.0297	0.0233	0.0332	0.0146	0.0354	0.0439	0.02	0.02	0.058	0.0322	0.02	0.01	0.0132	0.0256	0.111	0.132	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0244	0.02	0.02	0.02	0.0702	0.02	0.02	0.02	0.02	0.02	0.02	0.0294	0.02	0.02	0.01	0.2	0.02
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00	0.02	0.0625	0.0912	0.0741	0.154	0.0502	0.139	0.0541	0.02	0.0913	0.241	0.0986	0.02	0.0217	0.0265	0.0738	0.551	0.449	0.0703	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0545	0.02	0.02	0.02	0.173	0.02	0.0355	0.02	0.02	0.02	0.02	0.0746	0.0403	0.02	0.172	3.32	0.02
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00	0.02	0.0388	0.0692	0.0476	1.63	0.0377	0.0612	0.0316	0.02	0.108	0.469	0.0716	0.02	0.0134	0.0265	0.0472	1.66	0.208	0.0995	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0534	0.02	0.02	0.02	0.185	0.02	0.0323	0.02	0.02	0.02	0.02	0.102	0.0348	0.02	2.5	46.7	0.02
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00	0.02	0.0377	0.0802	0.0434	19.3	0.045	0.0569	0.0214	0.02	1.56	1.36	0.0519	0.02	0.0124	0.0652	0.0451	4.93	0.199	0.293	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0824	0.02	0.02	0.02	0.292	0.02	0.025	0.02	0.02	0.02	0.02	0.0859	0.0392	0.02	10.8	168	0.02
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00	0.1	5.43	11.4	5.32	43.2	10.1	13.9	4.04	10.3	32.1	22.2	9.96	9.82	12.1	20.1	7.28	33.3	12	15.3	0.1	0.469	0.1	0.6	0.1	0.1	0.195	0.596	0.269	0.168	1.32	0.622	16.1	2.35	1.84	12	6.46	1.8	2.07	4.13	2.08	3.68	0.435	0.1	1.74	0.1	3.48	3.17	0.1	260	471	5.47
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00	3.43	38.9	113	36.9	236	41.7	29.9	10.6	28.8	575	508	19.6	81.8	18.9	1160	30.5	61.6	42.6	41.3	3.37	2.88	0.1	0.813	0.1	0.68	0.246	2.68	0.1	0.1	0.66	1.24	43.1	4.52	0.797	40.3	33	1.03	9.34	27.3	8.15	6.1	5.75	0.1	1.72	0.1	19.8	10.7	0.1	351	579	23.9
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00	16.3	127	122	59.4	33.6	95.6	167	38.3	79.3	169	131	107	221	61.5	216	138	261	176	254	21.8	22.6	0.229	1.67	0.1	0.1	0.1	2.17	0.1	0.635	1.21	12.9	172	17.9	1.67	70	63	3.43	61.6	95.6	79.9	30.7	5.82	1.43	2.03	0.927	77.4	52.6	0.271	2980	2980	131
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00	2.25	106	24.8	11.3	7.28	10.9	25.4	4.52	12.1	16.3	8.42	12.1	56.5	4.41	16	37.9	409	106	296	5.85	9.02	0.1	0.281	0.1	0.1	0.1	0.1	0.644	0.198	0.1	2.07	24.9	4.85	0.437	11.5	11.3	0.712	19.6	11.4	28.9	4.56	0.944	0.1	0.312	0.1	8.98	8.43	0.1	513	381	27.3
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00	0.02	0.01	0.01	0.01	0.119	0.01	0.01	0.01	0.02	0.02	0.0736	0.01	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.2	0.02
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00	0.02	0.0119	0.0231	0.018	0.0271	0.01	0.0225	0.0245	0.02	0.02	0.0963	0.0228	0.02	0.01	0.01	0.0246	0.146	0.168	0.0324	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0357	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.2	0.02
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00	0.02	0.0259	0.0462	0.0317	1.09	0.0251	0.0408	0.0214	0.02	0.072	0.313	0.0477	0.02	0.01	0.0173	0.0308	1.11	0.139	0.0659	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.036	0.02	0.02	0.02	0.123	0.02	0.0209	0.02	0.02	0.02	0.02	0.0678	0.0228	0.02	1.67	31.1	0.02
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07	0.02	0.0248	0.0539	0.0296	12.9	0.0303	0.0376	0.0143	0.02	1.04	0.907	0.0353	0.02	0.01	0.0438	0.0308	3.29	0.132	0.196	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0545	0.02	0.02	0.02	0.194	0.02	0.02	0.02	0.02	0.02	0.02	0.0576	0.0261	0.02	7.19	112	0.02
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07	1.8	13.3	33.7	12.3	280	13.4	14.9	7.07	39.7	585	200	9.55	8.64	18.9	15.2	8.25	177	12.4	45.8	0.342	0.462	1.03	0.1	0.339	0.174	0.166	0.532	0.1	0.257	0.171	0.795	22.3	3.45	0.155	49.8	40.4	0.1	5.74	17.1	3.69	3.44	0.913	0.1	0.1	0.1	17.7	19.1	0.1	77.4	177	3.33
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14	7.8	88.3	391	74.1	773	61.4	38	20.9	221	2590	1130	21.2	63	67.4	407	34.7	272	56	95	6	5.66	1.04	0.1	0.276	0.635	0.347	1.91	0.185	0.203	0.1	8.18	196	14.1	0.268	619	345	0.388	23.9	124	20.6	15.7	7.91	0.1	0.451	0.1	145	168	1.12	108	170	15.9
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00	41.1	267	994	200	773	119	95.8	48.4	356	2530	1310	67.1	194	104	624	104	469	219	330	53.6	51	9.63	2.37	1.57	1.61	2.11	3.58	3.12	5.3	3.03	23.1	626	38.8	1.59	1460	609	12.8	79.5	427	72.6	47.4	18.7	0.1	2.62	3.32	430	509	3.74	425	561	65.3
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00	12.4	161	250	58.3	219	32	29.6	13.8	72.9	513	280	18.6	60.9	23.2	163	34.7	612	132	410	20.3	34.1	3.26	0.661	0.1	0.1	0.1	0.295	3.5	0.332	0.1	7.73	146	23.4	0.1	382	158	3.63	31.4	127	29.7	12.1	5.05	0.1	0.411	0.557	110	133	0.513	86.1	178	28.9
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00	3.69	68	81.7	19.5	77.5	11	10.7	4.66	23	153	88.5	6.41	22.5	7.5	55.1	12.4	273	51.8	186	6.95	15.8	0.974	0.132	0.1	0.1	0.1	0.1	1.82	0.1	0.1	2.6	44	10.4	0.1	130	50.6	1.59	10.2	39.6	9.64	3.06	1.77	0.1	0.1	0.1	31.9	35.5	0.1	29.5	67	12.2
Polyaromatic Hydrocarbons (PAHs)
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01	104	1050	8090	2420	5240	1700	426	85.4	1840	60200	199000	48.2	12	2250	206	186	1330	60	335	60	60	12	12	12	12	12	12	12	12	12	68.2	1970	224	12	19700	1340	12	1530	3120	676	334	29.8	12	12	12	3550	8280	12	92.7	12	206
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40	21.9	90.3	757	194	40600	89.9	41	52.4	509	5090	193000	10.4	141	243	414	188	6660	275	437	40	40	8	8	8	8	8	8	8	8	8	17.1	355	16	8	17100	40	8	560	395	57.9	24.7	8	8	8	8	224	40	8	9.18	244	24.5
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33	115	1710	19100	4250	28300	4960	799	373	5590	87200	192000	80.7	307	3480	1020	482	4190	686	1050	80	103	16	16	16	16	16	16	16	16	16	123	2870	400	16	107000	3050	16	3650	4620	1000	473	86.2	16	16	16	4020	14900	16	144	60.2	478
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27	584	5650	23600	9450	56000	7990	1470	754	8850	124000	190000	328	2120	5040	4420	1450	2330	765	1720	1840	923	18.1	14	39.3	50.5	14	20.1	14	14	14	353	9110	719	14	202000	8220	14	10900	18100	3050	2590	307	14	19.6	14	13700	24800	14	315	116	987
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93	637	4990	13600	8200	42600	5590	1010	610	6110	65100	186000	221	1710	3430	5340	1440	1540	424	1490	2800	1310	15	15	25.7	28.7	15	15	15	15	15	323	9390	631	15	142000	7800	15	9240	16400	2870	2120	254	15	15	15	12200	20600	15	291	131	817
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00	1030	8200	24800	13500	65000	10000	2040	1030	11400	127000	189000	413	4370	5270	6780	1980	2580	808	2540	3860	1830	27	15	39.4	54	15	15	15	15	22.5	555	15900	1110	15	207000	13200	28	15700	18600	3370	4100	395	15	25.8	15	21900	33400	22.1	352	389	1360
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00	312	3080	9580	5420	19600	3130	608	354	3580	51400	196000	129	1500	2210	2760	779	657	212	970	1040	754	14	14	14	19.4	14	14	14	14	14	198	5630	397	14	98800	4230	14	5480	8050	1220	1400	151	14	14	14	6040	12200	14	157	140	509
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51	586	3410	8560	5920	26300	3630	634	460	3690	43900	177000	184	1840	1860	2970	860	861	300	1070	2080	897	24	24	24	24	24	24	24	24	24	250	7100	554	24	78500	5600	24	6940	11700	2000	1760	182	24	24	24	8150	14300	24	265	208	515
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26	658	5750	21700	9300	42400	7380	1590	718	8670	114000	190000	370	3550	4750	4160	1490	2090	747	1850	1940	1190	17.7	10	41.7	42.8	10	14.3	10	10	10	353	8610	684	10	172000	8340	17.5	11500	13300	2380	2750	283	10	17.6	10	12500	22200	10	307	311	929
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63	125	826	2540	1540	7370	793	185	132	914	10400	177000	46.7	455	516	673	183	0.23	0.115	0.23	343	125	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	54.2	2190	115	0.023	25900	1550	0.023	1560	3280	494	433	50.5	0.023	0.023	0.023	1920	3480	0.023	56.6	38.2	124
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93	556	3600	10500	5090	24600	3760	570	480	4010	58500	219000	142	1340	2310	2620	875	766	223	854	1680	960	0.018	0.018	0.018	26.5	0.018	0.018	0.018	0.018	0.018	293	6390	471	0.018	73700	4670	0.018	5830	9810	1760	1510	157	0.018	0.018	0.018	10700	12400	0.018	217	174	567
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85	903	10500	74400	21200	97300	23600	4640	1520	24300	425000	202000	609	4320	14500	6910	2810	8380	3760	4700	0.085	1560	0.017	0.017	51	101	0.017	31.6	0.017	0.017	0.017	693	16500	1990	0.017	289000	17700	53.2	20000	37000	6580	4030	634	0.017	56.1	0.017	33400	75300	0.017	781	330	2160
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80	45.2	471	7220	1210	35200	1260	252	145	2330	43000	202000	44	72.1	1930	258	191	3810	104	364	50	50	10	10	10	10	10	10	10	10	10	43.4	770	183	10	34900	608	10	1190	1690	516	87.3	10	10	10	10	1660	7630	10	78.4	95.7	193
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86	284	1560	2750	4570	98800	3370	1730	517	2950	13200	208000	259	194	3250	555	847	36300	668	8140	84	45	13.1	9	33.1	9	9	9	9	9	9	172	2800	347	9	11400	1080	105	2640	3470	717	654	63.1	9	9	9	2190	2270	9	181	31.2	556
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64	460	4740	72000	10900	84500	18500	4330	1440	18200	566000	203000	577	3310	13300	5410	2370	17600	4990	5640	639	1540	15	15	37.6	83.5	15	30.2	15	15	15	415	8550	1510	15	219000	4950	41.5	9410	15200	4110	1650	380	15	15	15	13400	45600	15	511	583	1330
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09	0.655	8.53	48.8	15.9	69.3	16.1	3.22	1.06	17	252	208	0.495	3.28	9.54	6.2	2.45	7.1	2.5	3.45	2.35	1.42	0.0324	0.015	0.0379	0.0669	0.015	0.022	0.015	0.015	0.015	0.504	12.2	1.39	0.015	258	12.9	0.0391	15	27	4.67	3.05	0.437	0.015	0.0416	0.015	24	52.2	0.015	0.798	0.564	1.68
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00	7.08	64.1	348	119	743	112	23.5	9.73	120	2050	3130	3.95	28.5	73.9	50.7	18.6	96.3	16.5	34.6	18.7	12.6	0.118	0.118	0.306	0.473	0.118	0.118	0.118	0.118	0.118	4.41	110	10.7	0.118	1950	95.2	0.284	121	192	35.5	27	3.41	0.118	0.161	0.118	170	350	0.118	4.56	3.42	12.4
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00	90.9	95.9	9.95	104	97.8	102	94.2	87.7	96.9	98	9940	87.4	94.7	91.7	96	98.9	94.8	98.8	91.5	93.2	81.2	101	89	102	90.9	91.2	89.9	98.2	97.5	96.1	86.5	87	101	86.4	95.8	86.1	97.9	108	86.5	87.9	93.3	90	92.5	83.2	92.8	79.7	88.9	93.4	93.2	89.5	92.5
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00	90.2	94.8	9.98	96.5	106	100	90.3	91.2	97.3	100	9830	92.8	91.6	91	93	95.4	103	93.1	86.5	89.6	83	96.6	86.9	96.8	93.1	93.2	94.4	92.1	94.7	91.8	83.4	86	91.8	83.7	97.2	78.4	90.4	100	77.2	77.3	85.8	87.3	83.3	80.9	87.2	76.5	86.9	88.8	82.2	98.9	95
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00	105	96.7	11.1	100	107	99.6	94.3	106	95.4	99	9920	109	95.6	92.7	97.3	103	101	100	96.8	97.9	85.7	108	90.6	104	108	106	110	100	104	100	87.5	86.7	101	86.9	102	86.5	98	104	84.9	89.9	89.3	84	90.2	84.2	90.8	80.6	90	94.4	103	104	92.6
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00	104	91.6	9.12	84.7	85.2	87.7	89.8	105	89.2	90	9460	107	93.5	88.9	98	82.5	75.9	87.9	79.3	81.3	74.3	103	79	95.1	114	110	115	89.2	92	84.2	80.6	83	87	77.2	64.3	81.8	87.7	109	85.2	89.8	96.4	71.4	83.9	78.7	86.9	74.6	73.7	87.5	98.9	102	77.7
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00	107	94.8	6.13	82.4	89.2	85.9	80.4	95.7	82.7	79	8930	95.9	94.3	81.3	97.2	74.7	65.7	84	74.4	83.7	77.5	96.6	82.7	94.6	110	108	112	86.9	91.5	83.7	84.8	77.2	82.5	82.4	88.2	84.3	86.8	102	82.8	95.7	89.9	66.8	87	83.7	88.8	78.6	74.1	88.3	87.1	95.3	70.4
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00	22	278	272	113	320	158	237	57.4	131	793	669	148	369	96.9	1410	213	765	337	606	31	35	0.229	3.36	0.1	0.68	0.441	5.45	0.913	1	3.2	16.8	256	29.6	4.75	134	114	6.97	92.6	138	119	45	12.9	1.43	5.8	0.927	110	74.9	0.271	4100	4410	188
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00	63.1	530	1670	345	2040	225	178	90.2	690	6220	2910	116	326	214	1210	181	1530	419	881	80.2	91.2	14.9	3.03	2.19	2.42	2.62	6.32	6.81	6.09	3.2	39.8	990	79.8	2.01	2510	1150	16.8	140	695	127	78.6	32.6	0.1	3.48	3.88	703	829	5.37	696	1090	113
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00	85.1	807	1940	458	2400	384	415	148	820	7010	3590	265	695	311	2620	395	2310	757	1490	111	126	15.2	6.39	2.19	3.1	3.07	11.8	7.72	7.09	6.4	56.7	1250	109	6.76	2650	1270	23.8	233	835	246	124	45.6	1.43	9.28	4.8	813	904	5.64	4820	5850	301
Metals - (Solid)
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000			29200	245000	138000	75400	95800	137000	205000	158000	137000	59500	61800	115000	135000	83300	163000	165000	56900	7680	62800	163000	152000	32000	33800	28200	37900	30800	27000	27400	27400	28500	29200	63400	13100	33400	25500	60200	42500	62500	60400	165000	29500	31700	96000	37600	39100	32300	38500	31800	183000	134000	133000
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520			2860	24200	23800	13100	26700	19000	38800	35100	18900	26100	16400	24800	34300	15200	34900	32800	10400	6750	14700	51300	58400	433	597	399	489	583	331	409	549	791	10500	8520	3390	738	2610	9620	859	6880	4430	20100	4340	8950	29200	315	419	4390	3660	1070	11500	26600	2070
Metals - (Liquid)
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950			-	142000	-	171000	-	192000	-	244000	155000	-	162000	145000	-	98900	-	235000	118000	-	188000	381000	-	-	-	-	-	-	-	-	-	-	352000	-	152000	-	-	111000	-	129000	-	152000	-	186000	-	-	-	-	106000	-	-	160000	-
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290			-	10700	-	24700	-	34000	-	14900	25200	-	18000	26200	-	15700	-	10900	15500	-	22100	6820	-	-	-	-	-	-	-	-	-	-	30200	-	48700	-	-	19000	-	24700	-	15600	-	38700	-	-	-	-	15000	-	-	4470	-
Phenols
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00	0.01	0.01	0.011	0.0212	0.01	0.0314	0.0322	0.0102	0.01	0.107	0.05	0.0311	0.032	0.01	0.0102	0.0103	0.27	0.0113	0.0108	0.0417	0.0212	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0113	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.011	0.01	0.01
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06	0.01	0.01	0.011	0.01	0.01	0.0105	0.01	0.01	0.01	0.322	0.124	0.01	0.0107	0.01	0.01	0.01	0.659	0.01	0.0108	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0113	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06	0.015	0.015	0.015	0.015	0.0369	0.015	0.015	0.015	0.015	0.075	0.075	0.015	0.015	0.015	0.015	0.015	0.713	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0326	0.015	0.055	0.015	0.015
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06	0.035	0.035	0.035	0.035	0.035	0.0418	0.035	0.035	0.035	0.43	0.124	0.035	0.0427	0.035	0.035	0.035	1.64	0.035	0.035	0.0417	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.066	0.035	0.035
Inorganics
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42	-	0.0928	-	0.0227	-	0.006	-	0.015	0.0286	-	0.0212	0.0079	-	0.0066	-	0.0051	0.151	-	0.142	0.0074	-	-	-	-	-	-	-	-	-	-	0.1	-	0.0525	-	-	0.0849	-	0.126	-	0.0694	-	0.395	-	-	-	-	0.109	-	-	0.133	-
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01	7.75	11.5	11.7	11.5	10.8	12.5	12.5	12.7	9.21	12.4	12.1	12.4	12.7	12.2	12.6	12.6	11.7	11.4	11.8	12.6	12.7	7.89	8.53	7.68	7.79	7.77	7.64	7.37	6.88	7.37	10	8.95	9.33	7.21	8.08	10.3	7.03	9.61	10.2	9.62	11.3	11.5	11.8	7.28	8.35	9.8	9.8	8.08	10.3	11.6	10.8
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32	-	0.247	-	0.273	-	0.148	-	0.234	0.13	-	0.524	0.232	-	0.178	-	0.222	0.367	-	0.613	0.0913	-	-	-	-	-	-	-	-	-	-	0.427	-	0.209	-	-	0.221	-	0.246	-	0.396	-	0.274	-	-	-	-	0.223	-	-	0.189	-
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32	-	0.741	-	0.819	-	0.444	-	0.702	0.39	-	1.57	0.696	-	0.534	-	0.666	1.1	-	1.84	0.274	-	-	-	-	-	-	-	-	-	-	1.28	-	0.627	-	-	0.663	-	0.738	-	1.19	-	0.822	-	-	-	-	0.669	-	-	0.567	-
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42	-	0.225	-	0.327	-	0.163	-	0.226	0.0866	-	0.918	0.346	-	0.222	-	0.218	0.688	-	1.19	0.244	-	-	-	-	-	-	-	-	-	-	1.46	-	0.647	-	-	0.311	-	0.327	-	0.709	-	0.814	-	-	-	-	0.473	-	-	0.549	-
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90	1	1.05	11.3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	127	7.88	1	1	2.41	1	4.79	1	7.86	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61	15.7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	25.4	12	91.5	118	90.3	210	192	333	201	12	12	12	203	12	12	219	12	12	12	12	12	12	134	202	12	12	32.7	12	12	12
Asbestos
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00		-	-	-	-	-	0.001	-	-	0.001	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	TM048	No units		1371	0	0					0.00		-	24/04/2019	-	24/04/2019	-	24/04/2019	-	24/04/2019	24/04/19	-	24/04/2019	24/04/19	-	24/04/2019	-	24/04/2019	25/04/19	-	26/04/19	25/04/19	-	-	-	-	-	-	-	-	-	-	25/04/19	-	25/04/19	-	-	26/04/19	-	26/04/19	-	26/04/19	-	26/04/2019	-	-	-	-	26/04/2019	-	-	08/11/2018	-
Analysed By	TM048	No units		1371	0	0					0.00		-	James Richards	-	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	Lucy Caroe	Christian Hallam	-	James Richards	Andrzej Ferfecki	-	Lucy Caroe	-	Marcin Magdziarek	Christian Hallam	-	Christian Hallam	Christian Hallam	-	-	-	-	-	-	-	-	-	-	Christian Hallam	-	Christian Hallam	-	-	Christian Hallam	-	Christian Hallam	-	Christian Hallam	-	Paul Poynton	-	-	-	-	Paul Poynton	-	-	Christian Hallam	-
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00		-	-	-	-	-	0.001	-	-	0.001	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00		-	-	-	-	-	None	-	-	None	-	-	-	-	-	-	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	TM304	No units		1002	0	0					0.00		-	-	-	-	-	N/A	-	-	N/A	-	-	-	-	-	-	-	-	-	-	N/C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00		-	-	-	-	-	0.001	-	-	0.001	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00		-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00		-	Not Detected	-	Not Detected	-	Trace	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00		-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00		-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-
Fibrous Tremolite	TM048	No units		1371	0	0					0.00		-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-
Fibrous Actinolite	TM048	No units		1371	0	0					0.00		-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00		-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Not Detected	-	Not Detected	Not Detected	-	Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	-	Not Detected	-
Comments	TM048	No units		1371	0	0			0		0.00		-	-	-	-	-	Loose fibres in soil.	-	-	Soil containing asbestos bitumen debris.	-	-	-	-	-	-	-	-	-	-	Fibre bundles in soil.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Volatile Organic Compounds (VOCs)
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00		101	87.3	91.6	94.5	103	88.7	106	87	83.7	115	103	92.3	102	109	103	96.9	101	94.8	91.6	99.2	94.2	107	104	109	105	105	106	105	108	107	103	85.1	96	107	96	98.7	108	84.1	92.9	98.8	94.7	106	104	103	105	96.8	101	113	107	105	109
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00		95.4	82.2	87.6	90.9	95.8	82.2	96.7	84.7	85.2	87.9	92.9	90.9	94.1	98.4	92.9	91.1	97.2	91.6	88.1	99.5	99.6	96.9	99.2	96.8	97.5	95.6	97.2	98.8	97	97.9	97.1	91	87.6	98.8	92.9	95.3	99.3	92.9	90.3	93.6	91.9	98.7	99.8	98.8	99.8	88.2	95.3	97.3	95.8	91.8	92.8
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00		86.6	71.2	74.6	79.5	89.7	71.6	97.6	71.6	78.2	79.3	88.3	77	90.6	101	91.1	79.6	99	78.8	72.6	102	97.8	96.9	99.7	99.1	95.9	98.2	99.7	99.3	102	98.7	95.1	74.1	72.1	99.5	81.5	86.3	99.8	77	75	80.9	79.4	96.7	100	100	96.4	73.2	86.4	102	89.5	86.2	75.8
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00		0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00		0.09	0.09	0.09	0.09	0.172	0.09	1.8	0.116	0.09	0.09	0.09	0.09	0.09	1.8	0.09	0.09	1.8	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.18	0.09	0.09	0.18	0.09	0.09	0.009	0.11	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00		0.07	0.07	0.07	0.07	0.07	0.07	1.4	0.158	0.07	0.07	0.07	0.07	0.07	1.4	0.07	0.07	1.4	0.262	0.0869	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.14	0.07	0.07	0.14	0.07	0.07	0.007	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.135	0.07
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00		0.04	0.04	0.04	0.04	0.259	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.8	0.04	0.04	0.8	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08	0.04	0.04	0.08	0.04	0.04	0.004	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.102	0.04
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00		0.1	0.1	0.1	0.1	0.629	0.1	2	0.187	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	2	0.26	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.211	0.1
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00		0.1	0.1	0.1	0.1	0.232	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.232	0.1
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00		0.13	0.305	0.527	0.283	167	0.13	2.6	0.235	0.194	20.5	9.5	0.13	0.13	2.6	0.13	0.13	81.2	0.377	5.98	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.26	0.13	0.13	1.21	0.169	0.13	0.157	0.959	0.13	0.13	0.13	0.13	0.13	0.13	0.3	0.257	0.13	0.13	0.13	0.13
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00		0.4	0.4	0.4	0.4	1.29	0.4	8	0.461	0.4	0.4	0.4	0.4	0.4	8	0.4	0.4	8	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.4	0.8	0.4	0.4	0.04	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.68	0.4
Subcontracted: Inorganics
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4EA8	4EA7V	4EA8V	4EB4	4EB4	4EB7	4EB8	4EB8	4EB9	4EB9	4EB9	4EB7V	4EB8V	4EB9V	4EC1	4EC1
Depth	1	2.1	1.7	0.5	1	0.5	0.5	1	0.5	1	1.5	1.6	2.6	2.2	0.2	0.4
Sampled Date	31/10/2018	01/11/2018	31/10/2018	29/10/2018	29/10/2018	01/11/2018	31/10/2018	31/10/2018	31/10/2018	31/10/2018	31/10/2018	01/11/2018	31/10/2018	31/10/2018	29/10/2018	29/10/2018
Carbon																
Soil Organic Matter (SOM)	4.91	3.22	0.905	7.59	3.28	1.56	1.68	1.7	8.29	5.28	17.6	1.61	1.3	1.91	36.9	37.1
Metals (Solids)																
Arsenic	5.52	12.9	18.9	11.5	9.31	10.5	6	8.97	7.07	7.42	8.69	19.1	24	17.1	6.16	6.22
Cadmium	0.02	0.37	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.316	0.238	0.02	0.388	0.02
Chromium	115	38.2	27	75.9	9	775	987	825	220	255	150	40.8	30.1	36.6	114	30.8
Copper	11.1	14.6	12.1	26.1	14	34.4	16.2	33.4	19.4	23.5	37	11.4	11.1	12.9	13.2	17.4
Lead	48.9	33.3	28.8	144	55.6	31.2	16.5	11.1	48.8	48.7	75.1	29.4	30.8	29.8	63.4	36.7
Mercury	0.14	0.14	0.14	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14
Nickel	7.78	34.2	42.1	34.1	20.3	26.4	8.78	21.7	21.9	25.6	26.5	39.3	39.1	39.9	15.7	13.6
Selenium	6.07	1	1	10	10	22	21.1	17.1	12.3	10	10	1	1	1	3.2	1.85
Vanadium	117	64	54.2	168	98	591	499	456	269	258	200	66.9	64.2	60.6	132	65
Zinc	201	115	116	467	236	97.6	55.3	75.5	113	169	188	108	137	123	542	260
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.0336	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0495	0.02	0.0219	0.02	0.02	0.02
Aliphatics >C6-C8	0.137	0.0945	0.02	0.02	0.0361	0.0377	0.02	0.02	0.0627	0.0616	0.198	0.02	0.0876	0.02	0.02	0.02
Aliphatics >C8-C10	0.444	0.62	0.02	0.02	0.035	0.0237	0.02	0.02	0.495	1.14	3	0.02	0.299	0.02	0.02	0.02
Aliphatics >C10-C12	2.04	2.55	0.02	0.02	0.0552	0.163	0.02	0.02	2.52	7.01	11.6	0.02	0.945	0.02	0.02	0.02
Aliphatics >C12-C16	34.2	2.24	0.1	0.132	2.13	5.04	0.617	0.1	110	177	292	0.1	0.1	0.1	1.86	3.69
Aliphatics >C16-C21	79.4	4.26	0.1	4.21	9.81	21.3	0.203	0.1	255	210	469	0.1	2.5	0.1	11.9	22.2
Aliphatics >C21-C35	404	20.3	0.1	49.6	82.2	136	17.4	37.1	1140	1100	2220	0.1	21.3	0.1	52.3	66.6
Aliphatics >C35-C44	91.4	5.07	0.1	17.7	35.8	39.3	3.88	6.78	225	237	472	0.1	0.638	0.1	25.2	19.9
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.065	0.0358	1.73	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.0314	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.398	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.296	0.413	0.02	0.02	0.0233	0.02	0.02	0.02	0.33	0.758	2	0.02	0.2	0.02	0.02	0.02
Aromatics >EC10-EC12	1.36	1.7	0.02	0.02	0.0371	0.109	0.02	0.02	1.68	4.67	7.75	0.02	0.629	0.02	0.02	0.02
Aromatics >EC12-EC16	22.4	0.1	0.1	2.49	2.8	1.71	1.04	1.65	23.5	41.6	72.4	0.174	1.08	0.1	7.28	8.07
Aromatics >EC16-EC21	213	1.97	0.1	10.7	11.3	10.9	7.05	9.49	75.1	71.3	152	0.1	2.64	0.428	28.1	46.6
Aromatics >EC21-EC35	449	24.3	2.3	52.3	61.1	90.5	46	66.9	313	295	561	0.286	10.7	2.07	108	122
Aromatics >EC35-EC44	123	13.3	3.01	28.4	44.9	38.7	15.8	26.4	90.5	110	149	0.525	3.55	3.3	61	39.1
Aromatics >EC40-EC44	40.7	5.5	1.66	11.4	19.7	13.9	5.9	9.22	30.9	43.3	50.7	0.379	1.53	1.96	27.1	14.8
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	184	12	12	174	142	15.4	12	12	17.6	12	112	12	12	34.2	220	157
Acenaphthene	40	8	8	29.6	22.5	44.4	21.3	25.4	49.1	164	766	8	8	65.7	43	49.1
Anthracene	590	16	16	394	226	66.2	53.7	68.6	120	278	504	16	16	58.9	475	365
Benz(a)anthracene	1210	14	25.5	897	837	923	495	629	628	1490	1300	14	23.5	113	1590	1290
Benzo(a)pyrene	1040	15	19.8	804	771	1160	593	740	651	1760	1180	15	15	105	1440	1130
Benzo(b)fluoranthene	1230	15	28.2	1290	1250	1090	464	1400	832	2370	1160	15	30.8	179	2370	1910
Benzo(k)fluoranthene	491	14	14	521	436	624	297	524	353	723	519	14	14	57.5	860	675
Benzo(g,h,i)perylene	783	24	24	584	549	895	544	627	679	1250	944	24	24	80	1080	742
Chrysene	1050	10	22.2	946	792	1020	605	815	611	1590	1330	10	27.7	128	1510	1480
Dibenzo(a,h)anthracene	187	0.023	0.023	161	130	178	119	135	144	252	206	0.023	0.023	0.023	288	232
Indeno(1,2,3-cd)pyrene	815	0.018	0.018	736	726	743	513	593	634	1130	1040	0.018	0.018	64	1310	890
Fluoranthene	3380	0.017	68.6	1840	1620	1240	752	1110	1330	2780	3720	0.017	70.8	297	3030	2460
Fluorene	252	10	10	182	78	21.1	13	11.7	32.7	10	236	10	10	53.8	114	101
Naphthalene	290	9	25.9	299	228	62.1	32.6	51.3	193	470	1760	9	55.3	118	279	378
Phenanthrene	2830	15	33.3	1290	848	427	291	431	955	1870	4050	15	44.6	193	1470	1510
Pyrene	2.27	0.015	0.0474	1.38	1.3	1.39	0.689	0.946	1.15	2.29	2.9	0.015	0.0519	0.253	2.25	1.95
PAH, Total Detected USEPA 16	16.6	0.118	0.271	11.5	9.95	9.91	5.48	8.1	8.38	18.4	21.7	0.118	0.304	1.8	18.3	15.3
Naphthalene-d8 % recovery**	83.8	88.4	94.1	86.1	87	94.5	82	96.6	84.4	94	84.1	86.9	92.7	90.7	90.3	88.6
Acenaphthene-d10 % recovery**	81.5	88.7	87.6	90.3	89.1	95.4	87	82.8	88.7	95.1	97.1	88.7	86.3	86.3	92.6	94.1
Phenanthrene-d10 % recovery**	89.8	90.8	90.2	98.3	95.6	101	91.4	85.9	92.3	91	92.8	90.7	88.1	89.1	96	95.2
Chrysene-d12 % recovery**	92.5	92.7	87.7	95.1	108	100	97.1	86.3	96.9	76.6	78.2	90.7	83.5	85	103	94.7
Perylene-d12 % recovery**	83.3	91	86.1	89.4	99.5	92.8	89.3	82.1	88.6	86.1	71.5	89.1	81.2	85.1	91.9	79.8
Total Aliphatics >C12-C44	609	31.8	0.1	71.7	130	202	22.1	43.9	1730	1720	3450	0.1	24.5	0.1	91.3	112
Total Aromatics >EC12-EC44	808	39.5	5.32	94	120	142	69.9	104	502	518	935	0.986	18	5.8	204	216
Total Aliphatics & Aromatics >C5-C44	1420	76.8	5.32	166	250	344	92.1	148	2240	2250	4410	0.986	44.6	5.8	295	328
Metals - (Solid)																
Iron	66500	37600	38900	210000	216000	220000	172000	194000	123000	118000	135000	38200	42000	35000	47600	57700
Manganese	13100	854	1750	9030	3260	33000	31900	33200	19000	21800	15900	523	397	367	6110	3690
Metals - (Liquid)																
Calcium	191000	-	-	82200	-	233000	271000	-	223000	196000	-	-	-	-	151000	-
Magnesium	16600	-	-	6840	-	12100	7450	-	9730	16400	-	-	-	-	27100	-
Phenols																
Phenol	0.0325	0.01	0.01	0.01	0.01	0.0108	0.0104	0.0107	0.0336	0.0112	0.0115	0.01	0.01	0.01	0.01	0.01
Cresols	0.0217	0.0139	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0115	0.01	0.01	0.01	0.01	0.01
Xylenols	0.0217	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.0759	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	0.178	-	-	0.0679	-	0.104	0.004	-	0.442	0.604	-	-	-	-	0.0845	-
pH	12.5	8.09	8.14	9.45	9.15	12.7	12.8	12.8	12.8	12.6	12.8	7.89	8.12	8.02	9.04	9.51
Sulphate, Total																
Sulphur, Total	0.559	-	-	0.192	-	0.506	0.186	-	0.409	0.834	-	-	-	-	0.284	-
Sulphate, Total potential	1.68	-	-	0.576	-	1.52	0.558	-	1.23	2.5	-	-	-	-	0.852	-
Sulphate, acid soluble (total)	0.533	-	-	0.184	-	0.671	0.315	-	1.01	1.27	-	-	-	-	0.21	-
Cyanide, Total	1	1	1	1	1	1	1	1	1	15.1	1	1	1	1.58	1	1
Exchangeable Ammonia as N	12	218	76.4	12	12	21	117	12	12	12	12	130	65.2	193	12	12
Asbestos																
Asbestos Quantification - Gravimetric - %	0.001	-	-	0.001	-	-	-	-	-	0.001	-	-	-	-	-	-
Date of Analysis	09/11/2018	-	-	08/11/2018	-	14/11/2018	09/11/2018	-	06/11/2018	09/11/2018	-	-	-	-	09/11/2018	-
Analysed By	Marcin Magdziarek	-	-	Lucy Caroe	-	Andrzej Ferfecki	Lucy Caroe	-	Andrzej Ferfecki	Renata Bozhkov	-	-	-	-	Andrzej Ferfecki	-
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	0.001	-	-	-	-	-	0.001	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	None	-	-	None	-	-	-	-	-	None	-	-	-	-	-	-
Analysts Comments	N/A	-	-	N/A	-	-	-	-	-	N/A	-	-	-	-	-	-
Asbestos Quantification - Total - %	0.001	-	-	0.001	-	-	-	-	-	0.001	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	-	-	Detected	-	Not Detected	Not Detected	-	Not Detected	Detected	-	-	-	-	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-
Fibrous Tremolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-
Fibrous Actinolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-
Comments	Fibre bundles in soil	-	-	Soil containing ACM debris	-	0	0	-	0	Loose fibres in soil.	-	-	-	-	0	-
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	105	105	106	105	104	106	104	80	104	107	104	104	108	109	98.7	107
Toluene-d8**	97.8	99.9	101	99.5	97.5	99.4	101	95.9	94.8	97.3	91.3	99.7	101	97.2	95	90.2
4-Bromofluorobenzene**	93.1	98.8	100	88.2	86.4	97.5	94	95	92.7	93.5	86.4	97.9	100	95.7	80.3	74
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.869	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.193	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.16	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.119	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.691	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.229	0.835	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.34	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4EC10	4EC10	4EC10	4EC2	4EC2	4EC4	4EC4	4EC7	4EC7	4EC8	4EC8	4EC9	4EC10V	4EC2V	4EC4V	4EC7V
Depth	0.5	1	2	0.5	1	0.5	1	0.5	1	0.5	1	0.5	2.5	1.65	2.25	1.8
Sampled Date	26/11/2018	26/11/2018	26/11/2018	29/10/2018	29/10/2018	30/10/2018	30/10/2018	01/11/2018	01/11/2018	01/11/2018	01/11/2018	31/10/2018	26/11/2018	29/10/2018	30/10/2018	01/11/2018
Carbon																
Soil Organic Matter (SOM)	9.79	3.9	2.67	37.2	10.7	7.28	2.64	6.84	27.1	84.8	9.86	4.84	4.91	0.852	1.48	9.19
Metals (Solids)																
Arsenic	9.99	4.72	10	10	12.3	9.76	12.8	15.3	9.98	4.99	8.49	10.5	17.2	11.1	16.1	15.5
Cadmium	0.2	0.02	0.2	0.893	2.07	0.2	0.2	0.2	0.2	0.02	1.14	0.2	0.269	0.02	0.02	0.02
Chromium	267	3.69	10.3	20.5	36.8	150	388	63.2	168	3.33	161	76.4	33.9	25.6	46.6	115
Copper	54.5	1.4	56.5	31.8	67.5	14	286	25.3	24.9	13.7	22.1	34.6	15.9	9.52	14.2	23.3
Lead	67.5	1.18	54.4	97.6	113	38.2	31.2	116	91.6	29.2	46	77.3	41.1	22.5	29.3	45.3
Mercury	1.4	0.14	1.4	1.4	0.14	1.4	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	0.14	0.14
Nickel	34.9	1.66	32.6	30.2	35	17.1	36.3	31.6	24.2	12	15.4	39.8	33.4	32	43.7	22.1
Selenium	10	6.08	10	10	1.47	10	16.4	10	10	2.17	5.34	10	1.7	1	1	2.88
Vanadium	224	23.2	71	45.7	37.6	179	405	226	140	17.7	177	113	57.5	45.3	71.4	108
Zinc	277	11.3	188	332	395	164	122	422	323	112	183	238	136	96.5	129	149
TPH Criteria Working Group (TPH CWG)																
Benzene																
Toluene																
Ethylbenzene																
sum of detected mpo xylene by GC																
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.0697
Aliphatics >C6-C8	0.0463	0.02	0.02	0.02	0.02	0.01	0.01	0.0314	0.02	0.01	0.02	0.07	0.02	0.02	0.01	0.219
Aliphatics >C8-C10	0.0516	0.02	0.02	0.02	0.02	0.01	0.01	0.0238	0.02	0.01	0.02	0.373	0.02	0.02	0.01	0.481
Aliphatics >C10-C12	0.0613	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.02	2.05	0.02	0.02	0.01	1.32
Aliphatics >C12-C16	5.69	15	59.4	3.11	2.48	3.7	4.04	2.48	2.39	7.26	0.1	120	0.1	0.1	0.1	1.15
Aliphatics >C16-C21	31.7	24.5	175	13.6	10.8	35.9	21.7	17	21.9	42.4	0.808	290	0.947	0.1	1.14	3.98
Aliphatics >C21-C35	200	355	582	52.5	40.6	64.9	83.4	143	80.3	241	109	2010	13.8	0.1	1.79	17.1
Aliphatics >C35-C44	56.7	212	138	24.2	20.1	16.2	27.7	92.4	15.3	71.6	32.6	590	1.03	0.1	0.1	14.9
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.0956
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01	0.0308
Aromatics >EC8-EC10	0.0344	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.249	0.02	0.02	0.01	0.321
Aromatics >EC10-EC12	0.0409	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.01	0.02	1.36	0.02	0.02	0.01	0.881
Aromatics >EC12-EC16	3.37	3.57	24.9	5.84	2.72	2.98	0.856	4.01	2.92	7.02	2.65	43	0.1	0.1	0.23	1.63
Aromatics >EC16-EC21	13.8	31	95.8	26.1	12.7	29.3	13.3	14.2	9.06	25.1	12.2	95.3	1.9	0.1	1.42	5.65
Aromatics >EC21-EC35	76.3	451	302	96	69.3	91.2	79.2	97.9	42	144	153	377	26.9	3.49	6.09	55.3
Aromatics >EC35-EC44	39.4	481	134	49.8	42.9	33.6	33.6	116	17.3	82.1	94.9	160	6.41	0.173	3.1	10.8
Aromatics >EC40-EC44	15.6	230	56.2	21.1	17.3	13	12.6	55	7.23	36.3	38.8	58.7	1.86	0.1	1.28	2.82
Polyaromatic Hydrocarbons (PAHs)																
Acenaphthylene	66.3	120	50.3	97.6	37.9	234	112	43.1	12	60	43.9	41.2	12	12	12	12
Acenaphthene	14.9	80	49.7	27	12	40	60.9	17.3	8	40	17.4	97.8	8	8	8	21.6
Anthracene	99.5	160	110	177	102	404	503	74.7	93.8	144	69	82.3	16	16	16	16
Benz(a)anthracene	262	198	236	736	673	1620	3050	247	192	381	700	113	29.4	14	33.6	142
Benzo(a)pyrene	223	272	214	623	645	1620	3060	238	209	288	898	100	28.8	15	38.7	154
Benzo(b)fluoranthene	288	299	253	1120	976	2620	4820	267	376	545	932	158	35.6	15	62.3	155
Benzo(k)fluoranthene	114	140	105	338	338	808	1690	106	14	174	372	60.9	14	14	30	74.6
Benzo(g,h,i)perylene	187	386	200	465	415	1190	2040	206	167	256	664	109	24	24	35.5	106
Chrysene	228	153	246	705	638	1550	3270	256	574	398	699	150	25.3	10	41.6	153
Dibenzo(a,h)anthracene	39.8	0.23	39.3	124	132	311	598	46.7	33.6	0.115	153	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	195	315	185	452	554	1010	1880	157	190	203	528	93.1	0.018	0.018	32.3	106
Fluoranthene	531	393	605	1230	1090	3080	6330	492	576	894	815	332	55	0.017	69.4	175
Fluorene	44.8	0.1	54.1	52.8	18.2	94.5	88.1	29	10	77.9	19.2	260	10	10	10	10
Naphthalene	229	90	205	219	77.2	922	471	95.6	9	123	79.2	146	13.6	9	15.6	213
Phenanthrene	425	213	429	685	361	1740	2340	291	376	790	277	769	27.9	15	45.2	87.1
Pyrene	0.444	0.31	0.564	0.932	0.806	2.43	4.32	0.388	0.43	0.703	0.806	0.419	0.0439	0.015	0.0569	0.224
PAH, Total Detected USEPA 16	3.39	2.54	3.55	7.98	6.87	19.6	34.6	2.95	3.22	4.98	7.07	2.93	0.259	0.118	0.461	1.61
Naphthalene-d8 % recovery**	91	89.4	93.2	91.1	86.2	87.7	85.3	86	0	91.4	88.1	85.8	92	87.1	93.1	86.9
Acenaphthene-d10 % recovery**	86.4	80.5	94.8	88.9	89.8	81.4	77.6	90.1	0	92	89.7	92.6	89.3	89.7	98.5	88.9
Phenanthrene-d10 % recovery**	89.7	77.5	90.7	87.3	93.7	78	81.9	98.8	88.4	93.9	99.2	97.9	84.8	97.3	97	89.6
Chrysene-d12 % recovery**	80.4	72.2	80.8	72.5	93	75.7	76.5	103	77.2	91.7	104	96.1	77.3	110	84	92.7
Perylene-d12 % recovery**	75.8	72.4	78.3	70.1	88.1	77	79.6	97.4	69.5	82.2	98.8	83.1	84.8	105	81	90.3
Total Aliphatics >C12-C44	294	606	954	93.5	74	121	137	255	120	362	142	3010	15.7	0.1	2.93	37.2
Total Aromatics >EC12-EC44	133	967	557	178	128	157	127	232	71.3	258	263	675	35.2	3.66	10.8	73.4
Total Aliphatics & Aromatics >C5-C44	427	1570	1510	271	202	278	264	488	191	620	405	3690	51	3.66	13.8	114
Metals - (Solid)																
Iron	179000	4940	170000	80100	63800	160000	223000	174000	152000	48100	88300	198000	33200	33400	49700	68100
Manganese	10600	3730	3660	2780	3570	11200	28300	11400	7850	3070	12700	11200	563	1260	1260	6170
Metals - (Liquid)																
Calcium	153000	-	75800	97700	-	138000	-	143000	-	104000	-	133000	-	-	-	-
Magnesium	26200	-	9830	14300	-	9150	-	12000	-	14000	-	24000	-	-	-	-
Phenols																
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.0107	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																
Soluble Sulphate 2:1 extract as SO4 BRE	0.0853	-	0.475	0.0521	-	0.0774	-	0.196	-	0.0695	-	0.0794	-	-	-	-
pH	10.5	8.39	10.1	8.98	11.6	11.2	12.6	10.4	11.4	8.9	10.8	11.2	7.84	8.46	6.54	8.25
Sulphate, Total																
Sulphur, Total	0.0983	-	0.524	0.282	-	0.196	-	0.311	-	0.673	-	0.289	-	-	-	-
Sulphate, Total potential	0.295	-	1.57	0.846	-	0.588	-	0.933	-	2.02	-	0.867	-	-	-	-
Sulphate, acid soluble (total)	0.185	-	0.382	0.13	-	0.28	-	0.381	-	0.396	-	0.325	-	-	-	-
Cyanide, Total	1	1	2.28	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	13.6	12	12	12	12	223	341	194	269
Asbestos																
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	11/12/2018	-	11/12/2018	09/11/2018	-	09/11/2018	-	13/11/2018	-	14/11/2018	-	13/11/2018	-	-	-	-
Analysed By	Marcin Magdziarek	-	Paul Poynton	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	-	Lucy Caroe	-	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	-	-	-
Comments	0	-	0	0	-	0	-	0	-	0	-	0	-	-	-	-
Volatile Organic Compounds (VOCs)																
Dibromofluoromethane**	108	116	114	104	106	120	118	101	102	95.6	104	110	108	105	117	103
Toluene-d8**	95.6	90.7	92.4	95.8	100	96.4	97.1	99	98.9	95.5	98.1	94.5	98.8	98.4	99.9	98.8
4-Bromofluorobenzene**	85	82.1	88.5	75	92.7	97.7	98	91.5	92.2	79	94.1	86.6	95.3	96	104	95
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.009	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.007	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.004	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.01	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.275	0.13	0.13	0.167	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.04	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4ED1	4ED1	4ED10	4ED10	4ED2	4ED2	4ED4	4ED4	4ED7	4ED8	4ED8	4ED9	4ED9	4ED10V	4ED1V	4ED4V	4ED7V	4ED8V
Depth	0.5	1	0.5	1	0.25	1	0.5	1.2	0.5	0.5	0.9	0.5	1	2.8	1.8	2.1	1.9	1.7
Sampled Date	29/10/2018	29/10/2018	26/11/2018	26/11/2018	29/10/2018	29/10/2018	30/10/2018	30/10/2018	01/11/2018	01/11/2018	01/11/2018	31/10/2018	31/10/2018	26/11/2018	29/10/2018	30/10/2018	01/11/2018	01/11/2018
Carbon																		
Soil Organic Matter (SOM)	11.8	48.8	2.47	3.45	44	4.19	29	8.4	2.78	21.6	12.3	4.05	1.23	5.28	1	1.15	5.07	1.55
Metals (Solids)																		
Arsenic	5.35	6.63	11	4.97	8.33	7.33	10.4	8.56	12.2	8.99	8.83	3.68	6	17.7	13.7	15.2	15	20.7
Cadmium	0.02	0.02	0.562	0.281	0.02	0.342	0.02	0.02	0.2	1.11	0.2	0.02	0.2	0.271	0.02	0.02	0.2	0.394
Chromium	16.5	32	137	24.5	126	732	16.2	480	9	190	732	53.4	567	34.4	28.1	36.4	39.8	55.9
Copper	7.2	20	19.8	6.71	19.5	30	14.7	23.9	14	22.3	36.5	2.48	15.4	18.5	10.5	10.6	14	12.7
Lead	15.7	30.5	52.8	105	28.8	24.1	23.5	19.6	94.4	43.7	11.4	11.5	21	41.4	24.5	27.8	39.8	27.7
Mercury	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	0.14	1.4	0.14	1.4	0.14	0.14	0.14	1.4	0.14
Nickel	7.56	14.7	22	6.8	13.5	22.2	18.4	14.4	14.3	14.9	26.3	4.31	9.49	34.4	36.9	43	29.4	38.1
Selenium	1.13	2.57	7.47	3.59	3.53	17.9	1.72	13.1	10	2.91	18	5.93	22	1.88	1	1	10	1
Vanadium	33.7	45.6	163	77.5	96.4	397	52.3	443	43.7	138	507	115	397	54.5	50.4	61.6	63.9	81
Zinc	47.6	293	234	572	329	69.1	109	92.3	270	165	45.5	58.8	60.3	156	104	117	106	103
TPH Criteria Working Group (TPH CWG)																		
Benzene																		
Toluene																		
Ethylbenzene																		
sum of detected mpo xylene by GC																		
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.0532
Aliphatics >C6-C8	0.02	0.02	0.051	0.0582	0.02	0.02	0.02	0.01	0.02	0.0606	0.0435	0.02	0.0246	0.0581	0.02	0.01	0.0526	0.161
Aliphatics >C8-C10	0.02	0.02	0.0632	0.0538	0.02	0.02	0.02	0.01	0.02	0.0412	0.0498	0.02	0.02	0.0969	0.02	0.01	0.092	0.557
Aliphatics >C10-C12	0.02	0.02	0.142	0.483	0.02	0.02	0.02	0.01	0.02	0.231	1.52	0.154	0.108	0.128	0.02	0.01	0.209	1.19
Aliphatics >C12-C16	6.9	5.84	13.9	13.7	3.5	7.19	1.61	8.13	0.1	2.36	2.84	7.49	6.17	1.24	0.1	0.1	1.31	0.1
Aliphatics >C16-C21	26.7	22.1	36.9	52.2	20.8	59.4	19	29.4	9.87	10.5	15.8	20.1	20.5	1.53	0.1	0.1	2.88	0.1
Aliphatics >C21-C35	70.4	64.3	74.8	151	65.3	118	80.5	65.9	158	81.7	79.5	275	133	6.38	0.1	0.1	14.7	2.43
Aliphatics >C35-C44	25.9	18.1	25.8	96.7	20.5	43.3	14.8	7.3	37.1	28.1	27.5	150	61.7	0.1	0.1	0.1	1.14	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.0213
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.0418	0.0358	0.02	0.02	0.02	0.01	0.02	0.0271	0.0329	0.02	0.02	0.0641	0.02	0.01	0.0613	0.371
Aromatics >EC10-EC12	0.02	0.02	0.0949	0.323	0.02	0.02	0.02	0.01	0.02	0.154	1.02	0.102	0.0717	0.0849	0.02	0.01	0.139	0.793
Aromatics >EC12-EC16	7.07	15.2	5.27	3.22	9.33	4.25	5.57	2.76	0.1	2.16	1.92	2.4	3	0.1	0.1	0.1	0.53	0.1
Aromatics >EC16-EC21	20.1	89	17.9	21.2	66	38.2	22.6	18.4	1.25	7.2	9.26	15.5	29.9	1.37	1.38	0.1	1.63	0.1
Aromatics >EC21-EC35	82.9	292	59.2	148	161	150	107	96.4	17.7	51.7	71.8	294	165	28.4	6.82	0.1	16.1	4.96
Aromatics >EC35-EC44	44.9	78.3	43.3	185	54.2	60.6	31.6	35.7	1.63	36.9	43	294	115	3.73	1.06	0.1	3.55	5.54
Aromatics >EC40-EC44	19.1	21.2	20.2	89.1	20.7	18.6	11.1	12.9	0.1	16.8	18	135	51.1	0.644	0.1	0.1	1.16	2.43
Polyaromatic Hydrocarbons (PAHs)																		
Acenaphthylene	132	192	61.2	120	180	80.8	51.6	77.8	35.9	31.2	12	60	12	12	12	12	12	12
Acenaphthene	25.8	111	31.1	80	43.4	63.1	28.5	73.9	8	8	8	40	10.2	13.9	8	8	50.5	113
Anthracene	223	735	114	160	773	212	158	232	41.1	47.3	27.7	80	75.3	16	16	16	16	28.9
Benz(a)anthracene	648	3130	488	622	2320	1630	456	1650	98.3	289	583	114	219	14	14	14	103	160
Benzo(a)pyrene	614	2930	510	565	1950	1880	397	2150	81.7	303	760	130	235	15	15	15	103	39.2
Benzo(b)fluoranthene	1040	4410	708	806	3280	2980	658	3170	160	640	1330	138	269	28.2	15	15	107	78.7
Benzo(k)fluoranthene	293	1380	235	177	1150	940	181	1150	49.1	226	451	70	137	14	14	14	54.8	35.7
Benzo(g,h,i)perylene	458	1980	416	476	1300	1530	315	1690	68.8	320	661	155	209	24	24	24	86.1	24
Chrysene	679	3000	481	560	2250	1910	463	1950	110	340	727	112	259	22.6	10	10	115	185
Dibenzo(a,h)anthracene	119	574	86.8	0.23	370	288	95.8	401	0.023	77.8	142	0.115	35.8	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	388	2540	460	462	1740	1340	242	1750	63	269	566	123	150	0.018	0.018	0.018	77.4	0.018
Fluoranthene	1180	4710	822	804	5470	3100	738	2530	195	368	642	262	740	42.9	0.017	0.017	216	766
Fluorene	78	256	29.5	0.1	285	50	75	66.5	15.5	14.7	10	50	10	10	10	10	17.8	47.6
Naphthalene	229	465	353	90	360	186	136	102	116	66.6	43.9	45	11.4	458	9	9	1330	545
Phenanthrene	605	2740	393	223	4080	968	549	904	150	180	183	132	347	33.5	15	15	141	513
Pyrene	0.918	3.93	0.732	1.95	3.79	2.88	0.594	2.36	0.171	0.372	0.689	0.218	0.589	0.0326	0.015	0.015	0.192	0.664
PAH, Total Detected USEPA 16	7.64	33.1	5.92	6.64	29.4	20	5.14	20.3	1.35	3.54	6.8	1.38	3.29	0.632	0.118	0.118	2.6	3.17
Naphthalene-d8 % recovery**	86.4	87.6	91.7	89.3	86.7	88.1	86.3	94.2	93.6	90.5	86.8	85.4	85	91.2	88.6	92.1	96.2	91.2
Acenaphthene-d10 % recovery**	85.6	90.2	92.8	83.9	91.1	87.2	86.7	99.8	87.4	89.7	92.5	91.6	88.9	90.3	90.2	94.7	96.1	92.9
Phenanthrene-d10 % recovery**	86.8	97.2	88.9	82.8	92.6	84.8	85.8	97.6	86.8	89.4	100	93.5	92.3	87.1	94	92.7	101	94.1
Chrysene-d12 % recovery**	82.8	93.5	81.7	79	86.6	76.8	74.7	83.6	81.2	90.6	104	97.8	77.9	79.7	109	80.8	98.7	97.7
Perylene-d12 % recovery**	78.8	81.3	82.4	82.2	76.7	78.8	70.2	79.3	80.4	84.5	99.4	85.1	72.8	86.9	106	76.8	91.8	97
Total Aliphatics >C12-C44	130	110	151	314	110	228	116	111	205	123	126	453	222	9.15	0.1	0.1	20.1	2.43
Total Aromatics >EC12-EC44	155	474	126	357	290	253	166	153	20.6	98	126	606	313	33.5	9.25	0.1	21.8	10.5
Total Aliphatics & Aromatics >C5-C44	285	585	277	672	400	481	282	264	226	221	254	1060	535	43.1	9.25	0.1	42.4	16.1
Metals - (Solid)																		
Iron	32900	33300	144000	44100	57900	201000	51700	151000	77100	110000	228000	36000	106000	36400	34200	41500	42200	46000
Manganese	2290	3490	11100	5400	7680	45700	3220	35900	1940	11500	42500	12000	37700	477	1640	866	1300	1500
Metals - (Liquid)																		
Calcium	171000	-	-	194000	-	219000	98100	-	196000	-	232000	203000	-	-	-	-	-	-
Magnesium	12800	-	-	31100	-	7260	6120	-	16800	-	13700	33500	-	-	-	-	-	-
Phenols																		
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0112	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.0107	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0108	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																		
Soluble Sulphate 2:1 extract as SO4 BRE	0.121	-	-	0.102	-	0.108	0.336	-	0.15	-	0.0476	0.79	-	-	-	-	-	-
pH	9.62	9.85	11.4	10.7	11	11.7	8.35	11.8	10.3	11.2	12.4	9.94	12.7	7.73	8.35	8.06	7.87	7.99
Sulphate, Total																		
Sulphur, Total	0.273	-	-	0.22	-	0.276	0.225	-	0.131	-	0.233	0.852	-	-	-	-	-	-
Sulphate, Total potential	0.819	-	-	0.66	-	0.828	0.675	-	0.393	-	0.699	2.56	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.393	-	-	1.05	-	0.507	0.202	-	0.296	-	0.32	0.868	-	-	-	-	-	-
Cyanide, Total	1	1	1	1	7.46	15.8	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	15.4	19.2	19.4	12	12	12	12	12	28.2	12	19.1	12	12	227	137	164	262	92.4
Asbestos																		
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	0.001	-	-	-	-	0.001	0.001	-	-	-	-	-	-
Date of Analysis	08/11/2018	-	-	11/12/2018	-	08/11/2018	09/11/2018	-	09/11/2018	-	13/11/2018	09/11/2018	-	-	-	-	-	-
Analysed By	James Richards	-	-	Paul Poynton	-	Lucy Caroe	Barbara Urbanek-Walsh	-	Lucy Caroe	-	Lucy Caroe	Barbara Urbanek-Walsh	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	0.001	-	-	-	-	0.001	0.001	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	None	-	-	-	-	None	None	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	N/A	-	-	-	-	N/A	N/A	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	0.001	-	-	-	-	0.001	0.001	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	Not Detected	-	Detected	Not Detected	-	Not Detected	-	Not Detected	Detected	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Detected	Not Detected	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Detected	-	Not Detected	Not Detected	-	-	-	-	-	-
Comments	0	-	-	0	-	Soil containing Fibre bundles	0	-	0	-	Loose fibres in soil	Fibre bundles in soil.	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																		
Dibromofluoromethane**	103	95.6	111	113	106	114	103	117	111	101	109	117	91.3	107	107	122	112	110
Toluene-d8**	94.8	91.7	95.2	92.5	98.3	100	97.1	98.1	98.6	98.6	95.6	90.1	93.1	98.8	98.6	99.1	99.3	99.9
4-Bromofluorobenzene**	82.1	73.5	90.8	87.2	83.1	95.2	83.9	94.6	91.9	90	92.6	82.6	96	95.4	95.9	106	97.5	97.9
Methyl Tertiary Butyl Ether	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.26	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.308	0.13	0.13	0.13	1.15
Sum of BTEX	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																		
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4ED9V	4EE1	4EE1	4EE1	4EE10	4EE10	4EE2	4EE2	4EE2	4EE4	4EE4	4EE4	4EE5	4EE5	4EE6	4EE6	4EE7	4EE7	4EE8	4EE8	4EE9	4EE9	4EE9
Depth	2	0.5	1	2	0.4	1.5	0.2	0.5	1.3	0.5	1	1.5	0.2	0.8	0.25	0.8	0.3	0.8	0.5	1	0.5	1	1.5
Sampled Date	31/10/2018	01/11/2018	01/11/2018	01/11/2018	26/11/2018	26/11/2018	29/10/2018	29/10/2018	29/10/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	31/10/2018	31/10/2018	31/10/2018	31/10/2018	31/10/2018
Carbon																							
Soil Organic Matter (SOM)	3.29	10.7	19.3	6.6	6.74	3.21	6.72	59.8	43.4	32.2	45.2	31.7	7.36	27.8	1.52	1.14	2.1	1.19	3.93	1.49	4.88	0.803	1.14
Metals (Solids)																							
Arsenic	13.3	7.22	8.25	6.69	10.9	6.05	14.8	4.96	7.34	10.5	12.1	11.2	6	6	10.3	8.95	13.4	5.77	7.54	16.3	4.66	6	6
Cadmium	0.02	0.02	0.877	0.02	0.2	0.2	0.02	0.02	0.462	0.02	0.02	0.02	0.2	0.2	0.2	0.02	0.2	0.02	0.2	0.2	0.02	0.2	0.2
Chromium	35.7	37	115	143	129	525	48	95.8	187	34	37.7	69.8	454	369	220	297	60.5	466	46.1	864	62.5	677	361
Copper	13.7	14.6	29.2	15.4	19.7	18.3	36.2	12.8	15.9	17.9	26.2	21.1	19	14	26.7	24.8	17.1	12.5	16.5	59.4	8.23	14.3	17.2
Lead	30.5	29.2	35.4	26.2	29.9	9.99	79.8	23.7	30.2	33	24.7	58.6	16.6	21.8	20	2.92	74.8	0.7	69.2	17.1	22.6	7	14.3
Mercury	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14	1.4	1.61	2.17	0.757	1.4	1.4	1.4	0.14	1.4	0.14	1.4	1.4	0.14	1.4	1.4
Nickel	36.4	17.1	16	10.1	56.6	13.4	17.6	9.88	14.7	13.3	15.5	18	13.5	6.83	22.5	14.2	21.1	5.87	21.5	49.2	6.74	7.52	49.6
Selenium	1	1.44	4.09	5.45	10	21	1.86	4.92	10	2.36	2.91	3.3	19.3	12	13.3	10.2	10	13.9	10	35.7	5.56	25.3	17.9
Vanadium	58.1	47	155	247	123	416	86.8	116	190	59.2	92.1	84.3	508	335	249	360	95	439	104	614	70.3	486	348
Zinc	128	128	130	83.5	236	38.6	454	77	107	97.9	103	156	43.3	45.1	56.1	53.8	239	14.6	249	86.6	115	29.2	54.9
TPH Criteria Working Group (TPH CWG)																							
Benzene																							
Toluene																							
Ethylbenzene																							
sum of detected mpo xylene by GC																							
Aliphatics >C5-C6	0.0187	0.01	0.02	0.02	0.02	0.923	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.01	0.02	0.023	0.0283
Aliphatics >C6-C8	0.0518	0.01	0.0549	0.0418	0.0294	0.363	0.02	0.02	0.02	0.02	0.02	0.02	0.0463	0.0155	0.0391	0.0111	0.02	0.0561	0.045	0.0281	0.0367	0.0513	0.0523
Aliphatics >C8-C10	0.753	0.01	0.0373	0.0237	0.0272	2.59	0.02	0.02	0.02	0.02	0.02	0.02	0.0328	0.0155	0.0467	0.01	0.02	0.619	0.0364	0.0562	0.04	0.627	0.384
Aliphatics >C10-C12	0.657	0.01	0.0461	0.0203	0.0958	651	0.02	0.02	0.02	0.02	0.02	0.02	0.276	0.164	0.981	0.0477	0.02	0.74	0.16	1.45	0.638	2.31	3.28
Aliphatics >C12-C16	0.107	5.78	2.61	2.01	0.1	2.85	2.26	5.52	7.21	5.28	3.06	4.72	5.34	1.38	23.5	1.25	0.683	8.03	2.54	13.8	0.1	1.66	12.9
Aliphatics >C16-C21	11.1	23.7	39.4	12.1	1.5	7.05	22.7	28.9	26.2	20.9	21.4	21.6	28.6	11.1	109	7.31	3.8	13	11.3	31.8	25.9	3.03	36.3
Aliphatics >C21-C35	4.58	94.5	77.6	45.5	30.6	36.9	123	77.6	111	51.3	33.7	43	61.1	35.4	119	28.8	41.6	73.8	82.3	254	118	44.4	173
Aliphatics >C35-C44	0.1	43.7	16.7	14.2	6.9	9.07	36.3	12	38.1	7.89	4.55	8.94	18.7	8.93	52.1	16	16.3	20.4	26.3	124	51.3	29.9	92.2
Aromatics >EC5-EC7	0.0504	0.01	0.02	0.02	0.02	0.427	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.156	0.02	0.01	0.02	0.196	0.0871
Aromatics >EC7-EC8	0.0259	0.01	0.02	0.02	0.02	0.2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.02	0.373	0.02	0.013	0.02	0.349	0.142
Aromatics >EC8-EC10	0.503	0.01	0.0253	0.02	0.02	1.73	0.02	0.02	0.02	0.02	0.02	0.02	0.0215	0.01	0.0315	0.01	0.02	0.412	0.0246	0.0378	0.0259	0.418	0.256
Aromatics >EC10-EC12	0.438	0.01	0.0307	0.02	0.0643	434	0.02	0.02	0.02	0.02	0.02	0.02	0.184	0.11	0.654	0.0311	0.02	0.494	0.107	0.964	0.426	1.54	2.18
Aromatics >EC12-EC16	0.472	6.88	10.1	4.05	0.461	17.3	4.35	6.9	6.88	10.4	6.3	7.22	2.3	2.16	5.66	1.7	1.97	3.21	3.68	4.93	3.43	0.565	3.23
Aromatics >EC16-EC21	8.99	28.9	114	29.6	3.93	20.5	18	29.6	34.2	86.9	39.7	55	16.2	17.1	45.8	8.59	8.5	34.8	11.6	30.2	25.6	12.9	24.4
Aromatics >EC21-EC35	5.72	133	292	93.2	21.7	91.3	78.7	118	155	358	149	189	80.3	73.3	136	68.6	45.3	216	52.9	208	111	99.3	145
Aromatics >EC35-EC44	0.1	79.5	84.9	29.2	13.1	32.3	36.5	34.2	62.5	84.7	36.3	53.5	30.4	25.3	86.9	50.5	28.7	76.5	26.8	139	74.7	60.9	103
Aromatics >EC40-EC44	0.1	33.5	28.5	10.2	6.01	12.9	14.1	11.8	24.1	24.8	12.5	18.2	12.1	9.41	39.9	22.9	12.3	27.6	11	55.6	32	25.3	44.1
Polyaromatic Hydrocarbons (PAHs)																							
Acenaphthylene	68.9	133	616	231	28.6	16.7	198	56.5	44.4	800	1390	571	12	12	155	12	116	60	145	32.9	60	60	13.2
Acenaphthene	38.4	40	57.2	31.2	8	43.1	63.8	35.9	28.3	221	396	192	47	58.3	40	29.2	18.6	255	62.3	79.2	61.9	40	38.5
Anthracene	53.5	362	1590	434	295	70.4	668	187	201	1450	2830	1360	112	145	80	30.2	188	484	289	156	179	113	105
Benz(a)anthracene	168	1150	4960	1780	129	1170	1840	942	632	6210	8900	4250	787	853	1250	712	551	5400	829	1460	1200	1870	1330
Benzo(a)pyrene	161	1000	4090	1160	129	1630	1400	908	591	6780	8460	4060	918	887	1960	1020	464	6200	664	1540	1020	2230	1440
Benzo(b)fluoranthene	227	1200	5490	1910	151	1750	2350	1490	952	9900	12900	6610	1290	1060	2730	1460	511	8320	1150	2440	1230	3360	1650
Benzo(k)fluoranthene	95.3	553	1960	685	51.7	637	843	594	297	3520	3690	2160	458	462	1090	496	234	3300	355	762	479	1340	790
Benzo(g,h,i)perylene	107	718	2820	792	136	1440	879	603	458	4930	5810	3450	635	608	1480	710	365	4050	518	1150	669	1610	1300
Chrysene	173	1080	4270	1680	140	1210	1720	1020	698	6200	7020	4120	799	828	1560	831	512	6030	681	1700	1170	1920	1500
Dibenzo(a,h)anthracene	0.023	177	686	216	28	288	275	175	98.3	1340	1490	1020	172	146	376	181	82.8	822	134	254	143	397	212
Indeno(1,2,3-cd)pyrene	100	665	3360	679	133	1420	1230	741	408	4160	4800	3580	504	546	1200	554	333	5770	479	1100	756	1350	1130
Fluoranthene	387	2550	10400	4250	215	1530	4040	1340	1140	10700	16600	7720	1210	1350	1220	745	1020	7160	1730	2150	1860	2430	2710
Fluorene	19.9	121	607	284	39.2	31.6	209	56.9	46.9	488	1110	464	26.6	26.5	50	10	59.7	107	207	50.7	50	50	18.9
Naphthalene	325	325	715	176	89	411	301	143	105	2460	2240	1550	59.6	102	45	45.4	293	2000	415	152	83	240	709
Phenanthrene	168	1370	6700	2350	180	696	2310	814	596	5810	10300	5030	513	803	361	185	659	2930	1420	873	545	943	1280
Pyrene	0.331	1.96	8.01	2.67	0.17	1.49	2.91	1.3	0.93	8.71	13.1	6.06	1.1	1.23	1.35	0.777	0.727	6.84	1.24	2.68	2.47	2.55	2.72
PAH, Total Detected USEPA 16	2.42	13.4	56.3	19.3	1.92	13.8	21.2	10.4	7.22	73.6	101	52.2	8.63	9.11	14.7	7.77	6.13	59.7	10.3	16.6	11.9	20.4	16.9
Naphthalene-d8 % recovery**	93.9	91.9	88.7	89	92.9	90.6	87.6	85.6	91.4	86.3	85	93.6	86.6	94.9	89.1	87.8	82.4	76.6	96.3	93.1	86.4	106	90.4
Acenaphthene-d10 % recovery**	86.4	95.3	89.8	91.4	88.6	90.5	91.5	89.6	89.3	82.8	81.7	99.3	80.9	94.4	81.1	84.6	84.6	81.4	90.8	91.7	89.4	85.2	93.8
Phenanthrene-d10 % recovery**	93.4	97.2	94.9	98.5	83.4	86.8	101	93.2	87.1	78.1	77.5	95.4	82	98.8	82.2	87.1	87.1	81.7	90.4	91.5	93.9	92.8	98
Chrysene-d12 % recovery**	91.2	88.7	92	104	72.3	77.7	105	86.8	72.7	72.8	73.1	77.6	78	91.4	76	84.6	76.8	81.2	81.4	81.5	96.2	96.9	85.8
Perylene-d12 % recovery**	87.7	73	89.4	99.2	72.4	83.6	98.5	72.1	71.8	71.3	70.7	75.6	80.5	77.9	79.3	80.3	70.7	77.1	83.1	88.8	86.8	95.2	78.9
Total Aliphatics >C12-C44	15.8	168	136	73.7	39	55.8	184	124	182	85.5	62.7	78.3	114	56.9	304	53.4	62.4	115	122	424	196	79	314
Total Aromatics >EC12-EC44	15.2	249	501	156	39.3	161	138	189	258	540	232	305	129	118	275	129	84.5	330	95	382	215	174	275
Total Aliphatics & Aromatics >C5-C44	33.5	417	637	230	78.5	1310	322	313	440	626	294	383	244	175	580	183	147	448	218	809	412	258	596
Metals - (Solid)																							
Iron	27400	41600	64500	84900	189000	147000	53900	57600	67400	43800	41500	43600	130000	92900	125000	185000	114000	188000	144000	2390000	64800	181000	114000
Manganese	721	3000	10400	17100	7510	32800	4340	9350	15600	3750	4240	5570	28800	22300	18000	32400	4850	49400	6740	408000	13500	43600	35500
Metals - (Liquid)																							
Calcium	-	123000	-	171000	101000	226000	122000	-	166000	74600	-	133000	224000	-	193000	-	153000	-	173000	-	193000	-	242000
Magnesium	-	17000	-	2470	17400	7200	14600	-	12400	7220	-	13500	12600	-	14000	-	9950	-	12900	-	26100	-	21600
Phenols																							
Phenol	0.01	0.01	0.01	0.01	0.01	0.011	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0444	0.01	0.0104	0.01	0.01	0.01	0.01	0.0109
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0111	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0555	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																							
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.137	-	0.168	0.063	1.46	0.4	-	0.173	0.111	-	0.187	0.244	-	0.174	-	0.0991	-	0.0641	-	0.11	-	0.0942
pH	8.04	9.42	11.2	11.5	9.69	11.6	10.8	11.4	11.3	8.94	8.86	10.9	12.1	12.2	11.8	12.2	9.95	12.6	10.6	11.1	11	12.6	12.3
Sulphate, Total																							
Sulphur, Total	-	0.383	-	0.3	0.142	1.31	0.338	-	0.663	0.285	-	0.29	0.304	-	0.631	-	0.153	-	0.115	-	0.671	-	0.739
Sulphate, Total potential	-	1.15	-	0.9	0.426	3.93	1.01	-	1.99	0.855	-	0.87	0.912	-	1.89	-	0.459	-	0.345	-	2.01	-	2.22
Sulphate, acid soluble (total)	-	0.548	-	0.42	0.102	3.43	0.494	-	0.53	0.21	-	0.261	0.729	-	0.796	-	0.303	-	0.255	-	0.589	-	0.923
Cyanide, Total	1	1	1	1	1	1	1.17	1	1	20.9	18.5	12.7	1	1	1	3.56	1	1	1	1	1	1	1
Exchangeable Ammonia as N	171	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Asbestos																							
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	0.0174	-	0.001	-	-	-	-	-	-
Date of Analysis	-	14/11/2018	-	09/11/2018	11/12/2018	11/12/2018	08/11/2018	-	08/11/2018	09/11/2018	-	09/11/2018	09/11/2018	-	09/11/2018	-	09/11/2018	-	09/11/2018	-	09/11/2018	-	09/11/2018
Analysed By	-	Andrzej Ferfecki	-	Renata Bozhkov	Paul Poynton	Paul Poynton	Lucy Caroe	-	James Richards	Lucy Caroe	-	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	Lucy Caroe	-	Lucy Caroe	-	Barbara Urbanek-Walsh	-	Marcin Magdziarek	-	Marcin Magdziarek
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	0.0017	-	0.001	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	None	-	-	-	-	-	-	-	None	-	None	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	N/A	-	-	-	-	-	-	-	N/A	-	N/A	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	0.0191	-	0.001	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Tremolite	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Actinolite	-	Not Detected	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	Detected	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Comments	-	0	-	0	0	0	Fibre bundles in soil	-	0	0	-	0	0	-	Soil containing debris typical of AIB	-	Fibre bundles in soil	-	0	-	0	-	0
Volatile Organic Compounds (VOCs)																							
Dibromofluoromethane**	105	97.8	107	99.7	107	111	107	109	111	85.9	103	95.8	104	118	122	118	100	123	102	116	105	99.1	109
Toluene-d8**	96.6	97	96	97.9	95.7	96.2	99.7	95.5	99.9	89.7	90.8	95.3	99.8	98.1	95.7	99	97.4	106	96.7	84.3	99	95.8	98.9
4-Bromofluorobenzene**	94.7	81.6	90	87.3	87.8	94.9	90.9	72.7	95.8	69.3	66.6	78.2	95.5	94.3	100	107	85.2	106	82.4	71.6	93.7	94.9	95.9
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.171	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.0991	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.102	0.07	0.07	0.07	0.101	0.077
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.189	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	1.25	0.13	0.258	0.13	0.13	0.389	0.13	0.13	0.13	0.159	0.367	0.183	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																							
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	15.3	-	-	11.2	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	13.4	-	-	9.84	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	15.2	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	13	-	-	9.34	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	1.08	-	-	0.95	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	11.6	-	-	11.6	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	12.6	-	-	12.5	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4EE10V	4EE1V	4EE2V	4EE4V	4EE5V	4EE6V	4EE7V	4EE8V	4EE9V	4EF10	4EF10	4EF4	4EF4	4EF6	4EF6	4EF8	4EF8	4EF9A	4EF9A	4EF9AV	4EF10V	4EF4V	4EF6V	4EF8V	4EG4	4EG4
Depth	2.5	2.5	2.6	2.1	1.95	1.8	1.75	2	2.1	0.4	1	0.5	1	0.3	0.8	0.5	0.9	0.5	1	2	2.5	2.1	1.55	1.5	0.5	1
Sampled Date	26/11/2018	01/11/2018	29/10/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	31/10/2018	31/10/2018	26/11/2018	26/11/2018	30/10/2018	30/10/2018	30/10/2018	30/10/2018	01/11/2018	01/11/2018	31/10/2018	31/10/2018	31/10/2018	26/11/2018	30/10/2018	30/10/2018	01/11/2018	30/10/2018	30/10/2018
Carbon																										
Soil Organic Matter (SOM)	2.97	1.81	5.03	1.05	5.78	1.23	5.65	6	1.13	2.43	2.57	28.1	30.5	1.25	0.972	0.722	0.76	7.78	0.35	2.78	1.27	1.33	3.78	1.23	22.8	28.3
Metals (Solids)																										
Arsenic	13.6	14	13.3	12.4	13.1	13.6	14	14.9	17.3	81.7	4.05	11.7	9.29	4.75	6	6	6	6	6	13	21.8	12.3	11.9	13.2	10.8	10.9
Cadmium	0.0786	0.428	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.2	0.02	0.02	0.02	0.02	0.2	0.2	0.2	0.2	0.2	0.02	0.0827	0.02	0.02	0.02	0.129	0.02
Chromium	37	34.4	35	31.7	37.7	33.7	35.9	51	25.6	86.7	52.4	108	59	352	439	528	824	106	734	37.2	34.9	29.8	41.4	34	38.9	36.2
Copper	12.9	12.1	15.3	10.3	16.3	11.8	22.5	16.8	16.6	41.1	25.8	18.5	18.7	12.4	14	18	14.8	18.2	19.3	12.8	11.5	11.1	13.7	11.3	31.2	107
Lead	31.5	28.7	31.6	22.7	45.1	24.5	39.1	41.7	22.3	46.2	13.6	45.6	33.2	0.992	10.5	19.7	7	17.3	7	27.6	33.4	24.5	32	28.6	72.6	112
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	35.2	35.7	25.1	34	27.7	38.8	30.4	25.8	30.3	88.3	8.26	12.9	11.6	6.38	8.31	12.8	4.68	16	9.16	34.9	41	32.6	30.3	43.7	28.1	33
Selenium	1.52	1	1	1	1	1	1	1	1	24.8	4.12	3.27	3.11	10.8	21.1	20.7	25.1	10	26.8	1	1	1	1	1	2.25	1.6
Vanadium	58.8	59.9	50.9	53.6	57.8	56.5	58	66.9	44.2	183	149	112	128	283	379	380	542	99.4	540	62.6	58.2	52.7	65.9	59.5	87.9	64.4
Zinc	105	113	112	103	129	107	165	128	83.9	188	94.2	116	96.3	30.9	30.2	89.1	25.6	64.3	19	107	113	102	114	115	151	864
TPH Criteria Working Group (TPH CWG)																										
Benzene																										
Toluene																										
Ethylbenzene																										
sum of detected mpo xylene by GC																										
Aliphatics >C5-C6	0.74	0.02	0.02	0.02	0.01	0.02	0.0311	0.0143	0.0494	0.02	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.0201	0.02	0.02	0.01	0.0354	0.02	0.02
Aliphatics >C6-C8	0.66	0.02	0.02	0.0715	0.01	0.02	0.124	0.0445	0.0806	0.0601	0.0396	0.01	0.01	0.02	0.02	0.0645	0.0596	0.01	0.0304	0.0884	0.0683	0.02	0.01	0.128	0.02	0.02
Aliphatics >C8-C10	1.77	0.02	0.02	0.195	0.01	0.02	0.891	0.159	0.209	0.0848	0.0451	0.01	0.01	0.02	0.02	0.123	0.565	0.01	0.0933	0.423	0.0898	0.02	0.01	0.365	0.02	0.02
Aliphatics >C10-C12	17.4	0.02	0.02	0.542	0.01	0.02	1.53	0.984	1.28	0.392	0.235	0.01	0.01	0.02	0.02	0.421	0.965	0.01	0.405	0.945	0.225	0.02	0.01	0.199	0.02	0.02
Aliphatics >C12-C16	0.1	0.59	0.1	70.9	0.1	0.1	0.1	23.6	0.1	0.1	1.47	1.15	1.09	0.718	14.5	0.1	2.78	0.1	1.14	0.1	0.1	0.1	0.1	0.1	0.233	1.25
Aliphatics >C16-C21	0.1	0.1	0.1	67.6	0.1	0.1	0.1	27.9	0.1	5.01	10.2	12.2	12.2	5.58	75.1	5.14	9.32	1.06	0.612	0.1	0.1	0.1	0.1	0.1	9.83	10.3
Aliphatics >C21-C35	0.1	2.43	4.89	14.1	5.27	0.1	5.15	5.03	0.1	32.8	140	27.1	31.4	18.2	63.1	68.4	64.4	46	13.9	0.1	0.1	0.1	1.71	0.225	46.5	64.8
Aliphatics >C35-C44	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	10.8	31.2	5.28	3.78	8.55	36.3	14.2	14	7.73	4.65	0.1	0.1	0.1	0.1	0.1	17.4	29.7
Aromatics >EC5-EC7	1.09	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.0702	0.02	0.02	0.01	0.01	0.02	0.02	0.0333	0.218	0.01	0.0252	0.02	0.02	0.02	0.01	0.02	0.02	0.02
Aromatics >EC7-EC8	0.2	0.02	0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.02	0.01	0.01	0.02	0.02	0.0688	0.561	0.01	0.0566	0.02	0.02	0.02	0.01	0.02	0.02	0.02
Aromatics >EC8-EC10	1.18	0.02	0.02	0.13	0.01	0.02	0.593	0.105	0.14	0.0558	0.0297	0.01	0.01	0.02	0.02	0.0817	0.377	0.01	0.0618	0.283	0.059	0.02	0.01	0.244	0.02	0.02
Aromatics >EC10-EC12	11.6	0.02	0.02	0.361	0.01	0.02	1.02	0.657	0.853	0.261	0.157	0.01	0.01	0.02	0.02	0.282	0.644	0.01	0.269	0.63	0.15	0.02	0.01	0.132	0.02	0.02
Aromatics >EC12-EC16	0.1	0.1	0.1	21.8	0.1	0.1	0.1	9.37	0.1	1.54	1.05	1.69	3.5	0.197	3.18	2.3	6.74	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.58	1.6
Aromatics >EC16-EC21	0.1	0.299	1.3	26.2	0.268	0.1	0.1	17.5	0.1	17.7	16.8	12	29.6	4.06	25.8	28.9	30.6	6.22	3.41	0.1	0.1	0.1	0.1	0.5	56.6	16.3
Aromatics >EC21-EC35	2.19	5.4	39.8	9.14	25.1	0.1	50.5	8.02	0.1	101	67.3	48.4	118	24.4	85.4	153	135	29.3	22.5	1.47	0.1	0.282	11.3	4.84	174	93.1
Aromatics >EC35-EC44	0.1	1.76	8.98	1.62	3.81	0.1	7.63	0.1	0.1	46.1	27.8	15.9	32.8	14.5	51.3	56.1	55.2	14	13.7	0.1	0.1	0.1	1.67	3.24	64.5	43.7
Aromatics >EC40-EC44	0.1	0.1	2.98	1.2	0.831	0.1	1.88	0.197	0.1	19	9.49	5.74	10.6	5.98	22.6	19.2	18.8	5.25	6.11	0.1	0.1	0.1	0.523	1.07	23.8	17.3
Polyaromatic Hydrocarbons (PAHs)																										
Acenaphthylene	12	12	12	12	12	12	12	12	12	364	448	148	124	12	60	30.4	18.5	12	12	12	12	12	12	12	236	446
Acenaphthene	8	8	8	8	8	8	28.2	29	19.8	63.8	32.8	28	132	8	40	175	104	21.1	13.7	8	8	8	8	8	49.4	88
Anthracene	16	16	16	25.8	16	16	16	16	16	230	399	177	461	20.6	80	468	246	22.2	29.1	16	16	16	16	16	475	779
Benz(a)anthracene	14	42.1	14	14	14	14	14	111	14	2020	3480	737	1940	249	519	4530	2150	195	756	14	42	14	14	14	2170	2960
Benzo(a)pyrene	15	31.9	15	15	15	15	15	98.6	15	2000	3190	788	2210	255	745	5180	2240	214	921	15	52.3	15	15	15	2290	3480
Benzo(b)fluoranthene	15	39.8	15	15	15	15	15	161	15	3460	3920	1310	2960	340	1170	5950	3390	220	944	15	51.6	15	15	15	3580	5190
Benzo(k)fluoranthene	14	14	14	14	14	14	14	66	14	1190	1470	457	1030	150	394	2490	1400	96.5	458	14	25	14	14	14	1590	1670
Benzo(g,h,i)perylene	24	24	24	24	24	24	24	74.8	24	1470	1720	679	1630	206	604	3640	1570	180	681	24	48	24	24	24	2000	3610
Chrysene	10	39.7	10	10	10	10	16.2	128	17	1930	2560	716	1880	287	565	4670	2310	215	818	10	45.7	10	10	10	2020	2960
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	291	441	189	427	45.1	148	774	366	35.8	137	0.023	0.023	0.023	0.023	0.023	488	824
Indeno(1,2,3-cd)pyrene	0.018	23.1	0.018	0.018	0.018	0.018	0.018	66.1	0.018	1590	1400	531	1480	183	497	3520	1380	200	748	0.018	46.2	0.018	0.018	0.018	1550	2790
Fluoranthene	0.017	107	0.017	24	0.017	0.017	33.5	293	49.7	2880	5580	1270	3120	624	648	7660	3690	239	987	0.017	56.9	0.017	0.017	0.017	3330	5180
Fluorene	23	10	10	34.4	10	10	10	27.7	10	55.4	62.7	68.8	122	10	50	75.6	27.3	10	10	10	10	10	10	10	123	365
Naphthalene	2450	17.4	9	27.2	9	9	545	983	524	227	121	382	429	50.3	45	143	222	117	229	639	24.4	9	97.8	9	561	621
Phenanthrene	15	66.7	15	71.8	15	15	24	279	37.9	762	1170	698	1550	220	176	4450	2490	111	259	15	20.9	15	15	15	1540	2810
Pyrene	0.015	0.0834	0.015	0.0201	0.015	0.015	0.0253	0.24	0.0442	2.43	4.98	0.999	2.6	0.546	0.711	7.01	3.28	0.253	0.987	0.015	0.0602	0.015	0.015	0.015	2.64	3.98
PAH, Total Detected USEPA 16	2.47	0.451	0.118	0.203	0.118	0.118	0.672	2.56	0.693	21	31	9.17	22.1	3.18	6.17	50.8	24.9	2.12	7.97	0.639	0.473	0.118	0.118	0.118	24.6	37.8
Naphthalene-d8 % recovery**	92.8	96.8	83.6	94	79.7	81.4	78.5	103	91.8	93.3	87.9	87.7	91	82.2	90.4	92.4	88.6	84.5	84.9	97.1	93.2	84.9	83.1	92.9	87.2	86.9
Acenaphthene-d10 % recovery**	90.2	96.2	87.8	98.3	82.8	84.3	83.2	97.1	97.4	92.7	88.6	89.5	86.3	85.1	81.3	92.8	91.2	91.1	91.3	94.8	90.3	81.4	80.1	93.2	77.2	88.3
Phenanthrene-d10 % recovery**	87.5	101	93.9	97.4	85.8	86.1	85.6	99.8	101	89.7	91.3	85.9	81	86	81.4	99.7	99.4	96.1	96.5	97.7	83.8	75.8	73.7	98.6	83.3	78.7
Chrysene-d12 % recovery**	91.6	97.9	96.6	82.3	79.5	84.9	77.4	93.1	90.4	96.8	103	74.5	72.3	77.2	70.8	97.2	105	94.4	93.4	86.2	75	71.6	70.2	94.5	74	74.4
Perylene-d12 % recovery**	86.1	84.3	95.8	77.7	76.4	82.6	74.3	92.6	82.2	96.6	109	72.8	72.4	73.5	72.3	90.3	96.5	88.6	90.6	91.9	79	70.7	72.8	84.5	71.8	72.9
Total Aliphatics >C12-C44	0.1	3.02	4.89	153	5.27	0.1	5.15	56.5	0.1	48.6	182	45.7	48.4	33	189	87.8	90.5	54.8	20.3	0.1	0.1	0.1	1.71	0.225	73.9	106
Total Aromatics >EC12-EC44	2.19	7.46	50.1	58.8	29.2	0.1	58.2	34.9	0.1	167	113	77.9	184	43.1	166	240	228	49.6	39.7	1.47	0.1	0.282	13	8.58	299	155
Total Aliphatics & Aromatics >C5-C44	36.6	10.5	55	213	34.4	0.1	67.5	93.3	2.68	216	296	124	232	76.1	355	329	322	104	60.9	3.86	0.592	0.282	14.7	9.91	373	261
Metals - (Solid)																										
Iron	34100	37200	24600	40000	34400	41300	39900	33500	27400	61700	45900	36200	37500	129000	112000	150000	184000	91900	186000	38500	42900	37400	39800	36000	38700	52300
Manganese	414	1600	188	1390	267	736	349	1390	432	34700	6820	5510	5380	29500	32200	26700	44000	10100	134000	825	311	1220	639	803	3590	2860
Metals - (Liquid)																										
Calcium	-	-	-	-	-	-	-	-	-	203000	192000	-	192000	-	253000	235000	-	-	288000	-	-	-	-	-	-	114000
Magnesium	-	-	-	-	-	-	-	-	-	23800	21200	-	35200	-	8910	9850	-	-	9480	-	-	-	-	-	-	9950
Phenols																										
Phenol	0.013	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0215	0.0106	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																										
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	-	-	-	-	-	0.0706	0.213	-	0.0796	-	0.127	0.0212	-	-	0.0639	-	-	-	-	-	-	0.141
pH	7.9	8.36	7.2	8.12	6.64	7.63	7.18	8.06	8.14	9.92	11.3	10.1	9.64	12.7	12.1	12.7	12.4	10.7	12.3	7.79	7.76	7.97	6.87	8	10.1	9.46
Sulphate, Total																										
Sulphur, Total	-	-	-	-	-	-	-	-	-	0.302	0.466	-	0.221	-	0.505	0.141	-	-	0.395	-	-	-	-	-	-	0.247
Sulphate, Total potential	-	-	-	-	-	-	-	-	-	0.906	1.4	-	0.663	-	1.52	0.423	-	-	1.19	-	-	-	-	-	-	0.741
Sulphate, acid soluble (total)	-	-	-	-	-	-	-	-	-	0.309	0.507	-	0.133	-	0.539	0.37	-	-	0.574	-	-	-	-	-	-	0.231
Cyanide, Total	1	1	1	1	1	1	1	1	1	1.25	1.67	1.06	1.84	1	1.02	1	1	1	1	1	1	1	1	1	1	1.98
Exchangeable Ammonia as N	126	227	353	205	190	102	378	322	152	12	12	12	12	12	12	12	12	12	12	177	169	89.8	216	321	12	12
Asbestos																										
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	11/12/2018	11/12/2018	-	09/11/2018	-	09/11/2018	09/11/2018	-	-	09/11/2018	-	-	-	-	-	-	09/11/2018
Analysed By	-	-	-	-	-	-	-	-	-	Paul Poynton	Paul Poynton	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	Lucy Caroe	-	-	Renata Bozhkov	-	-	-	-	-	-	Marcin Magdziarek
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-	-	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	Detected	Detected	-	Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	-	-	-	-	-	Detected
Comments	-	-	-	-	-	-	-	-	-	0	0	-	0	-	0	0	-	-	0	-	-	-	-	-	-	0
Volatile Organic Compounds (VOCs)																										
Dibromofluoromethane**	110	103	110	126	119	128	107	111	107	110	110	115	114	106	105	101	103	106	107	107	109	122	121	103	102	101
Toluene-d8**	98.4	101	95.1	108	100	107	97.5	95.2	97.2	97.2	97.3	95.7	95.9	101	99.2	99.3	99.4	97.3	101	97	98	99.3	97.2	100	98.2	96.9
4-Bromofluorobenzene**	95.8	98.7	92.1	108	104	106	94.6	94.1	94.9	95.2	94.3	87.2	84.9	97.3	96	96.9	99.3	98.2	99.2	95.7	96.5	103	99.8	99.1	88.9	83.8
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	1.76	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.171	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.153	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.121	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.582	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.928	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.297	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	10.6	0.13	0.13	0.13	0.13	0.13	0.436	0.706	0.402	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	1.64	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	3.72	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																										
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4EG4V	4GA4	4GA4	4GA6	4GA6	4GA7	4GA8	4GA8	4GA4V	4GA6V	4GA7V	4GA8V	4GB1
Depth	1.9	0.2	1	0.5	0.7	0.5	0.4	0.7	1.8	2.8	1.8	2.1	0.2
Sampled Date	30/10/2018	06/11/2018	06/11/2018	05/11/2018	05/11/2018	20/11/2018	20/11/2018	20/11/2018	06/11/2018	05/11/2018	20/11/2018	20/11/2018	02/11/2018
Carbon													
Soil Organic Matter (SOM)	0.953	8.84	11.8	5.69	3.22	24.8	6.1	10.8	9.74	59.8	1.56	4.14	4.43
Metals (Solids)													
Arsenic	14.2	9.63	6.72	13.8	6	6.83	7.85	2.33	10.7	10.2	12.4	11	8.77
Cadmium	0.02	0.0973	0.02	1.19	0.2	0.02	0.686	0.604	0.02	0.222	0.267	0.264	0.372
Chromium	30.3	33.3	43.3	240	533	33	245	49.4	38.6	3.2	74.3	33.1	81.3
Copper	12.2	18.9	13.4	32.3	15.9	10.7	19.2	4.82	15.7	15.6	12	14.7	25.9
Lead	23.8	72.2	21.6	30.1	14.3	32.4	37.2	28.5	32.4	4.61	24.8	29.7	106
Mercury	0.14	0.14	0.14	0.14	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	1.4
Nickel	35.1	13	14.5	22.3	12.7	13.1	18.9	2.88	28.9	9.29	36	30.9	24.4
Selenium	1	6.06	1.73	6.38	15.5	1.3	10	1	1	1.55	1.04	1	10
Vanadium	52.9	44.3	59.5	430	985	58.8	225	38.8	57.3	10.5	89.4	54.1	89.2
Zinc	104	279	102	99.3	50.6	114	112	109	114	47.1	97.8	108	435
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.02	0.0242	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.119	0.0598	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.366	0.0736	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.265	0.153	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.1	7.62	25.8	2.03	1.5	0.793	2.71	0.593	0.1	0.546	0.1	0.156	1.78
Aliphatics >C16-C21	0.1	25	51.8	8.87	3.86	4.98	26.9	5.21	0.1	0.1	0.1	0.1	9.08
Aliphatics >C21-C35	0.1	112	148	53.5	21.9	60.5	167	24.7	3.1	42.8	0.1	0.692	90.1
Aliphatics >C35-C44	0.1	41.4	37.8	25.2	15.1	17.2	45.8	4.74	0.1	0.1	0.1	0.235	34.4
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.0264	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.244	0.0495	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.177	0.102	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	0.1	6.44	0.135	1.41	0.1	1.82	2.11	0.867	0.1	2.52	0.1	0.122	3.14
Aromatics >EC16-EC21	0.1	36.8	9.6	12.4	5.95	7.24	11.8	6.21	0.1	8	0.1	0.1	11.5
Aromatics >EC21-EC35	1.53	134	41.2	98	57	50.3	109	16.8	21.7	159	4.61	3.67	73.7
Aromatics >EC35-EC44	2.26	63.5	4.58	41	20	22.5	60.2	4.96	5	32.5	0.547	0.395	45.3
Aromatics >EC40-EC44	2.05	26.1	0.354	15	6.7	10.5	27.9	1.75	1.55	11.9	0.1	0.1	18.8
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	60	60	27.2	12	40.2	120	12	12	120	12	12	816
Acenaphthene	8	40	40	51.1	30.3	15.9	80	11.3	8	80	8	8	70.7
Anthracene	16	195	80	111	46.3	89.7	254	35.7	16	160	16	16	1560
Benz(a)anthracene	14	651	70	1460	1040	333	486	178	14	140	38.3	14	2340
Benzo(a)pyrene	15	498	75	1960	1390	371	580	214	15	150	66.9	15	1860
Benzo(b)fluoranthene	15	412	75	1620	1070	582	950	355	15	150	65.8	15	2390
Benzo(k)fluoranthene	14	255	70	914	695	219	318	97.1	14	140	19.8	14	817
Benzo(g,h,i)perylene	24	384	120	1320	946	250	435	158	24	0.24	50.2	24	1280
Chrysene	10	537	50	1470	1140	375	608	189	10	0.1	44.1	10	1810
Dibenzo(a,h)anthracene	0.023	0.115	0.115	283	207	59.9	0.23	39.1	0.023	0.23	0.023	0.023	301
Indeno(1,2,3-cd)pyrene	0.018	319	90	1340	875	190	328	149	0.018	180	37.8	0.018	1380
Fluoranthene	0.017	1680	0.085	1790	1200	497	1060	221	0.017	0.17	38.7	0.017	6240
Fluorene	10	50	50	33	13.9	22.3	0.1	17.8	10	0.1	10	10	1040
Naphthalene	9	117	45	83.5	33.2	105	167	26.8	9	90	9	9	361
Phenanthrene	15	596	75	464	276	239	432	186	15	150	15	15	6030
Pyrene	0.015	1.26	0.075	1.84	1.26	0.408	0.903	0.216	0.015	0.15	0.0401	0.015	4.16
PAH, Total Detected USEPA 16	0.118	6.91	0.59	14.8	10.2	3.8	6.52	2.09	0.118	1.18	0.402	0.118	32.4
Naphthalene-d8 % recovery**	81.9	84.2	91	97.9	98.5	73.8	71	86.8	94.6	90.7	88.1	68.9	91.2
Acenaphthene-d10 % recovery**	79.9	82.9	83.3	98.1	97.5	73.6	68.2	87.4	91.2	87.2	83	71.2	92.7
Phenanthrene-d10 % recovery**	76	82.2	90.4	99.8	100	74.5	72.8	89.6	93.3	92.7	81.4	69.7	99.7
Chrysene-d12 % recovery**	73.3	80.9	78.6	101	102	71	72.7	85.4	82.4	87	86.3	72.8	99.1
Perylene-d12 % recovery**	72.6	76.5	76.3	96.4	95.7	72.2	75.1	84.1	82.2	85.2	94.8	74.4	91.5
Total Aliphatics >C12-C44	0.1	186	263	89.6	42.3	83.5	242	35.2	3.1	43.3	0.1	1.08	135
Total Aromatics >EC12-EC44	3.78	241	55.6	153	82.9	81.8	183	28.9	26.7	202	5.16	4.18	134
Total Aliphatics & Aromatics >C5-C44	3.78	428	319	242	125	165	425	64.1	29.8	245	5.16	5.27	269
Metals - (Solid)													
Iron	38300	51400	50900	165000	159000	43400	91800	26700	29000	13200	38300	22300	59600
Manganese	1710	12600	3880	23700	30100	4350	15700	2950	370	292	2710	328	4370
Metals - (Liquid)													
Calcium	-	-	145000	-	157000	136000	175000	-	-	-	-	-	147000
Magnesium	-	-	11800	-	8180	14000	19900	-	-	-	-	-	27500
Phenols													
Phenol	0.01	0.01	0.0345	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.0115	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.046	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	0.105	-	0.0858	0.125	0.0917	-	-	-	-	-	0.112
pH	8.63	10.9	11.2	11.9	11.6	10.7	10.1	11.4	7.47	6.85	8.76	7.48	9.52
Sulphate, Total													
Sulphur, Total	-	-	0.263	-	0.208	0.159	0.389	-	-	-	-	-	0.2
Sulphate, Total potential	-	-	0.789	-	0.624	0.477	1.17	-	-	-	-	-	0.6
Sulphate, acid soluble (total)	-	-	0.54	-	0.316	0.02	0.731	-	-	-	-	-	0.26
Cyanide, Total	1	1.29	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	68	12	12	22.7	12	12	12	12	302	97.3	59.7	202	12
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	15/11/2018	-	09/11/2018	03/12/2018	03/12/2018	-	-	-	-	-	14/11/2018
Analysed By	-	-	Andrzej Ferfecki	-	Andrzej Ferfecki	Christian Hallam	Christian Hallam	-	-	-	-	-	Andrzej Ferfecki
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected
Amosite (Brown) Asbestos	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected
Fibrous Anthophyllite	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected
Fibrous Tremolite	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected
Fibrous Actinolite	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected
Non-Asbestos Fibre	-	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	-	-	-	-	Not Detected
Comments	-	-	0	-	0	0	0	-	-	-	-	-	0
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	120	103	107	112	108	107	109	109	114	112	108	108	106
Toluene-d8**	105	90.9	94.4	98.7	99.8	101	98.2	102	96.7	93.6	97.5	101	96.4
4-Bromofluorobenzene**	107	70.2	74.5	91.2	108	81.1	76.5	85.6	83.5	74.4	100	85.2	96.1
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4GB1	4GB2	4GB2	4GB3	4GB4	4GB4	4GB5	4GB5	4GB6	4GB6	4GB8	4GB8	4GB9
Depth	0.7	0.7	1.3	0.5	0.3	0.6	0.5	1	0.5	0.9	0.4	0.8	0.5
Sampled Date	02/11/2018	02/11/2018	02/11/2018	05/11/2018	05/11/2018	05/11/2018	05/11/2018	05/11/2018	05/11/2018	05/11/2018	06/11/2018	06/11/2018	20/11/2018
Carbon													
Soil Organic Matter (SOM)	19.8	14.3	0.35	0.35	0.378	3.65	9.03	1.08	6.47	4.26	14.3	0.35	9.64
Metals (Solids)													
Arsenic	8.72	21.6	7.76	8.77	8.77	27.1	8.81	6	10.7	6	12	6	7.56
Cadmium	0.2	0.2	0.02	0.2	0.02	1.15	0.245	0.2	0.932	0.2	0.2	0.2	1.84
Chromium	112	9	0.9	22.5	56.3	6.54	21.7	763	79.1	421	65.8	397	403
Copper	18.9	15.7	3.21	17.6	10.9	31.3	26.5	28.3	23	16.1	84.5	26.4	62.8
Lead	134	9.11	9.73	46.4	59.6	39.1	25.2	19.4	54.8	18.3	107	26.2	30.4
Mercury	1.4	1.4	0.14	1.4	0.14	0.14	0.14	1.4	0.14	1.4	1.4	1.4	1.4
Nickel	44.9	31.1	6.59	26.7	10.9	26.5	24.5	12	17.5	12.2	54.3	15.4	24.3
Selenium	10	10	1	10	3.23	1	1	24.3	2.33	12	10	20.9	15.6
Vanadium	137	128	17.9	64.8	90.7	43	40.4	702	113	286	106	416	453
Zinc	221	68.5	25.9	200	233	130	45.1	51.8	332	75.2	446	89.5	69.1
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.0652	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0	0.02
Aliphatics >C8-C10	0.0576	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.0489	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.281	0.1	4.97	0.1	2.89	1.18	1.67	1.61	15	2.03	2.6	2.13	1.85
Aliphatics >C16-C21	26	4.52	20.6	6.48	11.6	6.52	4.36	7.42	13.4	9.5	21.8	9.8	9.2
Aliphatics >C21-C35	46.8	42.6	48.3	39.3	79.1	23.3	11.9	51.5	121	74.1	226	60.1	60.7
Aliphatics >C35-C44	3.82	3.13	13.1	7.93	24.9	8.51	1.46	8.9	91.6	47.5	76.7	23.4	13.7
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.038	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.0326	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	12.1	0.928	0.795	7.26	1.74	0.1	1.18	0.435	5.94	2.16	4.83	0.595	1.44
Aromatics >EC16-EC21	93.2	10.9	4.69	72.8	10.1	1.17	5.16	13.2	13.9	10.7	36.8	6.37	17.7
Aromatics >EC21-EC35	245	26.6	9.07	3310	49.4	19.4	18.6	108	229	108	187	45.2	130
Aromatics >EC35-EC44	67.6	1.5	1.61	74.4	24.8	15.8	6.72	35.5	228	74.8	115	27.6	42.1
Aromatics >EC40-EC44	22	0.1	0.533	24.6	9.64	6.88	2.43	12.6	90.1	32.3	44.3	10.8	17.8
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	589	51.1	12	47.6	116	12	50.1	12	210	64.8	185	60	32.8
Acenaphthene	105	10.8	8	9.61	44.7	8	8.92	34.2	28.7	18.4	40	40	124
Anthracene	1290	113	25.9	68.6	261	16	82.4	60.2	374	119	235	80	247
Benz(a)anthracene	3660	287	58.7	287	846	94.3	328	1220	1150	662	794	172	2570
Benzo(a)pyrene	3790	216	47.6	347	742	113	316	1630	1130	775	726	187	3190
Benzo(b)fluoranthene	5110	328	59.1	532	658	122	519	1610	1240	747	858	167	4910
Benzo(k)fluoranthene	2000	104	21.3	197	398	51.5	201	718	470	373	363	102	1730
Benzo(g,h,i)perylene	3080	194	39.2	279	556	101	240	1110	862	638	566	147	2240
Chrysene	3450	278	55.5	296	779	107	305	1290	1050	714	696	171	2730
Dibenzo(a,h)anthracene	700	48.4	0.023	73.6	132	26.6	74.4	264	209	135	123	0.115	539
Indeno(1,2,3-cd)pyrene	2950	175	39.8	254	474	93.5	227	960	729	614	469	114	2580
Fluoranthene	7210	668	133	431	1670	145	445	1520	2130	966	1900	393	3180
Fluorene	381	50.7	12.8	26.1	93.6	10	35.7	12.6	126	33.7	110	50	57.4
Naphthalene	1220	171	29	115	220	33.7	136	27.2	243	141	288	45	95.1
Phenanthrene	3910	557	98.2	234	778	97.6	306	616	999	393	1030	195	1130
Pyrene	5.65	0.511	0.101	0.358	1.33	0.127	0.379	1.45	1.67	0.88	1.41	0.328	3.43
PAH, Total Detected USEPA 16	45.1	3.76	0.72	3.56	9.1	1.11	3.65	12.5	12.6	7.27	9.75	1.98	28.8
Naphthalene-d8 % recovery**	94.5	94.3	91.1	91.3	86.6	95.7	86.9	86.5	85.7	97	84.9	87.5	84.1
Acenaphthene-d10 % recovery**	95.6	93.2	91.3	85.2	92.5	97.6	83.5	91.9	89.9	96.3	87.2	86.7	90
Phenanthrene-d10 % recovery**	100	95.8	92.9	91.4	100	96.7	82	98.6	99.2	95.6	88.6	87	98.2
Chrysene-d12 % recovery**	95.9	86.4	93.2	91	101	94.3	79.3	104	101	97.2	89.4	86.1	90.8
Perylene-d12 % recovery**	82.3	70.1	88.2	91.5	94	83.5	74.2	99.7	94.7	90.9	81.6	82.4	95.2
Total Aliphatics >C12-C44	76.9	50.2	87	53.7	118	39.5	19.4	69.4	241	133	327	95.5	85.4
Total Aromatics >EC12-EC44	418	40	16.2	3470	86.1	36.3	31.6	157	476	196	343	79.7	192
Total Aliphatics & Aromatics >C5-C44	495	90.2	103	3520	205	75.8	51.1	226	717	329	671	175	277
Metals - (Solid)													
Iron	221000	339000	49700	131000	53600	105000	25000	207000	58700	115000	205000	177000	196000
Manganese	9310	10200	467	3380	67.6	3760	1110	4310	6010	2070	7300	413	3380
Metals - (Liquid)													
Calcium	-	-	273000	131000	83100	-	-	168000	-	190000	-	219000	190000
Magnesium	-	-	4540	7540	12700	-	-	23000	-	11600	-	10000	10300
Phenols													
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0323	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	0.12	0.169	0.172	-	-	0.041	-	0.177	-	0.0446	0.103
pH	10.6	9.72	11.4	11	10.9	9.26	8.81	12.3	10.5	11.9	10.6	12.2	11.7
Sulphate, Total													
Sulphur, Total	-	-	0.0558	0.31	0.414	-	-	0.177	-	0.667	-	0.293	0.498
Sulphate, Total potential	-	-	0.167	0.93	1.24	-	-	0.531	-	2	-	0.879	1.49
Sulphate, acid soluble (total)	-	-	0.0713	0.381	1.59	-	-	0.454	-	1.2	-	0.703	0.0292
Cyanide, Total	1.95	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	19.9	12	12	12	12	12	12	12	15.6	12	22.5	12	12
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	0.001	0.0047	-	-	-	-	-	-	0.0028	-
Date of Analysis	-	-	09/11/2018	14/11/2018	14/11/2018	-	-	14/11/2018	-	09/11/2018	-	09/11/2018	03/12/2018
Analysed By	-	-	Renata Bozhkov	Lucy Caroe	James Richards	-	-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	-	Renata Bozhkov	Christian Hallam
Asbestos Quantification - PCOM Evaluation - %	-	-	-	0.001	0.001	-	-	-	-	-	-	0.001	-
Additional Asbestos Components (Using TM048)	-	-	-	None	None	-	-	-	-	-	-	None	-
Analysts Comments	-	-	-	N/A	N/A	-	-	-	-	-	-	N/A	-
Asbestos Quantification - Total - %	-	-	-	0.001	0.0047	-	-	-	-	-	-	0.0028	-
Chrysotile (White) Asbestos	-	-	Not Detected	Detected	Detected	-	-	Not Detected	-	Not Detected	-	Detected	Not Detected
Amosite (Brown) Asbestos	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	-	-	Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Comments	-	-	0	Soil containing ACM debris	Fibre bundles in soil	-	-	0	-	0	-	Loose fibres in soil.	0
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	90.9	106	108	105	108	109	105	107	104	104	103	94.6	108
Toluene-d8**	89.9	96.2	101	113	101	97.8	96.9	115	108	101	90.6	95.5	100
4-Bromofluorobenzene**	70.2	85.1	102	94.6	97.5	85.2	80.1	100	91.9	93.7	73.4	87.8	82
Methyl Tertiary Butyl Ether	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.26	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.534	0.13	0.13	0.13
Sum of BTEX	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4GB1V	4GB5V	4GB6V	4GB7V	4GB8V	4GB9V	4GC1	4GC1	4GC2	4GC2	4GC3	4GC3	4GC4
Depth	1.9	2.1	1.8	1.2	1.6	1.6	0.4	1	0.5	1	0.5	1	0.3
Sampled Date	02/11/2018	05/11/2018	05/11/2018	06/11/2018	06/11/2018	20/11/2018	02/11/2018	02/11/2018	02/11/2018	02/11/2018	05/11/2018	05/11/2018	05/11/2018
Carbon													
Soil Organic Matter (SOM)	4.24	0.926	1.86	3.64	6.26	0.85	8.29	28.1	4.48	0.35	1.81	3.83	10.1
Metals (Solids)													
Arsenic	16.3	141	11.8	9.92	10.8	8.08	9.5	6	11.7	7.34	11.6	9.95	9.69
Cadmium	0.462	0.408	0.317	0.02	0.02	0.02	1.11	0.2	0.02	0.2	0.2	0.775	0.702
Chromium	38.3	26.9	38.6	33.3	31	25.9	139	30.3	116	114	256	99.4	104
Copper	18.9	66	11.5	19.6	12.9	7.73	17.7	16.4	15.6	14	21.6	22	32.8
Lead	33.2	29.4	28	32	34.3	20	44.7	49.8	42.5	7	40.1	41.4	54.6
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	1.4	1.4	0.14	0.268
Nickel	31.2	33	36.1	28	24.3	31.1	30.1	39.5	14.6	27.6	12.2	11.5	24.7
Selenium	1	1	1	1	1	1	3.67	10	4.15	10	10	3.69	3.92
Vanadium	62.7	48.4	62.5	47.4	48.6	43.3	142	41.3	163	591	226	124	170
Zinc	139	130	97.7	142	101	83.5	202	92.5	471	28.1	202	338	165
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.042	0.02	0.02	0.02	0.02	0.02	0.0755	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.0405	0.02	0.02	0.02	0.02	0.02	0.054	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.0405	0.02	0.02	0.02	0.02	0.02	0.0583	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.1	0.1	0.1	0.1	0.1	0.1	2.61	8.85	4.2	0.1	2.58	1.93	0.267
Aliphatics >C16-C21	0.861	0.1	0.1	0.1	0.1	0.1	29.4	33.2	42.4	5.33	18.4	17.6	3.07
Aliphatics >C21-C35	10.1	0.1	2.07	7.61	6.58	0.1	145	131	167	43.1	198	399	18.7
Aliphatics >C35-C44	12.1	0.1	0.1	0.1	0.1	0.1	29.4	42.5	48.7	9.87	37.4	46.3	3.25
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.027	0.02	0.02	0.02	0.02	0.02	0.0356	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.027	0.02	0.02	0.02	0.02	0.02	0.0388	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	0.1	0.1	0.1	0.1	0.1	0.1	7.37	21.4	7.44	2.01	4.04	1.7	1.11
Aromatics >EC16-EC21	0.543	0.34	0.1	0.1	0.1	0.1	28.9	103	54.1	8.83	21.4	10.9	6.46
Aromatics >EC21-EC35	35.7	3.05	5.95	11.5	29.2	0.1	107	431	168	52.6	133	152	41.3
Aromatics >EC35-EC44	5.18	0.95	0.607	1.98	3.75	0.1	48.8	128	70.3	26.9	63	40.7	14.2
Aromatics >EC40-EC44	1.58	0.1	0.1	0.1	0.1	0.1	19	38.9	27.5	9.92	25.4	15.7	5.18
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	12	12	12	12	12	12	195	488	297	15.5	212	120	28.9
Acenaphthene	8	8	8	8	8	8	55.7	148	40	20.2	51.5	80	22.1
Anthracene	16	16	16	16	16	16	437	1320	345	64	400	160	104
Benz(a)anthracene	14	14	14	14	14	14	1300	5810	1470	408	1710	218	646
Benzo(a)pyrene	15	15	15	15	15	15	1100	5580	1320	465	1850	261	906
Benzo(b)fluoranthene	15	15	15	15	31.4	15	1110	7740	2290	718	2040	378	1200
Benzo(k)fluoranthene	14	14	14	14	14	14	569	2750	644	292	898	140	465
Benzo(g,h,i)perylene	24	24	24	24	24	24	812	3950	1040	361	1340	0.24	684
Chrysene	10	10	10	10	20.2	10	1220	4830	1480	481	1540	261	647
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	203	1260	244	77	349	0.23	164
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	0.018	0.018	0.018	697	3730	817	296	1150	180	589
Fluoranthene	0.017	0.017	0.017	0.017	30.4	0.017	2500	9720	2550	550	3040	391	785
Fluorene	10	10	10	10	10	10	153	363	150	16.1	160	0.1	35.8
Naphthalene	9	9	9	9	9	9	469	855	523	50.1	303	90	131
Phenanthrene	15	15	15	15	15	15	1340	4990	1230	244	1410	276	388
Pyrene	0.015	0.015	0.015	0.015	0.025	0.015	2.02	7.88	2.33	0.599	2.61	0.449	0.707
PAH, Total Detected USEPA 16	0.118	0.118	0.118	0.118	0.118	0.118	14.2	61.4	16.7	4.66	19.1	2.23	7.5
Naphthalene-d8 % recovery**	94.6	99.3	93.1	85.1	92.6	86.4	88.3	88.8	87.5	87.8	85.7	86.5	91.2
Acenaphthene-d10 % recovery**	96.3	97	89.4	88.7	88.2	83.4	89.8	90.8	84.4	90.4	90.8	77.7	89.4
Phenanthrene-d10 % recovery**	102	97.8	89.7	92.5	91.1	83.8	99.4	97.7	95.4	97.6	101	84.6	87.4
Chrysene-d12 % recovery**	101	99.3	90.5	84.7	87.2	84.9	105	104	100	102	101	92.7	89.1
Perylene-d12 % recovery**	93.6	92.9	92.6	81.2	87.1	89.7	99.9	102	94.1	98.2	95.8	93.5	91.7
Total Aliphatics >C12-C44	23	0.1	2.07	7.61	6.58	0.1	207	215	262	58.3	256	465	25.2
Total Aromatics >EC12-EC44	41.4	4.34	6.55	13.5	32.9	0.1	192	683	300	90.3	222	205	63.1
Total Aliphatics & Aromatics >C5-C44	64.6	4.34	8.62	21.1	39.5	0.1	399	899	562	149	478	670	88.4
Metals - (Solid)													
Iron	38500	31500	33400	27900	28000	23600	101000	88200	90200	260000	91600	49500	49100
Manganese	428	1050	688	277	274	650	12100	3850	10700	13700	1230	9570	10300
Metals - (Liquid)													
Calcium	-	-	-	-	-	-	-	97000	-	103000	187000	-	-
Magnesium	-	-	-	-	-	-	-	18600	-	3890	9200	-	-
Phenols													
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.0108	0.01	0.01	0.01	0.0108	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0111	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0217	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	-	-	-	0.0411	-	0.0672	0.204	-	-
pH	7.56	8.16	7.58	7.43	7.54	8.48	11.6	10.7	11.3	11.4	10.9	11.3	11.3
Sulphate, Total													
Sulphur, Total	-	-	-	-	-	-	-	0.208	-	0.115	0.233	-	-
Sulphate, Total potential	-	-	-	-	-	-	-	0.624	-	0.345	0.699	-	-
Sulphate, acid soluble (total)	-	-	-	-	-	-	-	0.166	-	0.231	0.427	-	-
Cyanide, Total	1	1	1	1	1	1	1	2	1	1	1	1	1.27
Exchangeable Ammonia as N	720	12	200	235	264	113	12	12	12	12	12	12	12
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	0.0074	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	14/11/2018	-	09/11/2018	14/11/2018	-	-
Analysed By	-	-	-	-	-	-	-	Andrzej Ferfecki	-	Marcin Magdziarek	Andrzej Ferfecki	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	0.001	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	Chrysotile	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	0.0077	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-
Fibrous Anthophyllite	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-
Fibrous Tremolite	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-
Fibrous Actinolite	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-
Non-Asbestos Fibre	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-
Comments	-	-	-	-	-	-	-	loose fibres in soil	-	0	0	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	113	110	111	111	109	108	99.1	101	106	106	109	108	97.1
Toluene-d8**	96.6	99	98.6	98.9	98.4	102	92.9	96.6	101	99	97	96.8	93.6
4-Bromofluorobenzene**	94.6	91.9	96.7	88.1	89.8	85.2	82.5	79.9	95	85.9	83.1	86.7	70
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.155	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4GC4	4GC5	4GC5	4GC6	4GC6	4GC7	4GC7	4GC1V	4GC2V	4GC4V	4GC5V	4GC6V	4GC7V
Depth	0.8	0.7	1.2	0.5	0.8	0.5	1	2.2	2.3	2.1	1.9	2.5	1.8
Sampled Date	05/11/2018	05/11/2018	05/11/2018	06/11/2018	06/11/2018	06/11/2018	06/11/2018	02/11/2018	02/11/2018	05/11/2018	05/11/2018	06/11/2018	06/11/2018
Carbon													
Soil Organic Matter (SOM)	1.31	34.1	12.6	2.02	5.12	0.521	1.55	1.2	0.957	4.5	1.3	21.4	0.841
Metals (Solids)													
Arsenic	9.25	10.9	6.62	5.67	6.37	7.49	6	11.3	14.5	10.8	13.4	16.1	11.4
Cadmium	0.02	0.02	0.0249	0.02	0.02	0.2	0.2	0.362	0.377	0.409	0.363	0.0926	0.02
Chromium	12.6	14.4	25.6	14.4	24.2	695	717	34.4	31.7	40.1	33.2	23.5	28.6
Copper	14.1	20	8.24	11.1	18	35.8	26.8	10.8	11.7	24.8	11.4	23	9.1
Lead	27.4	38.1	21.6	25.7	18.9	15.9	26.4	27.7	23.9	27	23.8	35	22.2
Mercury	0.14	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	17.6	13.4	7.55	10.2	15	27.2	18.5	41.1	36.9	37.8	35.8	27.8	32.3
Selenium	1	1.5	2.04	3.7	2.13	23	27.3	1	1	1	1	1	1
Vanadium	33.5	38.7	52.4	35.4	33.7	2400	2400	59.2	56	63.4	58.7	43.2	51.9
Zinc	145	173	46.7	218	63	120	78.2	108	101	119	103	129	96.2
TPH Criteria Working Group (TPH CWG)													
Benzene													
Toluene													
Ethylbenzene													
sum of detected mpo xylene by GC													
Aliphatics >C5-C6	0.02	0.0357	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0782	0.02
Aliphatics >C6-C8	0.02	0.194	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.177	0.02
Aliphatics >C8-C10	0.02	0.115	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.244	0.02
Aliphatics >C10-C12	0.02	0.0656	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	1.73	0.02
Aliphatics >C12-C16	0.918	5.99	1.21	0.809	0.1	2.27	2.29	0.243	0.1	0.443	0.1	5.06	0.1
Aliphatics >C16-C21	8.81	27.1	7.45	4.67	1.7	7.03	6.93	0.376	0.1	0.1	0.1	2.5	0.1
Aliphatics >C21-C35	14.9	151	21.3	33.6	17.4	51.5	51.6	2.8	0.1	1.22	0.1	23.3	0.1
Aliphatics >C35-C44	3.77	43.5	2.38	17	9.3	17.2	14.4	10.4	0.462	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.0449	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.0759	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.161	0.02
Aromatics >EC10-EC12	0.02	0.0437	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	1.16	0.02
Aromatics >EC12-EC16	0.302	8.94	2.07	1.98	0.1	1.27	1.42	0.1	0.363	0.1	0.1	16.6	0.1
Aromatics >EC16-EC21	2.02	35.4	10.2	12.9	1.7	11.7	21.5	0.1	0.866	0.212	0.1	23.8	0.1
Aromatics >EC21-EC35	19.5	135	32.8	84.9	20.6	68.7	114	4.53	10.8	7.47	3.2	230	0.1
Aromatics >EC35-EC44	14.3	40.7	9.99	49.9	17.2	29.5	43.3	0.892	7.35	1.11	0.1	23.3	0.1
Aromatics >EC40-EC44	6.23	13.7	3.64	20.2	7.37	10.9	14.2	0.1	3.43	0.1	0.1	5.71	0.1
Polyaromatic Hydrocarbons (PAHs)													
Acenaphthylene	14.5	218	65.9	113	12	40.5	120	12	12	12	12	33.7	12
Acenaphthene	8	44.1	9.59	18	8	94.7	80	8	8	8	8	1140	8
Anthracene	34.7	472	215	179	36.4	322	160	16	16	16	16	619	16
Benz(a)anthracene	245	1920	646	750	184	1320	187	14	14	14	14	222	14
Benzo(a)pyrene	364	1800	656	802	181	1510	235	15	15	15	15	130	15
Benzo(b)fluoranthene	505	2940	762	1330	182	2310	228	15	15	15	15	282	15
Benzo(k)fluoranthene	167	959	292	343	89.7	701	140	14	14	14	14	86.9	14
Benzo(g,h,i)perylene	278	1370	503	690	149	1190	0.24	24	24	24	24	118	24
Chrysene	261	1720	632	636	198	1260	182	10	10	10	10	278	10
Dibenzo(a,h)anthracene	67.3	361	126	161	35.9	246	0.23	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	240	1300	447	618	116	1040	180	0.018	0.018	0.018	0.018	106	0.018
Fluoranthene	288	3240	1070	1250	300	2300	318	0.017	0.017	0.017	0.017	1450	0.017
Fluorene	10	157	34.3	50.8	11.4	74.2	0.1	10	10	10	10	1380	10
Naphthalene	49.2	909	224	402	60.5	105	90	9	16.7	9	9	300	9
Phenanthrene	130	1920	517	611	198	966	150	15	15	15	15	3610	15
Pyrene	0.271	2.67	0.882	0.995	0.239	2.1	0.306	0.015	0.015	0.015	0.015	0.942	0.015
PAH, Total Detected USEPA 16	2.92	22	7.08	8.94	1.98	15.6	1.46	0.118	0.118	0.118	0.118	10.7	0.118
Naphthalene-d8 % recovery**	87.9	93.3	85.4	94.4	90.2	95.3	88.7	95.1	86.8	99.3	98.7	94.7	95.1
Acenaphthene-d10 % recovery**	86.8	93.6	89.7	92.3	89.8	91.5	80.9	94.2	89.9	97.6	97.3	93.4	91.6
Phenanthrene-d10 % recovery**	87.5	94	97.4	93.7	89.9	92.7	81.7	98.6	95.3	94.6	95.8	96	91.9
Chrysene-d12 % recovery**	91.1	93.8	100	87.9	83.6	90.4	81.2	91.8	98.1	100	98	86.4	85.7
Perylene-d12 % recovery**	94.4	87.5	94.3	87	75.6	89.9	75.1	82.4	88.7	89	87	82.7	86.3
Total Aliphatics >C12-C44	28.4	227	32.3	56.1	28.4	78	75.2	13.8	0.462	1.67	0.1	30.9	0.1
Total Aromatics >EC12-EC44	36.1	220	55.1	150	39.6	111	180	5.43	19.4	8.8	3.2	294	0.1
Total Aliphatics & Aromatics >C5-C44	64.5	448	87.4	206	68	189	255	19.2	19.8	10.5	3.2	328	0.1
Metals - (Solid)													
Iron	48100	35600	17200	19300	24600	192000	143000	40000	38700	29900	34400	29200	35500
Manganese	2020	2070	2930	4470	2650	4710	48800	1310	1380	535	1270	352	1070
Metals - (Liquid)													
Calcium	121000	-	212000	161000	-	207000	-	-	-	-	-	-	-
Magnesium	30400	-	8010	26800	-	7670	-	-	-	-	-	-	-
Phenols													
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.0111	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics													
Soluble Sulphate 2:1 extract as SO4 BRE	0.261	-	0.215	0.25	-	0.081	-	-	-	-	-	-	-
pH	11.2	11.4	12	8.98	8.81	12.4	12.7	7.87	7.84	7	8.12	7.32	8.1
Sulphate, Total													
Sulphur, Total	0.26	-	0.291	0.314	-	0.463	-	-	-	-	-	-	-
Sulphate, Total potential	0.78	-	0.873	0.942	-	1.39	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.812	-	1.37	1.66	-	0.858	-	-	-	-	-	-	-
Cyanide, Total	1.02	1.64	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	20.3	12	12	12	12	12	12	274	136	134	79.3	155	45.6
Asbestos													
Asbestos Quantification - Gravimetric - %	-	-	0.001	-	-	-	-	-	-	-	-	-	-
Date of Analysis	09/11/2018	-	09/11/2018	09/11/2018	-	09/11/2018	-	-	-	-	-	-	-
Analysed By	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	Marcin Magdziarek	-	Renata Bozhkov	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	0.001	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	None	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	N/C	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	0.001	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Comments	0	-	Loose fibres in soil.	0	-	0	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)													
Dibromofluoromethane**	108	84.2	103	107	115	82.8	56.7	108	118	108	133	110	112
Toluene-d8**	98.5	77.4	94.5	95.5	96.5	98.3	96.1	102	95.9	101	91.2	92.3	99.7
4-Bromofluorobenzene**	109	64.7	80	84.2	82.7	86.4	84.9	103	97.1	99.8	103	77.9	89.5
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.108	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.364	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics													
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Llyn Residential Soil Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000		
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950		
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Date of Analysis	TM048	No units		1371	0	0					0.00	
Analysed By	TM048	No units		1371	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00	
Analysts Comments	TM304	No units		1002	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00	
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00	
Fibrous Tremolite	TM048	No units		1371	0	0					0.00	
Fibrous Actinolite	TM048	No units		1371	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00	
Comments	TM048	No units		1371	0	0			0		0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00	
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00	
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00	
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00	
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00	
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00	
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00	
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00	
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00	
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00	
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00	
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00	
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00	

Sample ID	4GD1	4GD1	4GD2	4GD2	4GD3	4GD3	4GD4	4GD4	4GD5	4GD6	4GD6	4GD7	4GD7	4GD1V	4GD2V	4GD3V	4GD4V	4GD5V	4GD6V	4GD7V
Depth	0.5	1	0.4	0.8	0.2	0.5	0.2	0.5	0.5	0.2	0.6	0.3	0.6	2.1	1.8	1.8	1.7	1.7	1.7	1.7
Sampled Date	06/11/2018	06/11/2018	07/11/2018	07/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	20/11/2018	20/11/2018	06/11/2018	07/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	20/11/2018
Carbon																				
Soil Organic Matter (SOM)	17.1	4.41	38.1	6.6	20.9	0.459	10.7	3.02	18.8	7.88	>100	7.57	>100	5.6	0.741	0.56	9.1	4.93	0.765	0.8
Metals (Solids)																				
Arsenic	6	7.6	14.5	8.79	9.39	14.3	8.57	12.3	10.5	8.24	7.93	6.99	8.13	16.1	12.8	12.2	10.1	15.9	11.2	15.1
Cadmium	0.2	0.02	2.07	0.02	0.2	0.2	0.02	0.02	0.2	0.02	0.15	1.39	0.678	0.02	0.02	0.277	0.505	0.02	0.02	0.02
Chromium	12.8	14.2	81.7	56.7	21	360	2.8	24.7	18.1	43.3	7.04	210	10.3	32.7	29.5	23.5	10	35	25.2	27.7
Copper	14	17.4	34.4	23.6	17.2	69.7	17.2	8.2	28	9.53	28.6	52.3	22.6	16.7	9.12	10.1	33.2	16.4	8.94	9.05
Lead	43.8	44.8	103	31.2	39.7	89	47.8	21.5	82.9	32.6	45.2	151	63	33.5	21	20.6	31.6	40.2	22.2	22.4
Mercury	1.4	0.14	1.4	0.14	1.4	1.4	0.14	0.14	1.4	0.14	0.575	1.4	0.59	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	14.2	16.4	40.4	20.6	23.1	32.3	13.1	29.3	27.3	9.47	11.8	36.5	10.9	27.5	33.4	29.3	21.9	29.7	31.9	32.6
Selenium	10	1.83	10	1.7	10	11.6	2.69	10	10	1.7	1	10	2.02	1	1	1	2.57	1	1	1
Vanadium	37.4	31.7	86.4	78.9	50.8	515	27.5	46.1	54.2	73.5	17.5	1080	31.2	57.2	53.7	41.7	34.8	53.1	43.7	46.8
Zinc	135	86.1	254	70.3	149	289	156	102	320	398	225	440	285	119	100	94.3	78.1	139	90.7	95.2
TPH Criteria Working Group (TPH CWG)																				
Benzene																				
Toluene																				
Ethylbenzene																				
sum of detected mpo xylene by GC																				
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.765	0.1	0.1	0.1	2.03	0.1	2.21	0.1	2.3	2.24	4.56	3.42	10.8	0.419	0.1	0.1	0.525	0.1	0.1	0.1
Aliphatics >C16-C21	5.69	4.2	10.1	2.95	7.91	2.72	7.77	0.1	9.98	12.4	103	26.3	373	0.1	0.1	0.1	2.48	0.1	0.1	0.1
Aliphatics >C21-C35	45.2	18.6	86.2	23.3	49	12.1	64.4	0.1	93.6	67.6	63.3	99.7	127	4.58	0.1	0.1	14.2	3.17	0.1	0.1
Aliphatics >C35-C44	18.2	6.57	15.9	8.15	12.4	4.06	15.5	0.1	34.8	31.5	8.84	26.6	19.3	0.1	0.1	0.1	3.23	0.875	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	1.08	0.945	3.46	1.45	2.23	0.447	3.42	0.1	2.55	1.04	16.6	3.13	5.52	0.418	0.608	0.1	1.37	0.858	0.1	0.1
Aromatics >EC16-EC21	4.97	4.11	19	4.41	13.2	6.68	15.4	0.1	12.5	8.13	134	24.3	72.5	1.22	1.39	0.1	2.86	0.1	0.1	0.1
Aromatics >EC21-EC35	34	28.5	113	32.7	66.1	24.4	76.4	2.21	84.6	41.9	482	86.5	190	44.8	2.42	0.1	9.26	31.8	1.49	2.55
Aromatics >EC35-EC44	24.1	21.8	51.2	22	29.1	9.37	36.7	0.566	56.4	38.2	104	30.5	48.3	3.13	0.267	0.1	3.42	4.3	0.1	0.1
Aromatics >EC40-EC44	10.1	9.44	18.9	9	10.3	3.32	14.1	0.1	23.1	17	29.9	10.7	13.3	0.1	0.1	0.1	1.08	1.1	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)																				
Acenaphthylene	216	36.9	234	67.9	194	49	259	12	130	64.2	277	219	186	12	12	12	42.3	12	12	12
Acenaphthene	31.5	12.6	52.7	8	10.2	14.4	19.2	8	21.9	14.4	66.5	30.6	10.2	8	8	8	8	8	8	8
Anthracene	191	43.6	438	40.9	120	88.3	178	16	147	97.3	366	409	108	16	16	16	26.3	16	16	16
Benz(a)anthracene	849	197	1530	214	668	1380	1100	14	578	601	1740	1410	238	14	14	14	70.3	14	14	14
Benzo(a)pyrene	906	213	1520	275	836	987	1030	15	458	955	1910	1360	337	15	15	15	72.1	15	15	15
Benzo(b)fluoranthene	1550	356	2440	424	1450	2310	1980	15	895	1170	3230	2330	614	27.4	24.4	15	132	15	15	15
Benzo(k)fluoranthene	526	117	885	137	472	773	564	14	307	284	981	833	189	14	14	14	44.5	14	14	14
Benzo(g,h,i)perylene	801	194	1220	215	685	318	982	24	369	882	1580	940	413	24	24	24	86	24	24	24
Chrysene	737	207	1380	231	863	1450	1140	10	618	546	2080	1510	313	24.3	10	10	84	10	10	10
Dibenzo(a,h)anthracene	195	47.3	339	57.8	158	102	230	0.023	82.3	204	368	213	85.2	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	758	168	1120	206	726	395	1050	0.018	504	908	1630	735	309	0.018	0.018	0.018	109	0.018	0.018	0.018
Fluoranthene	1630	311	3140	310	973	1150	1600	0.017	895	861	2020	2680	315	53	0.017	0.017	145	0.017	0.017	0.017
Fluorene	47.6	13.3	84.3	18.8	29.3	16.2	82.3	10	46.3	31.9	141	131	17.5	10	10	10	10	10	10	10
Naphthalene	360	91.8	220	266	87.3	35.6	245	9	131	116	1110	341	1080	22.6	9	9	43.3	9	9	9
Phenanthrene	776	182	1780	167	343	189	709	15	457	322	1080	1500	215	32.7	15	15	167	15	15	15
Pyrene	1.21	0.251	2.28	0.266	0.78	0.826	1.18	0.015	0.659	0.83	1.69	2.35	0.249	0.0435	0.015	0.015	0.105	0.015	0.015	0.015
PAH, Total Detected USEPA 16	10.8	2.44	18.7	2.89	8.4	10.1	12.4	0.118	6.3	7.89	20.3	17	4.68	0.203	0.118	0.118	1.13	0.118	0.118	0.118
Naphthalene-d8 % recovery**	94.9	94.4	93.7	95.5	75.4	76.2	74.1	83.2	73.4	89.2	67.7	73.2	70.2	85.6	99.4	89.7	90.4	86.3	91.2	85.8
Acenaphthene-d10 % recovery**	92.8	89.7	90	90	81.2	79.6	79.9	90.8	78.7	85.7	75.4	74	70.6	89.7	96.3	88	91	88.8	88.1	82.8
Phenanthrene-d10 % recovery**	93	89.8	90.8	89.5	89.8	86.8	86	90.3	80.2	86.2	74.4	73.5	66.9	93.8	94.7	86.5	96.5	92.9	87.8	84
Chrysene-d12 % recovery**	90.3	82.3	82.1	84.2	99.6	102	97.5	88.4	73	85.1	71.5	70.8	39.1	86.5	86.3	79.4	85.9	111	78.6	89
Perylene-d12 % recovery**	88.8	80.9	74.7	83.9	91.8	95.6	90.2	73.6	58.2	82	56.6	70.5	29	83.2	87.1	75.7	81.8	101	76.3	94
Total Aliphatics >C12-C44	69.8	29.4	112	34.4	71.4	18.9	89.9	0.1	141	114	179	156	531	5	0.1	0.1	20.4	4.04	0.1	0.1
Total Aromatics >EC12-EC44	64.2	55.4	187	60.5	111	40.9	132	2.78	156	89.3	736	144	317	49.6	4.69	0.1	16.9	37	1.49	2.55
Total Aliphatics & Aromatics >C5-C44	134	84.8	299	94.9	182	59.8	222	2.78	297	203	915	300	848	54.6	4.69	0.1	37.3	41	1.49	2.55
Metals - (Solid)																				
Iron	77000	26400	190000	36800	124000	64700	72200	30400	95800	48600	23800	161000	18100	38300	37800	25900	38500	25400	31100	32600
Manganese	3710	2730	7160	2960	5490	19100	7400	778	3770	4370	574	17900	1610	441	1530	917	1850	268	1190	954
Metals - (Liquid)																				
Calcium	160000	-	95500	-	-	113000	-	43300	109000	-	14700	144000	-	-	-	-	-	-	-	-
Magnesium	18100	-	13700	-	-	9540	-	9360	14400	-	1570	9380	-	-	-	-	-	-	-	-
Phenols																				
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																				
Soluble Sulphate 2:1 extract as SO4 BRE	0.128	-	0.0518	-	-	0.0402	-	0.0211	0.0717	-	0.0339	0.0581	-	-	-	-	-	-	-	-
pH	11.1	10.1	8.85	8.93	9.04	9.2	8.8	7.99	9	11.5	10.4	11.4	8.55	7.61	8.08	8.38	8.69	6.79	8.5	7.99
Sulphate, Total																				
Sulphur, Total	0.246	-	0.183	-	-	0.128	-	0.02	0.212	-	0.534	0.187	-	-	-	-	-	-	-	-
Sulphate, Total potential	0.738	-	0.549	-	-	0.384	-	0.06	0.636	-	1.6	0.561	-	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	0.671	-	0.149	-	-	0.0815	-	0.0317	0.207	-	0.0633	0.02	-	-	-	-	-	-	-	-
Cyanide, Total	1	1	1.96	1	1	1	1	1	2.8	1	2.41	1.38	7.38	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	71.6	12	141	12	12	12	427	76	29	20.9	271	48.5	47.1
Asbestos																				
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	0.0034	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	09/11/2018	-	09/11/2018	-	-	26/11/2018	-	26/11/2018	19/11/2018	-	19/11/2018	03/12/2018	-	-	-	-	-	-	-	-
Analysed By	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	-	Marcin Magdziarek	-	Marcin Magdziarek	Lucy Caroe	-	Andrzej Ferfecki	Christian Hallam	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	Chrysotile detected.	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	-	-	-	Loose fibres in soil.	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	0.0035	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	-	-	-
Comments	0	-	0	-	-	0	-	0	Fibre bundles in soil	-	0	0	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)																				
Dibromofluoromethane**	106	109	116	125	106	99.4	95.6	102	104	102	99.5	105	112	110	126	104	109	102	105	108
Toluene-d8**	94.6	98	97.5	100	99.5	98.2	94.6	98.8	96.7	98.5	95.8	99.7	101	99	101	99.2	98.1	98.7	99.8	103
4-Bromofluorobenzene**	77.4	81.4	74.4	76.9	94.4	99.2	84.6	102	89.1	89.5	76.1	75.1	79.2	86.8	84.7	97.6	98.6	93.3	94.5	85.8
Methyl Tertiary Butyl Ether	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.296	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.26	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.311	0.13	0.201	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																				
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample ID	4GE1	4GE1	4GE2	4GE3	4GE4	4GE5	4GE5	4GE6	4GE6	4GE1V	4GE2V	4GE3V	4GE4V	4GE5V	4GE6V
Depth	0.5	1	0.8	0.8	0.4	0.2	0.6	0.3	0.5	3.6	1.95	2.2	2.2	3	2.2
Sampled Date	06/11/2018	06/11/2018	07/11/2018	07/11/2018	19/11/2018	13/11/2018	13/11/2018	13/11/2018	13/11/2018	06/11/2018	07/11/2018	07/11/2018	19/11/2018	13/11/2018	13/11/2018
Carbon															
Soil Organic Matter (SOM)	23.1	0.521	17.6	9.28	5.81	13.7	>100	24.8		47.9	5.65	1.62	3.88	0.94	1.9
Metals (Solids)															
Arsenic	8.99	9.44	16.5	13.6	6	10.6	6.73	7.12	5.96	3.74	13.1	13.7	14.1	12.8	15.4
Cadmium	0.2	0.2	0.02	0.553	0.2	0.2	0.2	0.2	0.02	0.0218	0.02	16.9	0.02	0.02	0.02
Chromium	9	267	11.2	18.7	137	58.5	9	446	3.08	12.6	36	56.7	31.7	24.9	30.6
Copper	22.9	27.9	42.6	40.8	14	19.6	14	18.6	23.2	16.8	14.9	356	11.4	7.9	11.2
Lead	150	43.7	27.9	33.1	9.62	84.1	8.2	58.6	12.2	4.85	31.5	276	30	23	29.3
Mercury	1.4	1.4	0.14	0.14	1.4	1.4	1.4	1.4	0.81	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	37.4	18	38.8	42.5	44.1	24	11.7	18.1	8.3	13.7	28.5	41.2	34.3	30.3	34.7
Selenium	10	10.3	1	1.11	10	10	10	10.4	1	2.25	1	1	1	1	1
Vanadium	120	271	33.3	38.2	106	85.4	18	327	8.23	20.4	57	60.9	54.2	44.3	55
Zinc	228	125	78.5	137	133	353	25.1	206	23.7	25.5	115	1680	107	95.1	107
TPH Criteria Working Group (TPH CWG)															
Benzene															
Toluene															
Ethylbenzene															
sum of detected mpo xylene by GC															
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.033	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.01	0.0244	0.0694	0.0725	0.02	0.02	0.122	0.02	0.02	0.02	0.05
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.01	0.0267	0.0524	0.069	0.02	0.02	0.137	0.02	0.02	0.02	0.0459
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.01	0.02	0.0301	0.0761	0.02	0.02	0.057	0.02	0.02	0.02	0.023
Aliphatics >C12-C16	1.66	0.1	0.793	0.1	1.13	2.48	4.02	4.32	4.96	0.1	0.216	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	7.21	2.14	0.835	0.195	8.1	15.7	94.9	29.3	140	0.1	0.1	0.1	0.1	0.1	0.1
Aliphatics >C21-C35	25	28	4.1	4.38	70.6	105	46.2	110	44.3	22.9	1.66	0.1	4.06	0.1	1.65
Aliphatics >C35-C44	5.55	8.66	0.1	0.1	15.4	38.3	5.19	46.7	3.7	0.655	0.537	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.01	0.02	0.0341	0.0456	0.02	0.02	0.09	0.02	0.02	0.02	0.0297
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.0503	0.02	0.02	0.0375	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	3.2	1.11	0.782	1.15	0.556	5.86	4.19	10.9	12.4	3	0.1	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	29.5	7.16	1.36	6.67	8.71	35.6	19.4	74.6	108	9.36	0.1	0.1	0.1	0.1	0.1
Aromatics >EC21-EC35	155	57.3	4.57	14.8	37.9	114	55	206	256	217	22.7	3.14	13	0.1	5.68
Aromatics >EC35-EC44	60.7	26.6	0.657	4.75	11.3	54.6	9.53	97.6	37.7	29.3	6.1	0.463	1.26	0.1	0.1
Aromatics >EC40-EC44	20.3	10.1	0.1	1.6	3.79	21.7	2.85	35.3	11.3	11	2.33	0.1	0.1	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)															
Acenaphthylene	120	110	14.6	86.4	28.4	201	51	1200	252	12	12	12	12	12	12
Acenaphthene	80	39.6	8	8	14.6	43.3	20.7	448	24.5	8	8	8	8	8	8
Anthracene	160	81.3	18.7	47.3	132	506	40.2	3030	247	16	16	16	16	16	16
Benz(a)anthracene	259	796	60.9	202	513	1630	173	5330	192	14	14	14	14	14	14
Benzo(a)pyrene	470	1140	53.1	267	506	1410	179	4200	185	15	15	15	15	15	15
Benzo(b)fluoranthene	505	1650	62	467	777	2440	379	6470	402	15	15	15	15	15	23.5
Benzo(k)fluoranthene	201	554	25.1	157	191	772	105	2310	122	14	14	14	14	14	14
Benzo(g,h,i)perylene	467	903	51.2	241	372	971	167	2550	202	24	24	24	24	24	24
Chrysene	213	685	81.8	170	546	1450	270	5370	290	10	10	10	10	10	19.7
Dibenzo(a,h)anthracene	0.23	196	0.023	63.1	82.4	242	39.9	706	71.6	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	391	834	50.5	234	397	847	161	3150	234	0.018	0.018	0.018	0.018	0.018	0.018
Fluoranthene	359	893	97.1	317	1020	3280	211	12800	379	0.017	0.017	0.017	0.017	0.017	23.2
Fluorene	0.1	18.8	10	13	23.6	162	38.5	1840	103	10	10	10	10	10	10
Naphthalene	90	67.8	51	118	96.3	373	407	4730	5100	9	9	9	9	20.5	9
Phenanthrene	150	256	121	287	481	1750	281	9170	1030	15	15	15	15	15	15
Pyrene	0.32	1.04	0.0774	0.261	0.843	2.47	0.187	9.83	0.368	0.015	0.015	0.015	0.015	0.015	0.015
PAH, Total Detected USEPA 16	3.19	9.27	0.765	2.93	6.03	18.5	2.71	73.1	9.21	0.118	0.118	0.118	0.118	0.118	0.118
Naphthalene-d8 % recovery**	85.8	94.6	96.5	85	82.7	88.6	63.9	85.5	82.4	95.5	93.2	89.8	88.7	88	70.3
Acenaphthene-d10 % recovery**	80.1	91.1	95.7	81.2	85.9	88	69.1	91	91.4	89.9	88.7	84.6	86.5	91.4	73.8
Phenanthrene-d10 % recovery**	85	90.3	94.3	75.8	83	95	64.7	96.2	93	92.7	88.5	87.8	85.5	94.7	78.6
Chrysene-d12 % recovery**	84.3	87.8	88.2	69.9	76.9	105	47.4	89.5	57.6	85.1	84.1	83.2	85.7	92.9	89.7
Perylene-d12 % recovery**	78.7	89.1	76.3	65.7	74.1	103	35.5	78.5	43.4	81.4	84.9	82.3	88.1	81.2	88.9
Total Aliphatics >C12-C44	39.5	38.8	5.73	4.57	95.2	161	150	191	193	23.6	2.42	0.1	4.06	0.1	1.65
Total Aromatics >EC12-EC44	249	92.1	7.37	27.4	58.5	210	88.1	389	414	258	28.8	3.6	14.3	0.1	5.68
Total Aliphatics & Aromatics >C5-C44	288	131	13.1	32	154	372	239	580	607	282	31.7	3.6	18.3	0.1	7.48
Metals - (Solid)															
Iron	228000	125000	32900	32300	232000	101000	59400	113000	8800	7810	29700	35700	32700	31300	36700
Manganese	4770	207	661	1520	8590	4010	1060	16700	164	226	228	342	361	1170	472
Metals - (Liquid)															
Calcium	-	152000	3230	16000	95800	130000	-	160000	-	-	-	-	-	-	-
Magnesium	-	6670	2530	4690	17000	17600	-	18700	-	-	-	-	-	-	-
Phenols															
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0117	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0117	0.01	0.01	0.01	0.01	0.0141	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics															
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.154	0.0394	0.0549	0.104	0.103	-	0.169	-	-	-	-	-	-	-
pH	9.25	11.2	8.34	8.63	11.7	9.99	9.21	11.1	8.61	7.4	6.94	7.32	7.35	8.2	7.14
Sulphate, Total															
Sulphur, Total	-	0.276	0.201	0.155	0.194	0.189	-	0.284	-	-	-	-	-	-	-
Sulphate, Total potential	-	0.828	0.603	0.465	0.582	0.567	-	0.852	-	-	-	-	-	-	-
Sulphate, acid soluble (total)	-	0.995	0.256	0.214	0.39	0.2	-	0.375	-	-	-	-	-	-	-
Cyanide, Total	3.26	1	1	1.56	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	38.4	12	12	12	12	1590	702	133	281	105	331
Asbestos															
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Date of Analysis	-	19/11/2018	09/11/2018	09/11/2018	30/11/2018	19/11/2018	-	27/11/2018	-	-	-	-	-	-	-
Analysed By	-	Renata Bozhkov	Lucy Caroe	Lucy Caroe	Paul Poynton	Lucy Caroe	-	Andrzej Ferfecki	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	None	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	-	No	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	-	Not Detected	Not Detected	Not Detected	Not Detected	Trace	-	Not Detected	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Fibrous Anthophyllite	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Fibrous Tremolite	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Fibrous Actinolite	-	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Non-Asbestos Fibre	-	Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-
Comments	-	0	0	0	0	Loose fibres in soil	-	0	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)															
Dibromofluoromethane**	108	113	117	115	107	96.8	93.6	132	102	122	125	123	121	107	122
Toluene-d8**	97.9	97.7	99.9	98.6	94.3	95.3	95.5	97.4	96.6	88.1	96.6	101	103	99.9	98.5
4-Bromofluorobenzene**	80.4	87.8	75.7	84	91.9	76.5	75.1	97.7	80.6	70.9	78.7	83.1	85.2	95	100
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	1.8	0.09	0.09	0.09	0.09	0.314	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	1.4	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	2.6	0.13	0.184	0.423	0.621	0.376	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics															
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	9.54	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	8.52	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	9.41	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	8.16	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	0.69	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	10.7	-	-	-	-	-	-

Sample ID	4GF1	4GF1	4GF2	4GF3	4GF3	4GF4	4GF4	4GF5	4GF6	4GF6	4GF6	4GF7	4GF7	4GF8	4GF8	4GF1V	4GF2V
Depth	0.5	1	0.5	0.2	0.6	0.2	0.4	0.5	0.4	0.6	1.2	0.4	0.8	0.5	1	2.4	2
Sampled Date	07/11/2018	07/11/2018	07/11/2018	07/11/2018	07/11/2018	19/11/2018	19/11/2018	19/11/2018	13/11/2018	13/11/2018	13/11/2018	19/11/2018	19/11/2018	20/11/2018	20/11/2018	07/11/2018	07/11/2018
Carbon																	
Soil Organic Matter (SOM)	11.7	25	2.95	40.2	2.74	4.17	8	13.7	18.6	4.93	12.5	4.88	15.3	12.2	2.78	1.13	4.02
Metals (Solids)																	
Arsenic	11.6	11.3	6.18	10.2	6	21.9	11.8	11.5	8.24	10.1	11.6	12.8	7.91	11.9	10	9.4	13.7
Cadmium	0.2	0.821	0.2	0.02	1.62	0.2	0.2	0.634	0.2	0.2	0.2	0.2	0.2	0.2	0.02	0.02	0.02
Chromium	9	1.56	36.2	0.9	547	47.2	9	9	9	9	19.1	9	9	9	3.57	28.9	34.8
Copper	31.6	50.8	16.9	14	18	36.9	14	14	15.8	15.2	17.6	22.1	15.9	21.7	11.4	9.07	15.5
Lead	167	36.7	35.3	20	47.2	76.9	24	37.4	29.3	32.1	40.9	21.4	48.9	21.6	24	21.2	24.8
Mercury	1.4	0.14	1.4	0.14	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	0.14	0.14	0.14
Nickel	60.2	26.3	14.6	15	8.22	36.6	12	52.3	31	32.8	24.2	37.1	17.9	27	13.9	31.6	32.2
Selenium	10	1.26	10	1	18.4	10	10	10	10	10	10	10	10	10	1	1	1
Vanadium	179	41.1	116	38.1	1270	70.2	29.4	28.2	87.7	112	96.1	93.6	46.1	47.1	68.9	51.8	59.4
Zinc	250	203	106	93.6	91	270	125	95.8	160	195	167	149	89.7	136	59.5	122	116
TPH Criteria Working Group (TPH CWG)																	
Benzene																	
Toluene																	
Ethylbenzene																	
sum of detected mpo xylene by GC																	
Aliphatics >C5-C6	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0239	0.0412	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0229	0.039	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0466	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	0.1	0.1	0.182	0.1	0.1	1.26	0.1	0.1	2.6	2.28	2.54	0.888	4.51	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	7.64	1.21	1.14	8.35	1.03	11.3	0.1	4.37	13.7	16.4	10.9	5.14	16.3	0.1	3.02	0.1	0.1
Aliphatics >C21-C35	26.2	6.45	16	34.9	17.2	60.9	0.1	20.7	70.7	118	71	27.7	36.6	13.9	12	3.44	0.782
Aliphatics >C35-C44	7.35	0.948	5.11	13.5	2.79	19.7	0.1	5.23	30.8	23.7	21.4	4.18	11.5	1.25	3.42	1.53	0.1
Aromatics >EC5-EC7	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.026	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.0314	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	2.51	1.23	0.711	1.79	1.29	1.58	0.1	1.31	1.94	0.966	0.973	0.216	0.644	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	15.3	4.5	5.21	13.9	18.9	8.71	2.14	6.31	8.2	5.67	4.94	1.55	3.9	0.1	0.971	0.1	0.219
Aromatics >EC21-EC35	93.7	12.5	40.9	64.1	147	48.3	5.55	29	45.7	37.3	33.1	10.8	18.4	6.57	8.16	5.22	10.1
Aromatics >EC35-EC44	40.7	5.9	16.5	36.7	43.6	24.1	0.824	11.7	30.9	14.5	18.4	1.21	7.79	5.17	3.63	4.45	1.09
Aromatics >EC40-EC44	14.5	2.8	6.02	15.8	14	9.38	0.1	4.52	13.1	5.3	6.88	0.1	2.56	2.77	1.75	1.76	0.1
Polyaromatic Hydrocarbons (PAHs)																	
Acenaphthylene	913	12	13	108	60	98.7	12	57.1	91.9	12	48.3	12	13.3	20.4	13.6	12	12
Acenaphthene	8	8	16.8	13.4	40	19.1	8	8	18.2	13.8	13.8	8	8	9	8	8	8
Anthracene	227	16	45.3	161	80	150	16	68.3	137	38.5	113	16	23.1	62	31.3	16	16
Benz(a)anthracene	1780	55.8	274	674	70	602	62.8	277	391	95.9	349	27.1	98	161	90.8	32.9	14
Benzo(a)pyrene	3080	53	309	610	75	637	71.8	284	321	75.9	286	24.3	80.2	144	88.3	35.6	15
Benzo(b)fluoranthene	4890	115	539	1140	75	1050	100	474	583	160	511	50.5	163	270	151	58	15
Benzo(k)fluoranthene	1350	37.5	170	331	70	343	36.7	163	233	43.5	197	14	81.4	93	46.3	14	14
Benzo(g,h,i)perylene	3460	52.7	297	496	120	486	49.5	238	243	75.6	206	26	75	116	77.3	24	24
Chrysene	1230	66.9	327	594	50	614	71.5	303	433	134	391	32.2	131	179	96.1	33.5	10
Dibenzo(a,h)anthracene	720	0.023	63.5	143	0.115	129	0.023	59.3	56.3	0.023	46.7	0.023	0.023	28.6	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	3020	44.1	247	449	90	589	53.4	253	292	73.8	257	29.7	76.9	91.9	69.4	28.4	0.018
Fluoranthene	2010	101	508	1470	0.085	1000	90.6	402	778	219	622	39.4	167	275	172	59.8	0.017
Fluorene	43.4	10	10.8	36.9	50	39	10	23.1	73.7	20.4	27.1	10	10	12.4	15.5	10	10
Naphthalene	240	106	30.4	103	45	167	15	77.8	143	47.9	123	16.1	30.7	35.2	19.1	94.8	9
Phenanthrene	359	179	229	675	75	488	72.6	195	612	168	319	45.4	86.3	148	132	34.1	15
Pyrene	1.95	0.0877	0.443	1.1	0.075	0.943	0.0789	0.322	0.607	0.175	0.487	0.0319	0.148	0.201	0.136	0.0443	0.015
PAH, Total Detected USEPA 16	25.3	0.899	3.52	8.1	0.59	7.35	0.703	3.2	5.01	1.34	4	0.322	1.17	1.85	1.14	0.421	0.118
Naphthalene-d8 % recovery**	94.5	92	97.3	93.4	92.6	88.9	86.1	85.5	82.8	75.6	84.5	92.4	85.2	77.5	81	92.5	93.8
Acenaphthene-d10 % recovery**	93.3	89	93.1	92.7	80.9	86.9	64.1	88.9	89.5	78.9	90.5	90.9	87.1	75.7	85.5	86.5	88.4
Phenanthrene-d10 % recovery**	91.2	83.5	94.1	92.1	88.7	87.5	83.7	85	93.3	84.2	93.5	90.1	92.6	75.5	94.7	88.7	89.5
Chrysene-d12 % recovery**	89.2	72.4	85.7	77.2	82.1	83	79.3	80.7	86.4	89.8	85.9	84.1	82.6	73.2	83.2	85.1	85.4
Perylene-d12 % recovery**	88.3	62.4	84.6	72.4	82.9	79.9	73.6	76.8	71.9	85.3	72.8	81.7	78.8	75.1	85.7	83.7	85.6
Total Aliphatics >C12-C44	41.2	8.6	22.4	56.8	21	93.1	0.1	30.3	118	160	106	37.9	69	15.2	18.5	4.98	0.782
Total Aromatics >EC12-EC44	152	24.1	63.3	117	211	82.7	8.51	48.3	86.7	58.4	57.4	13.7	30.7	11.7	12.8	9.66	11.5
Total Aliphatics & Aromatics >C5-C44	193	32.7	85.7	173	232	176	8.51	78.6	205	219	163	51.7	99.9	26.9	31.2	14.6	12.2
Metals - (Solid)																	
Iron	30300	54100	49400	107000	183000	74500	204000	179000	173000	264000	155000	452000	134000	337000	149000	41100	34200
Manganese	4750	1400	2990	3260	39500	4760	2840	7110	3380	3880	3530	4220	3550	4030	3670	1820	590
Metals - (Liquid)																	
Calcium	67200	-	274000	-	222000	-	134000	126000	142000	-	157000	94500	-	44900	-	-	-
Magnesium	7520	-	8030	-	6830	-	35200	16100	11000	-	31700	8570	-	5890	-	-	-
Phenols																	
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																	
Soluble Sulphate 2:1 extract as SO4 BRE	0.0377	-	0.0829	-	0.123	-	0.028	0.0283	0.108	-	0.0796	0.0232	-	0.0188	-	-	-
pH	9.95	8.57	10	9.39	12.2	10.7	10.4	9.44	11	12.2	10.7	9.55	10.6	10.3	9.7	8.52	7.39
Sulphate, Total																	
Sulphur, Total	0.14	-	0.154	-	0.495	-	0.0816	0.115	0.182	-	0.265	0.0708	-	0.0711	-	-	-
Sulphate, Total potential	0.42	-	0.462	-	1.49	-	0.245	0.345	0.546	-	0.795	0.212	-	0.213	-	-	-
Sulphate, acid soluble (total)	0.068	-	0.374	-	1.33	-	0.0473	0.0715	0.213	-	0.212	0.0387	-	0.0319	-	-	-
Cyanide, Total	1.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5.64	1
Exchangeable Ammonia as N	12	12	12	12	12	20.8	19	12	12	12	12	30.5	12	12	12	573	661
Asbestos																	
Asbestos Quantification - Gravimetric - %	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	09/11/2018	-	09/11/2018	-	09/11/2018	-	30/11/2018	30/11/2018	26/11/2018	-	26/11/2018	30/11/2018	-	03/12/2018	-	-	-
Analysed By	Barbara Urbanek-Walsh	-	Lucy Caroe	-	Barbara Urbanek-Walsh	-	Paul Poynton	Paul Poynton	Marcin Magdziarek	-	Marcin Magdziarek	Paul Poynton	-	Christian Hallam	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	-	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Comments	0	-	0	-	Loose fibres in soil.	-	0	0	0	-	0	0	-	0	-	-	-
Volatile Organic Compounds (VOCs)																	
Dibromofluoromethane**	112	115	126	117	133	113	115	110	103	108	105	111	115	109	110	125	115
Toluene-d8**	98.6	98.9	100	96.2	100	102	104	102	97.1	96.8	98.5	102	103	102	103	101	99.3
4-Bromofluorobenzene**	79.2	70.4	81.1	70	84.5	79.8	83.3	85.4	94.2	90	91.2	72.8	83.6	86.2	85	88	82.1
Methyl Tertiary Butyl Ether	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.08	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.26	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																	
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances	4GF3V	4GF4V	4GF5V	4GF6V	4GF7V	4GF8V	4GG5	4GG5	4GG6	4GG6	4GG7	4GG7	4GG5V
												Sample ID	4GF3V	4GF4V	4GF5V	4GF6V	4GF7V	4GF8V	4GG5	4GG5	4GG6	4GG6	4GG7	4GG7	4GG5V
												Depth	2.5	2.4	2.6	2.7	2.6	2.6	0.4	0.7	0.3	0.5	0.5	1	3.2
												Sampled Date	07/11/2018	19/11/2018	19/11/2018	13/11/2018	19/11/2018	20/11/2018	19/11/2018	19/11/2018	13/11/2018	13/11/2018	19/11/2018	19/11/2018	19/11/2018
Carbon																									
Soil Organic Matter (SOM)	TM132	%	0.35	1382	1370	0	0.35	99	9	34		0.00	1.01	0.909	8.41	1.3	0.962	1.21	7.1	7.03	0.712	1.72	45.3	10.5	0.91
Metals (Solids)																									
Arsenic	TM181	mg/kg	<0.6	1383	1383	1064	0.65	397	12	22	6.74	76.93	11.6	13.2	13.4	12.9	11.4	16.5	11.4	5.48	2.38	14.2	11.9	8.44	11.6
Cadmium	TM181	mg/kg	<0.02	1383	1383	864	0.02	31	1	2	0.19	62.47	0.02	0.02	0.02	0.02	0.02	0.02	1.6	0.524	0.02	0.2	0.2	0.2	0.326
Chromium	TM181	mg/kg	<0.9	1383	1383	1080	0.90	3090	139	591	25.08	78.09	28.4	28.8	31.2	31.9	29.1	34.4	9	5.37	17.8	9	9	9	27.1
Copper	TM181	mg/kg	<1.4	1383	1383	1383	1.40	1790	25	52	1.20	100.00	11.3	9.01	20	10.8	9.57	11	14	6.68	1.4	14	22.1	16	11
Lead	TM181	mg/kg	<0.7	1383	1383	507	0.70	4220	92	232	41.85	36.66	23.5	24.7	45.8	26.7	22.4	28.5	27.6	17.7	3.57	25.1	33.4	47	25.5
Mercury	TM181	mg/kg	<0.14	1383	1383	606	0.14	6	1	1	0.35	43.82	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	1.4	1.4	0.14
Nickel	TM181	mg/kg	<0.2	1383	1383	427	1.34	313	26	45	30.61	30.87	31.8	34.1	24.2	37.3	34.3	40.2	15.8	6.93	1.36	23.7	40.4	30.6	35.2
Selenium	TM181	mg/kg	<1	1383	1383	815	1.00	52	6	17	1.87	58.93	1	1	1	1	1	1	10	1	3.57	10	10	10	1
Vanadium	TM181	mg/kg	<0.2	1383	1378	1377	<0.2	2880	207	693	4.27	99.57	51.1	51	46.7	54.6	49.7	58.9	38.3	36.7	40	76.2	155	87.3	49.4
Zinc	TM181	mg/kg	<1.9	1383	1383	160	7.15	13300	291	785	365.79	11.57	141	104	146	103	102	104	72.8	57.3	11.8	134	170	129	105
TPH Criteria Working Group (TPH CWG)																									
Benzene	TM089	mg/kg	<0.01	271	271	271	0.01	0	0	0	0.01	100.00													
Toluene	TM089	mg/kg	<0.002	271	271	0	0.00	0	0	0	0.32	0.00													
Ethylbenzene	TM089	mg/kg	<0.003	271	271	0	0.00	0	0	0	0.21	0.00													
sum of detected mpo xylene by GC	TM089	µg/kg	9	271	271	0	0.01	0	0	0	0.19	0.00													
Aliphatics >C5-C6	TM089	mg/kg	<0.01	1383	1383	0	0.01	1	0	0	311.47	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1383	1382	0	<0.01	3	0	0	1134.98	0.00	0.02	0.02	0.022	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C8-C10	TM089	mg/kg	<0.01	1383	1383	0	0.01	74	0	0	7844.34	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C10-C12	TM089	mg/kg	<0.01	1383	1383	0	0.01	987	3	0	60406.47	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aliphatics >C12-C16	TM173	mg/kg	<0.1	1383	1383	0	0.10	514	5	16	1198346.52	0.00	0.1	0.1	0.878	0.1	0.1	0.1	0.1	3.09	0.1	6.29	2.35	1.33	0.1
Aliphatics >C16-C21	TM173	mg/kg	<0.1	1383	1383	0	0.10	3530	27	83	150639254.34	0.00	0.1	0.1	1.97	0.1	0.1	0.1	3.35	7.46	3.03	23.4	12.3	4.58	0.1
Aliphatics >C21-C35	TM173	mg/kg	<0.1	1383	1383	0	0.10	2980	65	175	150639254.34	0.00	0.1	2.16	4.16	0.1	3.39	0.1	34.2	53.2	15.8	125	50.8	24.5	2.25
Aliphatics >C35-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	913	20	69	150639254.34	0.00	0.1	0.1	0.1	0.1	0.1	0.1	6.07	41	12.1	77.8	17.9	10.6	0.1
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	1383	1383	0	0.01	5	0	0	19.81	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	1383	1383	0	0.01	20	0	0	451.11	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	1383	1383	0	0.01	50	0	0	380.12	0.00	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1383	1383	1	0.01	658	2	0	600.15	0.07	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	1383	1383	1	0.10	5280	14	25	1196.62	0.07	0.814	0.1	0.1	0.1	0.1	0.1	0.719	1.23	1.13	2.66	1	0.1	0.1
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	1383	1383	2	0.10	9800	57	166	3783.48	0.14	1.47	0.1	2.07	0.1	0.1	0.1	3.83	5.31	1.41	11	6.01	2.15	0.1
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	1383	1383	0	0.10	9010	123	441	30052.88	0.00	3.65	1.75	29.2	0.1	2.03	0.1	23.6	49.2	10.4	133	26.1	14.8	0.1
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	1580	41	150	30052.88	0.00	0.537	0.1	2.02	0.1	0.615	0.1	13.3	73.4	19.5	156	16.1	14.1	0.1
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	724	15	79	30052.88	0.00	0.1	0.1	0.1	0.1	0.1	0.1	5.81	34.8	9.65	71.8	6.65	6.05	0.1
Polyaromatic Hydrocarbons (PAHs)																									
Acenaphthylene	TM218	µg/kg	<0.012	1383	1383	664	0.24	2100000	3076	3179	44.45	48.01	12	12	12	12	12	12	12	12	12	60	17	120	12
Acenaphthene	TM218	µg/kg	<0.008	1383	1383	296	8.00	193000	466	414	79.05	21.40	8	8	8	8	8	8	12.6	64.3	8	47.4	8	80	8
Anthracene	TM218	µg/kg	<0.016	1383	1382	696	<0.016	1860000	3608	5475	90.76	50.33	16	16	16	16	16	16	19.5	16	16	80	16	160	16
Benz(a)anthracene	TM218	µg/kg	<0.014	1383	1383	308	14.00	1150000	4645	11985	1613.93	22.27	14	14	38.7	14	14	14	49.3	130	28.2	95.4	56.7	453	14
Benzo(a)pyrene	TM218	µg/kg	<0.015	1383	1383	898	15.00	714000	3728	10570	91.65	64.93	15	15	35.5	15	15	15	40.7	121	23.2	81.9	36.3	250	15
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	1383	1383	1383	15.00	1110000	5283	15870	9.09	100.00	15	15	67	15	15	15	79.8	175	39	141	79.7	439	15
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	1383	1383	1383	14.00	373000	2081	5956	13.44	100.00	14	14	22.2	14	14	14	25.5	64	14	70	19.3	177	14
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	1383	1383	989	0.24	333000	2514	7273	35.35	71.51	24	24	24	24	24	24	40.6	108	24	120	39.2	0.24	24
Chrysene	TM218	µg/kg	<0.01	1383	1383	294	0.10	1090000	4217	11470	1651.53	21.26	10	10	42.8	10	10	10	69.7	158	29.3	139	66.3	372	10
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	1383	1383	64	0.02	177000	740	1857	2227.85	4.63	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.115	0.023	0.23	0.023
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	1383	1383	898	0.02	374000	2607	7460	67.35	64.93	0.018	0.018	34.7	0.018	0.018	0.018	34.8	99.4	19.5	90	36.9	180	0.018
Fluoranthene	TM218	µg/kg	<0.017	1383	1383	1132	0.02	2940000	11586	29555	17.67	81.85	0.017	0.017	77.6	0.017	0.017	0.017	94.2	269	50.1	240	90.6	649	0.017
Fluorene	TM218	µg/kg	<0.01	1383	1383	509	0.10	1890000	2814	2724	72.09	36.80	10	10	10	10	10	10	10.9	34.8	10	50	11.6	0.1	10
Naphthalene	TM218	µg/kg	<0.009	1383	1381	814	<0.009	4680000	10974	5657	72.28	58.86	9	9	9	9	9	9	26.5	40.3	16.4	63.3	45.5	90	9
Phenanthrene	TM218	µg/kg	<0.015	1383	1383	977	15.00	3810000	9794	18025	72.09	70.64	15	15	41.4	15	15	15	118	209	41.6	207	181	150	15
Pyrene	TM218	µg/kg	15	1008	1008	11	0.02	1950	10	29	203.18	1.09	0.015	0.015	0.0633	0.015	0.015	0.015	0.0905	0.228	0.0374	0.22	0.0824	0.492	0.015
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	1383	1380	0	<0.118	24600	76	169		0.00	0.118	0.118	0.423	0.118	0.118	0.118	0.713	1.7	0.285	1.23	0.763	2.83	0.118
Naphthalene-d8 % recovery**	TM218	%		1383	1378	0		9940	100	107		0.00	99.5	91.5	83.7	84.4	91.9	71.4	87.6	84.2	84	81.1	85.3	77.2	84.7
Acenaphthene-d10 % recovery**	TM218	%		1383	1377	0		9830	98	105		0.00	101	92.8	85.8	89.7	93.9	73.4	89.9	89	88.5	80.6	69.9	0	87.3
Phenanthrene-d10 % recovery**	TM218	%		1383	1379	0		9920	99	105		0.00	104	101	85.4	94.6	93.9	69.7	92.8	84.9	93.6	93.3	82.7	83.4	88.7
Chrysene-d12 % recovery**	TM218	%		1383	1380	0		9460	96	107		0.00	106	113	81.3	90.3	84.5	70.8	83.3	79	93.2	98.1	71.2	93.8	83.7
Perylene-d12 % recovery**	TM218	%		1383	1380	0		8930	94	110		0.00	98.5	102	80.7	78.6	78	74	75	74.2	79.9	83.2	59.4	74.7	82.3
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	1383	1383	0	0.10	4740	117	342		0.00	0.1	2.16	7.01	0.1	3.39	0.1	43.6	105	30.9	233	83.3	40.9	2.25
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	1383	1383	0	0.10	25500	234	802		0.00	6.47	1.75	33.3	0.1	2.65	0.1	41.4	129	32.4	303	49.3	31	0.1
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	1008	1008	0	0.10	27800	416	1516		0.00	6.47	3.91	40.3	0.1	6.04	0.1	85.1	234	63.3	536	133	72	2.25
Metals - (Solid)																									
Iron	TM224	mg/kg	<1000	1383	1381	0	<1000	2390000	103039	277000			35400	34200	19800	32900	32500	33500	164000	51600	13200	231000	243000	216000	28800
Manganese	TM224	mg/kg	<0.13	1383	1380	0	<0.13	408000	9574	33520			723	1150	282	626	960	459	3660	2780	4010	7140	3430	4820	985
Metals - (Liquid)																									
Calcium	TM224	mg/kg	<21	1371	622	0	<21	398000	131387	237950			-	-	-	-	-	-	133000	-	263000	-	63300	-	-
Magnesium	TM224	mg/kg	<8	1371	623	0	<8	55700	15371	35290			-	-	-	-	-	-	27200	-	41800	-	7020	-	-
Phenols																									
Phenol	TM062 (S)	mg/kg	<0.01	1371	1371	1371	0.01	1	0	0	0.00	100.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	TM062 (S)	mg/kg	<0.01	1371	1317	1317	<0.01	5	0	0	0.00	96.06	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	TM062 (S)	mg/kg	<0.015	1371	1317	1317	<0.015	4	0	0	0.00	96.06	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	1371	1317	1317	<0.035	10	0	0	0.00	96.06	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																									
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	1002	425	425	<0.004	2	0	0	0.00	42.42	-	-	-	-	-	-	0.254	-	1.51	-	0.14	-	-
pH	TM133	pH Units	<1	1002	972	972	<1	13	10	13	0.00	97.01	8.18	8.01	7.14	7.88	7.76	6.96	9.82	9.91	10.4	9.82	9.4	9.3	8.59
Sulphate, Total	TM221	mg/kg	<48	375	20	20	<48	22900	6520	18700	0.00	5.33													
Sulphur, Total	TM132	%	<0.02	1002	404	404	<0.02	9	0	1	0.00	40.32	-	-	-	-	-	-	0.26	-	0.916	-	0.236	-	-
Sulphate, Total potential	TM132	%	<0.06	1002	404	404	<0.06	28	1	2	0.00	40.32	-	-	-	-	-	-	0.78	-	2.75	-	0.708	-	-
Sulphate, acid soluble (total)	TM221	%	<0.02	1002	425	425	<0.02	3	0	1	0.00	42.42	-	-	-	-	-	-	0.683	-	0.736	-	0.228	-	-
Cyanide, Total	TM153	mg/kg	<1	1002	1001	1001	<1	272	2	4	0.00	99.90	1	1	1	1	1	1	1	1	1	1	1	1	1
Exchangeable Ammonia as N	TM024	mg/kg	<12	1002	948	948	<12	1590	61	263	0.00	94.61	19.6	317	412	115	123	140	12	12	12	12	14.3	12	89
Asbestos																									
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	30/11/2018	-	19/11/2018	-	30/11/2018	-	-
Analysed By	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Paul Poynton	-	Andrzej Ferfecki	-	Paul Poynton	-	-
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	TM304	No units		1002	0	0					0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	TM304	No units		1002	0	0					0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	TM304	%	<0.001	1371	65	65	<0.001	0	0		0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Amosite (Brown) Asbestos	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	TM048	No units		1371	0	0					0.00		-	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Comments	TM048	No units		1371	0	0			0		0.00		-	-	-	-	-	-	0	-	0	-	0	-	-
Volatile Organic Compounds (VOCs)																									
Dibromofluoromethane**	TM116	%		1371	1100	1100		175	105	120	0.00		128	122	111	121	137	110	108	113	114	106	112	105	114
Toluene-d8**	TM116	%		1371	1100	1100		115	97	102	0.00		100	103	99	97.8	102	101	99.1	102	99.4	96.4	101	97.4	102
4-Bromofluorobenzene**	TM116	%		1371	1100	1100		111	90	102	0.00		82.3	86.6	80.8	107	85.2	86.1	95.8	85.3	108	97	80.2	94.1	88.2
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	2	0	0	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	TM116	mg/kg	<0.09	1371	1099	1099	<0.09	7	0	0	0.00		0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	TM116	mg/kg	<0.07	1371	1099	1099	<0.07	28	0	0	0.00		0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	TM116	mg/kg	<0.04	1371	1099	1099	<0.04	1	0	0	0.00		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	62	0	0	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	TM116	mg/kg	<0.1	1371	1099	1099	<0.1	18	0	0	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	TM116	mg/kg	<0.13	1371	1211	1211	<0.13	15500	17	3	0.00		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	TM116	mg/kg	<0.4	1371	1095	1095	<0.4	116	1	1	0.00		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																									
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	21	12	21	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	28	14	26	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5	1371	16	16	<0.5	20	12	20	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	SUB	%	<0.5	1371	16	16	<0.5	1	1	1	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	SUB	%	<0.5	1371	16	16	<0.5	25	14	21	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	SUB	%	<0.5	1371	16	16	<0.5	25	15	22	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

													Sample ID	40AF28	40AF28	40AF28	40AF28	40AF28V	40AG28	40AG28	40AH28	40AI28	40AI28	40AI28	40AI28	40AJ28	40AJ28	40AK28	40AK28	40ATP01	40ATP01	40ATP01
													Depth	0.500.50	1.001.00	1.501.50	2.002.00	2.602.60	0.500.50	0.900.90	0.500.50	0.500.50	1.001.00	1.501.50	2.202.20	0.700.70	1.201.20	0.700.70	1.101.10	0.500.50	1.001.00	1.501.50
													Sampled Date	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	23/05/2018	23/05/2018	23/05/2018
Determinand	**Method**	**Units**	**LOD**	**No. of Samples**	**No. of Samples >LOD**	**No. of Samples > WQS**	**Min**	**Max**	**Average**	**Upper 95th Percentile**	**WQS**	**Percentage of exceedances**																				
Carbon																																
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00	73.4	9.48	48.4	29	6.36	5.14	6.86	7.55	7.33	2.95	11.4	35.9	2.59	2.67	7.79	4.83	3.79	5.34	12	3.91
Metals (Solids)																																
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51	2.08	2.47	17.6	20	13.4	8.28	8.8	13	10.1	6	16.8	6.7	20.7	4.07	7.51	21.2	17.9	3.98	8.94	5.63
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30	0.112	0.401	1.89	1.62	0.499	0.768	2.08	3.87	1.2	1	0.966	0.374	0.689	0.326	0.811	0.849	0.961	0.21	0.243	0.23
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14	5.44	62.5	9	9	26.1	35.3	10.8	24.5	15.8	454	76.9	166	109	50.3	74.5	46.5	121	5.66	11.2	6.66
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00	4.9	5.63	30.3	39.6	19.1	23.6	22.4	46.7	22.8	17.9	26.6	21.5	24.6	12.4	40.9	17.8	43.2	6.75	42.6	18
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26	13.4	23.8	125	144	38.7	70.8	153	363	202	51.4	62.5	30.1	73.8	23.2	144	130	24.2	21.9	31.3	21.8
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.396	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05	4.25	9.87	25.1	37.6	29.7	17.4	14.4	28.4	15.6	9.9	24.7	12.2	19.7	9.35	33.9	26	28.7	4.23	26.8	19.4
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77	2.13	4.07	10	10	1.26	3.53	2.35	1.1	2.41	13.3	10	5.7	5.71	4.46	2.73	5.26	3.93	1	1.88	1
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00	20.8	92.7	60.5	86.5	45.7	140	58.3	72.6	40.4	1120	331	589	193	175	345	156	130	6.56	29.9	24.2
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49	49.8	113	239	250	130	432	1170	3260	888	141	162	146	1060	395	825	1240	129	65.7	71.5	74.3
TPH Criteria Working Group (TPH CWG)																																
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00																				
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00																				
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00																				
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00																				
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00	0.04	0.0424	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0746	0.0938	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00	0.04	0.0532	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.105	0.04	0.04	0.04	0.04	0.04	0.04	0.0896	0.04
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00	0.0844	0.253	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0531	0.106	0.04	0.04	0.04	0.04	0.0672	0.04	0.244	0.04
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00	10.2	3.37	0.595	0.1	0.1	1.59	1.16	2.17	1.92	2.84	1.28	0.1	1.19	0.1	1.47	0.909	11.2	0.216	1.34	2.57
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00	41.8	15.3	8.52	4.97	0.1	8.82	7.37	24.1	21.3	21.5	5.91	2.94	9.22	5.5	15.2	8.83	33.1	1.88	3.64	9.28
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00	747	201	24.7	52.6	8.05	105	86.5	247	474	253	43.6	47.2	97.7	72.2	198	145	195	41.5	22.9	45.2
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00	836	224	6.09	30.7	0.1	46.1	33.5	82.5	244	109	18.8	20.6	25.4	17.4	69.1	31	227	37.3	18.4	26.4
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0554	0.085	0.04	0.04	0.04	0.04	0.04	0.04	0.0739	0.04
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00	0.0563	0.168	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0713	0.04	0.04	0.04	0.04	0.0448	0.04	0.162	0.04
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00	5.5	2.54	0.2	0.626	3.83	0.709	0.1	2.59	1.8	1.03	1.75	0.1	0.841	0.1	1.66	0.1	4.96	0.616	4.48	2.6
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00	29.6	11.4	2.45	2.56	7.62	3.5	2.77	15.2	15.7	6.75	2.9	2.1	5.67	3.3	26.6	2.83	15.3	2.19	13.4	7.7
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00	1150	243	12.3	56.4	35.8	58.7	34.4	88.3	289	124	31.3	33.8	54.1	40.2	184	27.6	193	52.1	37.8	46.6
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00	1120	342	6.48	63.6	4.94	47.8	25.3	46.3	292	121	23	26.5	21.5	16.4	59.8	11.9	265	50.3	27.2	33
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00	506	165	2.36	27.6	0.1	19.7	10.7	17.8	121	52.1	9.59	11.1	7.84	6.04	22.5	4.44	128	22.7	11.7	13.9
Polyaromatic Hydrocarbons (PAHs)																																
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42	120	60	12	60	12	15.8	12	80	120	12	120	12	12	12	56	12	60	68	12	60
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93	629	299	8	40	8	48.8	32.1	889	80	10.6	80	8	45.9	10.1	60	20.8	66.5	60.2	119	71.2
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86	160	80	16	80	16	50.2	39.4	187	160	23.1	160	16	46.4	28	156	40.8	80	92.7	43.5	80
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56	224	122	30.2	70	33.7	472	174	839	644	320	233	88.2	443	373	1660	284	113	100	31.3	70
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81	496	155	21.7	75	34	524	180	674	595	157	199	90.4	470	334	1690	269	120	91.5	15	75
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77	808	253	42.5	75	57.5	948	374	1320	1100	734	386	215	924	706	3190	585	217	129	36.7	107
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77	256	77.7	16	70	14	309	125	474	330	215	140	65.9	260	204	961	187	70	70	14	70
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07	407	153	24	120	24	505	201	565	487	312	0.24	93.7	458	328	1320	276	120	120	24	120
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79	519	161	34.7	50	39.5	580	218	795	843	511	314	145	759	569	2760	417	146	93.8	60.1	67.2
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23	0.23	0.115	0.023	0.115	0.023	122	44.9	135	0.23	70.6	0.23	0.023	113	62.5	326	61.5	0.115	0.115	0.023	0.115
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37	378	134	0.018	90	0.018	449	167	550	443	287	180	88.1	399	293	1130	257	90	90	0.018	90
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23	522	300	60.6	0.085	84.3	463	294	1610	941	454	530	128	385	387	1400	374	264	301	96.1	131
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09	180	93.8	10	50	10	18.1	14.7	127	0.1	10	0.1	20.8	34.1	10	72.7	17.8	50	84.7	102	65.8
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51	669	359	13.7	45	9	37.3	61.7	113	90	22.8	90	25.8	16.3	9	172	19.4	154	249	318	247
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56	473	287	70.5	75	27.1	218	163	818	326	132	215	106	201	99.2	613	232	238	412	484	263
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00																				
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00	6.4	2.77	0.347	0.59	0.352	5.33	2.41	10.8	6.67	3.85	2.38	1.21	5.12	3.9	17.7	3.42	1.53	1.94	1.37	1.15
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00	78.6	88.4	87.2	88.4	88.5	91.1	93.4	92.6	75.1	92.2	77.9	78.4	80.1	80.4	82	79.9	94.2	104	79.3	88
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00	88.8	85.2	87.9	84.6	93.6	94.5	93.5	93.5	82.6	102	84.8	82.4	83.7	84.4	86.2	83.3	91.9	102	84.3	84.9
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00	82.1	98.9	77.8	77.4	97.1	101	94.3	96.6	81.7	112	74.9	82	83.3	88.2	87.4	85.2	92.6	98.9	90.4	84.5
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00	77	89.7	45.2	73.1	101	96.7	76.6	79	78.7	98.4	74.2	83.4	83.9	91.1	90.1	83.6	90.7	101	82.8	83.6
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00	73.2	87.5	29.6	71.1	98.7	95	72.3	70	74.7	93	72.8	84.4	85.8	90.7	89.6	77.2	90.2	109	71.3	77.4
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00	1630	444	39.9	88.3	8.05	161	129	356	741	387	69.6	70.8	133	95.1	283	186	467	80.9	46.3	83.4
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00	2310	599	21.4	123	52.2	111	62.5	152	598	253	59	62.4	82.1	59.9	273	42.4	478	105	82.9	89.9
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00																				
Metals - (Solid)																																
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00			13100	52100	312000	178000	33400	49900	67700	154000	83600	141000	128000	55000	97100	46500	93000	69600	208000	8480	16700	19700
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00			1710	7220	4750	3410	729	4150	3610	4790	4180	24800	8150	10300	10800	6340	5630	7670	14800	793	326	496
Metals - (Liquid)																																
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00			216000	-	29500	-	-	126000	-	125000	168000	-	124000	-	183000	-	135000	-	149000	212000	9810	-
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00			34300	-	5890	-	-	17300	-	14600	19200	-	8440	-	31700	-	14600	-	36900	106000	3070	-
Phenols																																
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																																
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55	1.91	-	0.14	-	-	0.878	-	0.283	0.27	-	0.216	-	1.13	-	0.618	-	0.296	0.0664	0.0578	-
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93	9.45	10	9.21	9.33	7.39	10.3	11	11.1	11.2	11.8	11.6	11.3	10.9	11	10.3	10.9	11.7	9.79	8.49	8.26
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55	1.26	-	0.191	-	-	0.381	-	0.199	0.419	-	0.38	-	0.465	-	0.36	-	0.258	0.164	0.16	-
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55	3.78	-	0.573	-	-	1.14	-	0.597	1.26	-	1.14	-	1.4	-	1.08	-	0.774	0.492	0.48	-
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55	2.16	-	0.0478	-	-	0.595	-	0.407	1.03	-	1.03	-	0.891	-	0.647	-	0.323	0.184	0.0935	-
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00	1	1	1	1.47	1	1	23	2.98	2.74	4.62	1.51	2.01	1	1	1	1	1	1	2.26	1
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00	12	12	12	12	122	12	12	12	12	12	12	12	12	12	12	12	12	12	73.7	18.4
Asbestos																																
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00		-	-	-	-	-	-	-	0.001	0.001	-	-	-	-	-	0.001	-	-	-	-	-
Date of Analysis	TM048	No units		430	0	0					0.00		05/06/2018	-	05/06/2018	-	-	05/06/2018	-	05/06/2018	05/06/2018	-	05/06/2018	-	05/06/2018	-	05/06/2018	-	31/05/2018	31/05/2018	31/05/2018	-
Analysed By	TM048	No units		430	0	0					0.00		Marcin Magdziarek	-	Marcin Magdziarek	-	-	Andrzej Ferfecki	-	Marcin Magdziarek	Lucy Caroe	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Lucy Caroe	-	Andrzej Ferfecki	Andrzej Ferfecki	James Richards	-
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00		-	-	-	-	-	-	-	0.001	0.001	-	-	-	-	-	0.001	-	-	-	-	-
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00		-	-	-	-	-	-	-	None	None	-	-	-	-	-	None	-	-	-	-	-
Analysts Comments	TM304	No units		83	0	0					0.00		-	-	-	-	-	-	-	N/C	N/C	-	-	-	-	-	N/C	-	-	-	-	-
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00		-	-	-	-	-	-	-	0.001	0.001	-	-	-	-	-	0.001	-	-	-	-	-
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	Not Detected	-	Detected	Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	Not Detected	Not Detected	-
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Tremolite	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Fibrous Actinolite	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	Trace	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Trace	Not Detected	-
Comments	TM048	No units		430	0	0			0.00	0.00	0.00		0	-	0	-	-	0	-	Bundle of fibres in soi	Soil containing ACM debris	-	0	-	0	-	Fibre bundles in soi	-	0	0	0	-
Volatile Organic Compounds (VOCs)																																
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00		112	110	108	106	105	106	115	111	118	108	108	109	114	111	108	109	104	102	98.7	104
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00		91.8	95.8	99.9	98.5	99.1	98.8	98.2	97.6	95.9	96.7	97.2	98.3	98.8	99.8	97.3	98.1	97.7	101	100	101
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00		86.8	93.5	95.7	96.8	94.1	98.5	98.1	91.9	96.9	99.3	92.3	96.2	97.7	101	93.1	98.9	95.1	96.9	87.9	96.6
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00		0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00		0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00		0.615	0.539	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.144	0.13	0.149	0.13	0.15	0.13
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																																
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40ATP01 3.003.00 23/05/2018	40ATP02 0.500.50 23/05/2018	40ATP02 1.001.00 23/05/2018	40ATP02 2.002.00 23/05/2018	40ATP02 3.003.00 23/05/2018	40ATP03 0.500.50 23/05/2018	40ATP03 1.001.00 23/05/2018	40ATP03 2.202.20 23/05/2018	40ATP04 0.500.50 23/05/2018
Carbon									
Soil Organic Matter (SOM)	10.4	6.53	2.17	4.19	1.69	1.41	13.4	12	14.5
Metals (Solids)									
Arsenic	6.6	8.78	5.28	10	4.98	9.06	4.13	26	26.3
Cadmium	0.978	0.348	0.158	0.298	0.442	0.508	0.306	1.92	9.23
Chromium	160	8.93	10.1	9.33	104	43.8	14.9	103	876
Copper	18.2	23.2	52.6	30	13.7	20.6	12.4	133	131
Lead	104	30.8	17.3	21.6	14.7	22.4	19.2	96	351
Mercury	1.02	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	9.78	18.9	12.9	27.9	6.76	18.9	10.7	30.9	35.2
Selenium	3.86	1.2	1	1.04	5.98	3.55	1.7	2.27	10.5
Vanadium	173	30.1	21.4	29.7	184	77.1	45.3	67.8	652
Zinc	436	100	49	72.9	79.9	146	60.2	326	1950
TPH Criteria Working Group (TPH CWG)									
Benzene									
Toluene									
Ethylbenzene									
sum of detected mpo xylene by GC									
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.0516	0.078	0.0661	0.0677	0.04	0.04	0.04	0.0426	0.0644
Aliphatics >C8-C10	1	0.636	1.06	0.603	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	29.2	12.1	12.6	4.74	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	198	47	0.1	4.51	1.23	0.424	0.614	5.45	3.11
Aliphatics >C16-C21	64.3	26.3	0.1	7.12	5.87	1.41	4.66	9.46	8.02
Aliphatics >C21-C35	269	55.1	0.1	21.5	62.3	0.1	38.8	40.2	26.9
Aliphatics >C35-C44	65.9	8.17	0.1	1.38	15	0.1	7.78	15.7	2.93
Aromatics >EC5-EC7	0.0417	0.163	0.211	0.238	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.0644	0.047	0.0444	0.04	0.04	0.04	0.04	0.0441
Aromatics >EC8-EC10	0.711	0.485	0.803	0.496	0.04	0.04	0.04	0.04	0.0746
Aromatics >EC10-EC12	19.4	8.1	8.41	3.16	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	131	35.4	2.24	14.3	0.1	0.77	1.21	9.39	7.49
Aromatics >EC16-EC21	39.5	18.1	0.1	5.38	3.11	2.12	4.3	16.6	22.3
Aromatics >EC21-EC35	116	39.7	0.1	17.3	20.2	6.94	21.3	60.4	68.8
Aromatics >EC35-EC44	61.4	15.8	0.1	3.36	8.37	1.46	7.17	31.6	18.9
Aromatics >EC40-EC44	24.2	6.09	0.1	0.831	2.8	0.449	2.19	13.3	6.49
Polyaromatic Hydrocarbons (PAHs)									
Acenaphthylene	165	71.2	18.6	32.8	12	12	12	15.6	77.1
Acenaphthene	92.6	98.9	15.5	30.4	9.02	8	8	37.3	95.8
Anthracene	139	47.4	16	16	21.5	16	19.9	112	326
Benz(a)anthracene	296	81.6	14	44	150	14	66.1	381	744
Benzo(a)pyrene	337	89.4	15	39.6	146	15	49.8	314	555
Benzo(b)fluoranthene	548	148	15	58.8	296	31.6	111	483	861
Benzo(k)fluoranthene	210	49.7	14	21.2	83.2	14	39	162	349
Benzo(g,h,i)perylene	382	92.1	24	29	159	24	54.1	250	359
Chrysene	396	122	16.4	58.6	166	19.4	86.8	322	842
Dibenzo(a,h)anthracene	0.115	0.023	0.023	0.023	27.1	0.023	0.023	80.8	118
Indeno(1,2,3-cd)pyrene	323	86.7	0.018	27.5	99.5	0.018	46.1	206	385
Fluoranthene	738	208	33.8	92.1	280	28.3	159	708	1590
Fluorene	162	100	16.5	33.1	10	10	10	63.5	227
Naphthalene	5540	892	2270	1360	18.3	30.3	48.5	179	496
Phenanthrene	535	162	35.7	61.2	127	30.8	158	445	1350
Pyrene									
PAH, Total Detected USEPA 16	10.6	2.42	2.43	1.97	1.85	0.167	0.986	4.29	9.44
Naphthalene-d8 % recovery**	97.4	87	88	88.5	103	94.9	81.9	101	96.3
Acenaphthene-d10 % recovery**	90.3	89.1	87.4	92.2	97.4	90.3	86.8	97.9	95.3
Phenanthrene-d10 % recovery**	93.3	95.3	93.8	99.2	95	89.5	92.1	96.7	99.9
Chrysene-d12 % recovery**	78.1	79.4	78.2	88.1	89.6	83.6	72	95.9	92.5
Perylene-d12 % recovery**	66	62.3	53.2	74.1	83.8	73.8	58	86.9	83.8
Total Aliphatics >C12-C44	598	137	0.1	34.5	84.4	1.84	51.9	70.8	40.9
Total Aromatics >EC12-EC44	347	109	2.24	40.4	31.7	11.3	34	118	118
Total Aliphatics & Aromatics >C5-C44									
Metals - (Solid)									
Iron	121000	30200	9900	24400	70300	25900	24100	25900	131000
Manganese	9280	1300	484	907	13200	4090	2160	2350	21700
Metals - (Liquid)									
Calcium	161000	-	64500	-	259000	-	144000	165000	-
Magnesium	15000	-	3910	-	54200	-	47700	18700	-
Phenols									
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics									
Soluble Sulphate 2:1 extract as SO4 BRE	0.115	-	0.0534	-	0.116	-	0.15	0.135	-
pH	9.24	10.1	9.28	8.84	11.6	8.88	10.8	10	10.2
Sulphate, Total	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.279	-	0.202	-	0.29	-	0.288	0.405	-
Sulphate, Total potentia	0.837	-	0.606	-	0.87	-	0.864	1.22	-
Sulphate, acid soluble (total)	0.235	-	0.211	-	0.438	-	0.404	0.275	-
Cyanide, Total	26.5	10.8	33.3	23.7	1	1	1	1.96	1.31
Exchangeable Ammonia as N	29	87.9	191	293	12	12	12	12	12
Asbestos									
Asbestos Quantification - Gravimetric - %	0.001	-	-	-	0.001	-	-	0.0011	-
Date of Analysis	31/05/2018	-	31/05/2018	-	31/05/2018	-	31/05/2018	31/05/2018	-
Analysed By	Andrzej Ferfecki	-	James Richards	-	James Richards	-	James Richards	Barbara Urbanek-Walsh	-
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	-	0.0014	-	-	0.001	-
Additional Asbestos Components (Using TM048)	None	-	-	-	PCOM showed signs of Amphibole fibres.	-	-	None	-
Analysts Comments	N/C	-	-	-	N/C	-	-	N/C	-
Asbestos Quantification - Total - %	0.0013	-	-	-	0.0016	-	-	0.0011	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Detected	-	Not Detected	Detected	-
Amosite (Brown) Asbestos	Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Non-Asbestos Fibre	Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-
Comments	loose fibres in soi	-	0	-	Fibre bundles in soi	-	0	Loose fibres in soil	-
Volatile Organic Compounds (VOCs)									
Dibromofluoromethane**	104	101	102	105	103	103	99.1	99	79
Toluene-d8**	99.9	98.6	99.5	99.4	99.2	100	98.5	98.9	96.7
4-Bromofluorobenzene**	92.9	90.2	95.7	92.1	94.9	97	85.9	88.9	80
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.166	0.265	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.912	0.13	2.5	2.49	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics									
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-

Determinand	40ATP04 1.001.00 23/05/2018	40ATP04 1.501.50 23/05/2018	40ATP05 0.500.50 23/05/2018	40ATP06 0.500.50 23/05/2018	40ATP06 0.900.90 23/05/2018	40ATP07 1.001.00 23/05/2018	40ATP07 1.501.50 23/05/2018	40ATP07 2.002.00 23/05/2018	40ATP08 0.500.50 23/05/2018	40ATP08 1.001.00 23/05/2018
Carbon										
Soil Organic Matter (SOM)	1.56	6.72	5.55	7.26	4.41	51.4	8.69	22.1	10.4	4.71
Metals (Solids)										
Arsenic	5.49	6.11	11.4	12.3	5.53	6.59	10.6	11.5	6.96	6.14
Cadmium	2.08	0.319	0.377	0.02	0.221	0.225	0.269	1.57	1.03	0.615
Chromium	96.7	7.64	14.1	19.8	142	24.1	18.2	14	340	87.1
Copper	25.3	27.3	23.1	28.3	15.9	59.3	13.7	26.3	22.1	17.2
Lead	90	30.8	19.6	19.6	27.1	26.2	20.3	285	110	70.6
Mercury	0.14	1.07	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	11.8	18.9	24.9	34.4	11.6	33.8	16.4	25.5	17.5	20.3
Selenium	1.5	1	1	1.17	5.66	2.16	1.47	2.38	6.32	4.49
Vanadium	68.3	17	32.2	26.4	222	67.1	52	106	331	184
Zinc	563	66.8	72.4	69.3	193	92.2	74.7	1260	468	268
TPH Criteria Working Group (TPH CWG)										
Benzene										
Toluene										
Ethylbenzene										
sum of detected mpo xylene by GC										
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.0762	0.0513	0.0921	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.287	0.122	1.21	0.04	0.04	0.04	0.0406	0.04	0.04
Aliphatics >C10-C12	0.04	1.67	0.166	13.4	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.1	4.29	342	1330	2.14	1.53	0.868	3.54	3.76	1.58
Aliphatics >C16-C21	0.1	8.45	313	940	17.2	14.9	4.68	40.9	15.7	14.5
Aliphatics >C21-C35	0.1	27.1	282	1230	262	45.4	19.1	182	88	142
Aliphatics >C35-C44	0.1	3.61	44.5	175	127	15.6	5.23	56.3	49.3	41
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.0414	0.196	0.0923	0.809	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	1.11	0.111	8.91	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	2.5	62	239	0.719	0.1	0.415	2.62	0.979	0.768
Aromatics >EC16-EC21	1.34	5.85	78.3	276	6.66	3.69	2.36	19.2	6.63	6.66
Aromatics >EC21-EC35	9.86	18.3	98.6	315	219	57.9	16.6	125	67.8	89.7
Aromatics >EC35-EC44	2.39	7.66	28.2	72.1	226	61.3	8.73	95.1	68.2	54.2
Aromatics >EC40-EC44	0.1	3	8.14	15.8	99	27	3.53	42.4	32.7	23.3
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	21.4	12	12	146	60	60	12	60	208	60
Acenaphthene	16.2	8	8	294	40	40	8	40	5530	40
Anthracene	42.1	16	45.2	193	80	80	16	80	1700	80
Benz(a)anthracene	127	18.6	21.5	14	321	70	31.9	380	6080	389
Benzo(a)pyrene	112	15	18.6	15	422	75	35.8	405	6210	387
Benzo(b)fluoranthene	149	37.5	34.7	18.1	641	75	62.9	888	10600	660
Benzo(k)fluoranthene	66.9	14	14	14	242	70	17.1	298	3670	237
Benzo(g,h,i)perylene	89.2	24	24	24	360	120	46.7	465	4610	439
Chrysene	126	21	28.9	15.3	386	50	39.8	566	7430	427
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.115	0.115	0.023	0.115	1500	0.115
Indeno(1,2,3-cd)pyrene	85.2	0.018	0.018	0.018	370	90	35.8	455	3890	341
Fluoranthene	260	25.9	47.1	32	413	0.085	41.6	512	8220	390
Fluorene	27.8	10	53.7	300	50	50	10	50	9160	50
Naphthalene	24.3	33.4	39.3	186	45	45	26.2	112	180	47.2
Phenanthrene	135	39.9	126	171	152	75	58.8	280	9380	157
Pyrene										
PAH, Total Detected USEPA 16	1.5	0.199	0.46	1.4	3.69	0.59	0.429	4.89	85.2	3.87
Naphthalene-d8 % recovery**	106	95.3	91.1	78.4	93.6	69	94.7	79	94.2	98.4
Acenaphthene-d10 % recovery**	101	93	94.2	127	96.6	76.7	94.8	81.8	95.4	93.7
Phenanthrene-d10 % recovery**	102	88.7	92.8	90.3	92.9	62.5	95.4	74.8	97.7	92.3
Chrysene-d12 % recovery**	96.1	86.8	82.6	78.1	91.5	54.9	92.9	61.7	103	114
Perylene-d12 % recovery**	89	88.9	72.5	70.7	92.3	43.5	92.2	62	104	88.9
Total Aliphatics >C12-C44	0.1	43.4	981	3670	408	77.5	29.9	283	157	199
Total Aromatics >EC12-EC44	13.6	34.3	267	902	452	123	28.1	242	144	151
Total Aliphatics & Aromatics >C5-C44										
Metals - (Solid)										
Iron	21800	15300	21700	21000	84200	24700	23000	125000	85200	53400
Manganese	3050	208	598	475	12400	2310	2000	4860	14400	9650
Metals - (Liquid)										
Calcium	277000	17000	49000	-	191000	-	68700	-	186000	-
Magnesium	45200	1700	2860	-	23700	-	11400	-	13200	-
Phenols										
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE	0.0718	0.221	0.0951	-	0.135	-	0.0606	-	0.091	-
pH	9.49	8.24	9.43	8.86	8.97	8.18	9.54	10.1	10.2	10.7
Sulphate, Total	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.155	0.177	0.27	-	0.263	-	0.0945	-	0.217	-
Sulphate, Total potentia	0.465	0.531	0.81	-	0.789	-	0.284	-	0.651	-
Sulphate, acid soluble (total)	0.134	0.151	0.349	-	0.24	-	0.0806	-	0.202	-
Cyanide, Total	1.56	1	1	1	1	1	1	197	9.23	1
Exchangeable Ammonia as N	12	12	12	39.9	12	12	12	12	12	12
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	-	-	0.001	-	-	-	0.0045	-
Date of Analysis	31/05/2018	31/05/2018	31/05/2018	-	04/06/2018	-	04/06/2018	-	04/06/2018	-
Analysed By	Barbara Urbanek-Walsh	Renata Bozhkov	Renata Bozhkov	-	Lucy Caroe	-	Lucy Caroe	-	Marcin Magdziarek	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	0.001	-	-	-	0.001	-
Additional Asbestos Components (Using TM048)	-	-	-	-	None	-	-	-	None	-
Analysts Comments	-	-	-	-	N/A	-	-	-	N/A	-
Asbestos Quantification - Total - %	-	-	-	-	0.001	-	-	-	0.0045	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Comments	0	0	0	-	Fibre bundles in soi	-	0	-	Loose fibres in soi	-
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	99.9	108	102	104	105	116	104	106	104	106
Toluene-d8**	101	100	98.6	94.8	95.7	97	97.4	94.5	96.9	97.4
4-Bromofluorobenzene**	97.5	95	90.4	84.2	90.3	81.3	93.3	82.7	92.1	90.1
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40ATP08 1.701.70 23/05/2018	40ATP09 1.001.00 23/05/2018	40ATP09 1.401.40 23/05/2018	40ATP09 1.601.60 24/05/2018	40ATP10 0.300.30 24/05/2018	40ATP11 0.500.50 24/05/2018	40ATP11 1.001.00 24/05/2018	40ATP11 1.501.50 24/05/2018	40ATP12 0.500.50 24/05/2018	40ATP12 0.800.80 24/05/2018	40ATP14 0.500.50 24/05/2018	40ATP14 1.001.00 24/05/2018	40ATP14 1.701.70 24/05/2018	40ATP14 2.502.50 24/05/2018	40ATP15 0.500.50 24/05/2018	40ATP15 0.700.70 24/05/2018	40ATP15 1.001.00 24/05/2018	40ATP01V 3.603.60 23/05/2018
Carbon																		
Soil Organic Matter (SOM)	3.57	6.93	7.95	3.88	4.47	3.45	3.22	0.909	2.98	1.34	4.88	18.4	27.1	1.43	2.57	2.93	3.52	29.3
Metals (Solids)																		
Arsenic	8.11	7.58	10.3	12.6	5.86	9.89	9.43	8.09	4.81	13.8	11.1	20.2	25.8	8.01	9.84	10.4	9.37	11.1
Cadmium	0.711	0.818	2.39	0.412	0.178	0.179	0.201	0.177	0.199	0.646	0.403	0.586	0.543	1.77	1.32	0.456	0.381	0.0557
Chromium	33.1	38.7	9	354	0.9	283	171	39.1	46.4	21.3	323	53.5	18.8	34.7	37.2	12.4	35.1	17.2
Copper	26.2	32.5	15.1	34.1	39.9	150	26.7	8.76	17.4	19	25.4	49.1	43.1	72.9	34	23.2	29.2	20.7
Lead	111	64.8	37	40.4	28.8	29	27.8	13	15.2	30.2	35	52.6	60.9	126	109	31.6	23.1	15.4
Mercury	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	15.3	19.2	38.2	24.1	20.5	16.8	15	10.5	12.7	15.3	23.6	24.4	33.4	12.6	17.3	16.2	33	28.8
Selenium	3.61	3.01	10	5.06	2.87	4.59	5	2.45	4.53	1.09	4.91	2.6	3.19	2.55	1.99	1.14	1	1.97
Vanadium	89.1	113	67.8	266	73.2	453	345	59.4	84.1	30.9	445	74.9	35.6	57.4	44.7	22.9	51.9	32.9
Zinc	488	763	270	358	109	120	144	43	84.4	114	108	212	213	622	425	96.1	143	81.6
TPH Criteria Working Group (TPH CWG)																		
Benzene																		
Toluene																		
Ethylbenzene																		
sum of detected mpo xylene by GC																		
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0442
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.104
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0631	0.04	0.122
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.0943	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.337	0.04	0.0884
Aliphatics >C12-C16	1.59	3.89	4.91	1.82	2.54	3.16	4.72	2.15	2.7	1.3	0.89	1.68	0.1	0.1	0.455	26.2	0.1	0.1
Aliphatics >C16-C21	14.6	25.1	34.6	6.55	7.48	4.55	6.36	4.76	13.5	4.17	1.34	3.59	0.1	4.48	7.92	73.8	0.1	0.1
Aliphatics >C21-C35	175	203	200	56.8	42	13.3	7.1	24.2	138	29.2	14.6	23	0.1	22.1	47.2	391	0.1	0.1
Aliphatics >C35-C44	44.9	69.7	51.4	18.7	12.2	1.47	1.02	7.36	38.3	18.6	7.62	9.09	0.1	7.75	16.7	149	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.51
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0492	0.04	0.231
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.0633	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.224	0.04	0.0598
Aromatics >EC12-EC16	1.46	5.83	3.7	0.601	0.683	1.14	1.82	0.1	0.824	1.1	0.1	1.53	1.9	1.17	0.937	5.61	0.1	0.1
Aromatics >EC16-EC21	12.1	34.4	20.5	3.2	3.84	3.28	4.18	0.1	5.53	2.75	2.44	4.37	5.06	2.26	4.81	42.3	0.531	3.34
Aromatics >EC21-EC35	119	216	108	42	31	14.7	12.1	3.64	75.4	26.7	20.3	36.6	19.3	14.9	37.8	312	13.7	146
Aromatics >EC35-EC44	44.2	85.2	34	22.6	17.7	4.13	4.15	0.1	44.6	23.5	12.2	17.6	9.74	6.43	20.1	137	1.44	10.6
Aromatics >EC40-EC44	16.9	37.1	12.4	8.96	7.18	1.32	1.52	0.1	18	10.1	5.16	7.71	3.67	2.5	8.64	51.4	0.273	1.05
Polyaromatic Hydrocarbons (PAHs)																		
Acenaphthylene	73.8	14.7	12	12	12	12	12	12	86.8	12	12	12	17.4	12	12	12	12	12
Acenaphthene	437	70.3	57.7	8	32.3	15.4	13.1	8	14.1	20.2	8	11.1	13.8	24.7	113	76.5	8	8
Anthracene	2070	119	67.3	21.5	49.4	18.8	16	16	548	16	19.1	34	75.6	31.3	113	65	16	16
Benz(a)anthracene	15900	1380	584	139	636	60.8	37	36.7	1150	35.2	125	135	294	152	132	122	14	14
Benzo(a)pyrene	10500	1570	567	153	1020	48.6	27.6	42	735	26	98.8	111	189	122	101	99.6	15	15
Benzo(b)fluoranthene	27000	2970	1130	222	1220	73.5	49	66.2	1170	45.9	181	169	365	188	157	190	15	15
Benzo(k)fluoranthene	8650	818	333	77.9	457	25.8	14	21.1	343	14.8	47.9	57.2	114	66.7	57.1	56	14	14
Benzo(g,h,i)perylene	9800	1670	572	139	878	42.8	24	49.2	405	33.7	77.8	79.8	113	99.9	96.1	90.3	24	24
Chrysene	19400	2030	821	152	662	78.7	44.3	46.9	1040	31.9	150	165	292	163	152	117	10	10
Dibenzo(a,h)anthracene	3260	402	133	37.3	162	0.023	0.023	0.023	145	0.023	0.023	0.023	49.2	0.023	0.023	32.3	0.023	0.023
Indeno(1,2,3-cd)pyrene	10100	1460	519	144	887	38.2	21.8	44.1	425	27.2	71.7	80.6	103	102	87.7	86.3	0.018	0.018
Fluoranthene	17900	1270	623	192	764	163	80.9	70.3	1910	85.5	131	276	478	306	356	265	0.017	0.017
Fluorene	323	46	34	12.7	19.6	28.8	14.8	10	91.8	13.4	10	43.7	67.2	25.4	60.8	92.2	10	10
Naphthalene	99.9	73.9	42.2	63.1	36	42.3	24.8	16.4	29	13.6	24.5	52.2	103	50.9	52.2	60.6	9	41.4
Phenanthrene	10200	722	360	100	290	143	76.2	41.5	851	66	113	178	328	218	974	290	15	15
Pyrene																		
PAH, Total Detected USEPA 16	169	16.4	6.65	1.62	7.89	0.901	0.454	0.497	10.3	0.486	1.16	1.64	3.03	1.82	2.74	1.87	0.118	0.118
Naphthalene-d8 % recovery**	92.4	108	98.9	99.6	99	95.4	93.2	95.1	96.1	95.4	93.4	86.5	89.7	96.6	98.8	98.5	90.7	104
Acenaphthene-d10 % recovery**	72.8	106	94.8	96.2	95.2	91.2	96.3	92.3	97.1	92.4	98.3	81.3	90	94.7	94.6	96.2	88.4	102
Phenanthrene-d10 % recovery**	92.8	108	97	95.7	95.8	91.3	99.6	93.2	96.9	93	97.2	84.1	91	96	96.2	98.9	89.5	103
Chrysene-d12 % recovery**	96.3	108	97.7	94.3	94.7	86.3	99.6	90.6	100	90.7	94.5	77.9	91.1	98.5	98	98.1	88.4	95.2
Perylene-d12 % recovery**	103	112	98.2	95.3	96.8	84.1	99.9	92.3	100	91.2	93.2	78.2	84.8	99.4	102	98.7	82.7	87.5
Total Aliphatics >C12-C44	236	301	291	83.9	64.3	22.5	19.2	38.5	192	53.2	24.4	37.4	0.1	34.3	72.3	640	0.1	0.1
Total Aromatics >EC12-EC44	177	341	167	68.4	53.3	23.3	22.3	3.64	126	54	35	60	36	24.8	63.7	497	15.6	160
Total Aliphatics & Aromatics >C5-C44																		
Metals - (Solid)																		
Iron	88800	80300	352000	53900	75800	42100	34100	21400	36400	20800	61400	18900	31400	28800	23300	19500	26700	29300
Manganese	4240	4550	5430	8310	3180	8410	8070	2750	6930	994	9180	1350	1480	3200	1960	1330	402	451
Metals - (Liquid)																		
Calcium	143000	-	124000	121000	109000	-	110000	66800	-	213000	-	45800	-	187000	-	162000	-	-
Magnesium	26000	-	20200	28300	13800	-	18800	5130	-	12200	-	8780	-	25500	-	59300	-	-
Phenols																		
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																		
Soluble Sulphate 2:1 extract as SO4 BRE	0.207	-	0.463	0.278	0.0929	-	0.15	0.0668	-	0.322	-	0.223	-	0.436	-	0.116	-	-
pH	10	10.9	11.3	7.92	8.8	9.37	9.32	9.29	9.18	10	9.03	8.37	9.01	11.3	11.3	9.09	6.76	8.23
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.247	-	0.384	0.293	0.302	-	0.372	0.0965	-	0.134	-	0.385	-	0.204	-	0.166	-	-
Sulphate, Total potentia	0.741	-	1.15	0.879	0.906	-	1.12	0.29	-	0.402	-	1.16	-	0.612	-	0.498	-	-
Sulphate, acid soluble (total)	0.209	-	0.579	0.241	0.299	-	0.396	0.138	-	0.315	-	0.24	-	0.563	-	0.22	-	-
Cyanide, Total	1.34	3.72	1	1	1	1	1	1	1	1	1	1	6.12	1	1	1	1	1
Exchangeable Ammonia as N	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	25.7	398	424
Asbestos																		
Asbestos Quantification - Gravimetric - %	0.0033	-	-	-	0.001	-	-	-	-	-	-	0.001	-	0.001	-	0.001	-	-
Date of Analysis	04/06/2018	-	04/06/2018	04/06/2018	04/06/2018	-	04/06/2018	04/06/2018	-	04/06/2018	-	04/06/2018	-	04/06/2018	-	04/06/2018	-	-
Analysed By	Marcin Magdziarek	-	Marcin Magdziarek	Andrzej Ferfecki	Marcin Magdziarek	-	Marcin Magdziarek	Renata Bozhkov	-	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	-	-
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	-	0.0011	-	-	-	-	-	-	0.001	-	0.001	-	0.001	-	-
Additional Asbestos Components (Using TM048)	None	-	-	-	None	-	-	-	-	-	-	None	-	None	-	None	-	-
Analysts Comments	N/C	-	-	-	N/C	-	-	-	-	-	-	N/C	-	N/A	-	N/A	-	-
Asbestos Quantification - Total - %	0.0033	-	-	-	0.0016	-	-	-	-	-	-	0.001	-	0.001	-	0.001	-	-
Chrysotile (White) Asbestos	Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Detected	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Trace	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Comments	Bundle of fibres in soi	-	0	0	Loose fibres in soi	-	0	0	-	0	-	Loose fibres in soil	-	soil containing material typical of asbestos cemen	-	Loose fibres in soil	-	-
Volatile Organic Compounds (VOCs)																		
Dibromofluoromethane**	106	107	107	109	105	112	105	104	104	112	102	99.9	95.5	102	104	100	102	100
Toluene-d8**	97	96	97.4	95.9	97.9	99.3	99.5	97.9	98.7	97.5	96.9	94.9	92.3	97.8	97.9	97.6	100	97.2
4-Bromofluorobenzene**	90.7	89.4	94.1	89.7	92	91.4	97.5	96.5	96.8	90	88.6	86.7	79	96.2	90.9	96.7	98.2	85.9
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.333
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																		
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40ATP02V	40ATP15	40ATP03V	40ATP04V	40ATP05V	40ATP06V	40ATP08V	40ATP10V	40ATP11V	40ATP12V	40ATP14V	40ATP15V	40AD11	40AD11	40AD12	40AD12	40AD15	40AD15	40AD15	40AD21	40AD21	40AD21	40AD21	40AD22	40AD22
	4.004.00	1.201.20	2.602.60	2.102.10	0.800.80	1.201.20	3.003.00	0.500.50	2.002.00	1.101.10	3.003.00	1.301.30	0.500.50	2.602.60	0.500.50	1.001.00	0.800.80	1.301.30	2.002.00	0.500.50	1.001.00	2.002.00	3.003.00	0.400.40	0.900.90
	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2019	28/06/2018	28/06/2018	19/06/2018	19/06/2018	19/06/2018	19/06/2018	19/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018
Carbon																									
Soil Organic Matter (SOM)	2.34	1.76	3.36	61	11.3	1.54	4.5	2.24	6.83	1.11	2.12	8.98	2.48	1.55	1.47	1.47	2.12	5.1	7.62	8.46	1.54	3.74	1.78	4.71	7.46
Metals (Solids)																									
Arsenic	5.56	10.5	9.33	5.02	20.7	12.1	10.2	12.7	14.4	6.34	7.57	13.6	8.79	17.3	7.04	7.35	276	182	6.87	2.68	11.8	8.58	36.2	24	18.2
Cadmium	0.744	0.02	0.271	0.119	0.981	0.171	0.153	0.221	0.423	0.125	0.217	0.642	0.634	1.7	0.884	0.477	1.2	1.17	1.03	0.519	0.27	0.502	1.25	1.98	3.75
Chromium	20.4	34.6	34.7	7.12	32.5	30	36.8	35.8	35.5	27.5	32.6	26.6	123	166	47.2	47.7	337	190	9	5.74	46.8	18.1	9	9.02	19.6
Copper	17.4	14	21.6	14.8	30.3	13.1	27.3	20.3	25.5	10.8	15.4	24	15.1	54.4	13.4	10.1	315	243	83.3	8.39	14	23.1	17.9	40.4	29
Lead	28.9	25.3	24.6	4.2	61.1	26.5	23.8	23.4	38.1	23.4	27.8	103	52.8	157	75.6	24.8	151	99.2	75.6	46.1	15.5	33.6	60.7	187	78.5
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.148	0.147	1.4	0.14	1.4	0.14	1.4	1.4	2.57
Nickel	11.9	36.1	34.7	13.7	28	37.2	37	36.8	28.2	32.7	37.3	15.3	12.9	17.6	10.2	5.86	12	13.1	18.5	6.2	12.5	15.9	43.3	48.2	34
Selenium	3.34	1	1.02	2.27	1	1.06	1.14	1.11	1.28	1	1	1.83	3.28	3.88	1.72	5.89	3.54	2.73	10	2.71	10	3.58	10	10	10
Vanadium	46.6	54.4	56.6	13.9	51	59.8	59.9	61.1	55.1	51.8	55.4	60.5	307	111	44.5	81.5	110	81.3	43.6	32.8	132	63.3	189	145	56.5
Zinc	89.5	101	108	44.9	192	120	113	115	148	110	121	277	121	291	141	1950	3690	1700	304	193	45.6	80.6	136	435	229
TPH Criteria Working Group (TPH CWG)																									
Benzene																									
Toluene																									
Ethylbenzene																									
sum of detected mpo xylene by GC																									
Aliphatics >C5-C6	0.04	0.04	0.01	0.04	0.0524	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.01	0.04	0.0823	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.121	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.01	0.04	0.146	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0559	0.04	0.04	0.04	0.403	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.01	0.04	0.198	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0724	0.04	0.04	0.04	2.84	0.04	0.04	0.04
Aliphatics >C12-C16	0.1	0.1	0.1	2.56	3.68	1.45	0.1	8.02	0.1	0.1	0.1	1.43	0.351	0.1	0.1	1.18	0.363	12.9	2.34	1.68	1.15	92.4	0.1	3.5	3.42
Aliphatics >C16-C21	0.1	0.1	0.1	8.12	0.1	4.7	0.1	5.29	0.1	0.1	0.1	16.1	4.24	0.807	1.15	9.11	6.64	31	5.99	15.2	6.31	94.8	0.1	15	10.2
Aliphatics >C21-C35	0.1	0.1	0.1	467	6.89	41.6	2.86	7.28	3.43	0.1	0.1	54.1	12.2	10.3	8.85	54.6	57.3	107	16.3	261	18.1	38.3	7.02	57.5	33.2
Aliphatics >C35-C44	0.1	0.1	0.1	3.36	0.1	13.9	0.1	0.79	0.1	0.1	0.1	12.8	3.62	2	0.1	18.8	22.8	33.5	3.99	205	5.45	11	1	18.6	8.91
Aromatics >EC5-EC7	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0516	0.04	0.04	0.04	0.04	0.04	0.04	0.0542
Aromatics >EC7-EC8	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.01	0.04	0.0972	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0516	0.04	0.04	0.04	0.269	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.01	0.04	0.133	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0483	0.04	0.04	0.04	1.89	0.04	0.04	0.04
Aromatics >EC12-EC16	1.59	0.1	0.1	2.37	1.97	1.3	0.1	0.1	0.1	0.1	0.1	5.06	0.712	0.1	0.552	0.908	0.812	4.34	0.1	1.86	0.256	11.2	0.1	0.1	1.25
Aromatics >EC16-EC21	7.59	0.1	0.1	12.9	4.5	3.67	0.1	0.1	1.02	0.1	0.771	44.1	5.3	2.48	3.03	3.91	4.73	15	4.11	6.56	3.3	21.3	0.362	3.86	4.51
Aromatics >EC21-EC35	6.57	0.1	3.89	2870	94.3	25.4	6.58	10.7	29	2.19	7.53	103	22.1	14	14.2	32	46.7	51.1	34.2	239	16.9	25.6	5.76	29.5	18.1
Aromatics >EC35-EC44	0.1	0.1	0.1	79.3	13.3	14.2	1.08	5.84	2.77	0.1	1.51	27.3	11.7	6.2	7.64	20.5	37.4	24.1	30.6	272	8.55	13.8	1.03	17	7.85
Aromatics >EC40-EC44	0.1	0.1	0.1	12.2	4.05	5.67	0.1	2.09	0.1	0.1	0.1	8.94	5.33	2.27	3.2	8.96	15.7	9.25	12.8	120	3.28	6.29	0.1	6.52	3.05
Polyaromatic Hydrocarbons (PAHs)																									
Acenaphthylene	12	12	12	12	12	12	12	12	12	12	12	279	60	29.4	26.3	13.8	12	12	12	120	12	12	12	17.3	12
Acenaphthene	37.8	8	8	8	8	54.1	8	8	8	8	8	41.6	40	8	8.75	11.7	8	8	8	80	8	8	8	8	21.1
Anthracene	103	16	16	16	16	16	16	16	16	16	16	663	143	34.2	54.5	37.3	22.2	22.2	16	160	35.3	16	16	30	19.4
Benz(a)anthracene	98.5	14	37.6	14	98.8	45.1	14	14	35.7	14	14	1560	320	198	166	197	66	90.5	37	140	131	45.6	14	106	38.9
Benzo(a)pyrene	73.7	15	36.1	15	96.8	50.4	15	15	32.9	15	15	1200	247	140	117	215	65.5	92.9	39.4	150	112	43.6	15	119	38.7
Benzo(b)fluoranthene	120	15	41.3	15	161	75.9	15	15	77.5	15	15	2050	421	275	223	381	124	114	54.2	169	156	67.9	22.7	141	60.8
Benzo(k)fluoranthene	40.5	14	19.8	14	55.8	24.7	14	14	14	14	14	774	221	89.7	78.1	125	45.1	46	22.6	140	66.8	24	14	69.9	17.7
Benzo(g,h,i)perylene	61.1	24	24	24	72.7	41.8	24	24	24	24	24	884	189	98.7	105	198	62.9	84.9	50.2	0.24	87.1	32.2	24	162	43.1
Chrysene	105	10	29	10	122	50.9	10	10	40.2	10	10	1500	343	202	171	193	82.7	97.3	37.5	103	127	44.6	15.5	113	49.5
Dibenzo(a,h)anthracene	0.023	0.023	0.023	191	0.023	0.023	0.023	0.023	0.023	0.023	0.023	240	0.115	31.5	29.8	46	0.023	0.023	0.023	0.23	0.023	0.023	0.023	26.6	0.023
Indeno(1,2,3-cd)pyrene	56.2	0.018	0.018	260	75.3	38.3	0.018	0.018	0.018	0.018	0.018	852	171	111	102	142	41	96.5	40.5	182	103	31.5	0.018	166	34.4
Fluoranthene	285	0.017	46.6	0.017	247	63.6	0.017	0.017	81.2	0.017	0.017	3030	677	374	425	363	131	172	66.8	181	252	67	23	175	89
Fluorene	36	10	10	10	10	21.4	10	10	10	10	10	190	50	13.9	23.1	10	10	12.1	10.5	0.1	14.7	10	10	10	22.6
Naphthalene	39.9	9	9	9	9	42.9	9	9	9	9	9	467	103	26.7	78.4	55.4	62.3	113	16.2	90	39	21.1	32	55.9	95.5
Phenanthrene	345	15	15	15	106	60.1	15	15	41.6	15	15	1610	344	170	241	155	81.2	98.6	73.3	150	135	48	34.4	118	166
Pyrene												2.41	0.541	0.228	0.282	0.35	0.131	0.179	0.0713	0.179	0.19	0.0578	0.0236	0.166	0.0728
PAH, Total Detected USEPA 16	1.62	0.118	0.254	0.45	1.23	0.632	0.118	0.118	0.372	0.118	0.118	17.8	3.72	2.02	2.13	2.48	0.915	1.22	0.52	1.18	1.45	0.483	0.151	1.46	0.77
Naphthalene-d8 % recovery**	99.5	103	98.9	98.4	95.6	90.7	91.9	86.4	92.9	91.9	83.3	106	104	91.9	92.8	103	99.9	93.5	88.4	82	85.5	98.5	91.4	87.2	83.6
Acenaphthene-d10 % recovery**	94.5	98.1	98.6	95.1	97.4	89.6	92	86	93.1	94.8	85.2	111	106	89.7	86.2	111	96.3	98.7	92.4	83.5	88.5	94	90.6	92.8	83.8
Phenanthrene-d10 % recovery**	94.3	96.6	102	94.5	101	98	90.6	84.9	94.9	97.6	86.5	113	114	88.4	90.8	121	99.7	97.1	98.4	86.5	91.5	91.6	91.3	95.2	83.5
Chrysene-d12 % recovery**	92.5	88.5	96.9	99.5	99.1	102	90.5	82.6	96.2	97.7	86.9	87	87.3	84	80.1	101	81.7	78.6	79	71.8	76.5	94.4	78.1	71.8	62.8
Perylene-d12 % recovery**	94.4	86.4	91.7	94.5	94.2	102	91.2	88.3	96.2	104	88.1	84.4	85.4	82.3	79.6	102	78.8	76.7	78.3	70	75.3	97	74	70.4	54.4
Total Aliphatics >C12-C44	0.1	0.1	0.1	481	10.6	61.7	2.86	21.4	3.43	0.1	0.1	84.5	20.4	13.1	10	83.7	87.1	184	28.7	483	31	237	8.03	94.5	55.7
Total Aromatics >EC12-EC44	15.8	0.1	3.89	2970	114	44.6	7.66	16.5	32.8	2.19	9.81	179	39.8	22.7	25.5	57.3	89.7	94.5	68.9	519	29	71.9	7.15	50.3	31.7
Total Aliphatics & Aromatics >C5-C44												264	60.2	35.8	35.5	141	177	279	97.5	1000	60.1	314	15.2	145	87.4
Metals - (Solid)																									
Iron	19300	24900	31300	12200	22200	41800	32000	31000	28400	21200	30400	55700	38800	32800	26500	32100	71300	45500	76300	30900	56200	20400	443000	340000	95100
Manganese	3600	381	772	274	270	862	215	503	262	670	513	3510	7490	5790	2800	7500	6130	4770	1940	3660	6170	3480	4530	9240	3180
Metals - (Liquid)																									
Calcium	-	-	-	-	-	-	-	-	-	-	-	76000	-	65600	101000	-	27900	-	-	-	-	85900	-	113000	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	12300	-	8920	12000	-	7930	-	-	-	-	18500	-	13900	-
Phenols																									
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0113	0.01	0.0111	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.054	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0111	0.01	0.01	0.018	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																									
Soluble Sulphate 2:1 extract as SO4 BRE	-	-	-	-	-	-	-	-	-	-	-														
pH	10.5	7.73	7.37	7.94	7.66	9.8	7.02	7.19	7.09	9.18	7.78														
Sulphate, Total	-	-	-	-	-	-	-	-	-	-	-														
Sulphur, Total	-	-	-	-	-	-	-	-	-	-	-														
Sulphate, Total potentia	-	-	-	-	-	-	-	-	-	-	-														
Sulphate, acid soluble (total)	-	-	-	-	-	-	-	-	-	-	-														
Cyanide, Total	1	1	1	1	1	1	1	1	1	1	1														
Exchangeable Ammonia as N	12	197	405	145	293	256	272	261	218	33.2	151														
Asbestos																									
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	-	-	14/06/2018	-	14/06/2018	13/06/2018	-	13/06/2018	-	-	-	-	27/06/2018	-	27/06/2018	-
Analysed By	-	-	-	-	-	-	-	-	-	-	-	Andrzej Ferfecki	-	Andrzej Ferfecki	James Richards	-	James Richards	-	-	-	-	James Richards	-	James Richards	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	-	-	-	-														
Analysts Comments	-	-	-	-	-	-	-	-	-	-	-														
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Detected	-
Comments	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0	-	-	-	-	0	-	0	-
Volatile Organic Compounds (VOCs)																									
Dibromofluoromethane**	106	109	121	103	94.4	105	108	104	106	107	104	104	101	105	110	106	106	107	112	103	104	103	106	106	105
Toluene-d8**	99.4	99.1	98.3	93.7	93.8	99.3	97.1	98.5	96.6	92.9	98.8	96.9	96.2	98.2	97.4	98.3	97.5	94.2	98.6	98	99	91.2	96	95.9	96.4
4-Bromofluorobenzene**	92.1	101	99.4	77.9	74.7	96.1	94.1	95.7	92.8	83.1	92.6	95.4	80	100	92.5	97.4	96	97.5	89.5	99.1	98.8	73.8	87.6	88.6	80.6
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.502
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.23
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.42
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.934	0.425	0.13	0.13	0.13	0.13	0.13	0.161	0.13	0.13	27.7
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	4.15
Subcontracted: Inorganics																									
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AD22 2.002.00 05/06/2018	40AD22 2.502.50 05/06/2018	40AD24 0.500.50 05/06/2018	40AD24 1.001.00 05/06/2018	40AD24 2.002.00 05/06/2018	40AD11V 0.000.00 28/06/2018	40AD12V 1.501.50 19/06/2018	40AD22V 3.003.00 05/06/2018	40AD24V 2.402.40 05/06/2018	40AE16 0.400.40 20/06/2018	40AE16 1.001.00 20/06/2018	40AE16 1.501.50 20/06/2018
Carbon												
Soil Organic Matter (SOM)	1.84	4.09	9.36	1.67	8.45	5.4	1.81	1.17	4.43	2.29	5.91	8.1
Metals (Solids)												
Arsenic	22.6	9.27	9.5	12.9	18.3	11.2	17.6	15.3	7.55	9.81	10.7	11.8
Cadmium	1.48	0.622	0.415	0.332	0.21	0.273	6.42	0.0366	1.49	0.376	0.723	0.263
Chromium	9	18.3	14.4	32.3	38.4	42	31.2	25.4	37.8	17.8	14.8	6.82
Copper	22.8	16.6	28.6	14	28.4	37.4	29.4	11.7	112	19.9	27.8	14.8
Lead	75.8	59	32.5	53.7	44.7	14.4	89.5	28.6	187	26.1	59.1	16.7
Mercury	1.4	1.4	0.14	1.4	0.14	0.14	1.4	0.14	1.4	0.14	0.14	0.14
Nickel	27.9	13.6	41.8	33.6	26.9	43.5	45.2	37	105	13.9	24.1	16.4
Selenium	10	10	1.94	10	1	2.05	10	1	10	3.95	3.3	1
Vanadium	116	63.9	40.2	59.7	54.2	62.9	57.4	51.8	92.8	53.9	39.2	15.8
Zinc	336	139	91.5	129	148	107	403	105	616	103	209	58.9
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.0512	0.04	0.04	0.04	0.04	0.049	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.139	0.04	0.0533	0.04	0.04	0.0887	0.04	0.04	0.04	0.0833	0.04	15.9
Aliphatics >C10-C12	0.168	0.04	0.287	0.078	0.04	0.0734	0.04	0.04	0.04	0.942	0.04	23
Aliphatics >C12-C16	4.69	19.7	2.74	6.16	0.441	0.1	0.1	0.1	4.53	92.6	40.1	20.2
Aliphatics >C16-C21	13.8	34.4	7.37	10.9	0.1	0.1	0.1	0.1	20.2	136	68.9	30.4
Aliphatics >C21-C35	20.3	133	19.7	8.96	1.9	0.1	0.1	0.1	113	42.8	48.5	51.2
Aliphatics >C35-C44	2.66	72.9	2.75	1.58	5.9	0.1	0.1	0.1	53.7	11.6	11	10.3
Aromatics >EC5-EC7	0.04	0.129	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.0952	0.04	0.052	0.04	0.04	0.0597	0.04	0.04	0.04	0.0655	0.04	13.5
Aromatics >EC10-EC12	0.112	0.04	0.192	0.052	0.04	0.049	0.04	0.04	0.04	0.628	0.04	15.3
Aromatics >EC12-EC16	0.1	4.21	2.71	1.24	0.637	0.1	0.1	0.1	1.95	9.17	6.39	6.85
Aromatics >EC16-EC21	4.14	22.7	3.98	3.49	3.67	0.1	1.13	0.1	10.3	49.8	25.9	33.8
Aromatics >EC21-EC35	9.19	167	24.4	8.48	68.7	7.17	3.23	0.1	112	35.8	37.4	71.5
Aromatics >EC35-EC44	1.88	117	7.14	5.55	9.39	5.01	6.87	0.1	113	18	17.2	32.4
Aromatics >EC40-EC44	0.1	49.7	2.23	2.21	1.32	2.35	3.75	0.1	46.9	7	6.41	7.52
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	12	60	45.2	18.3	12	12	12	12	60	12	33.1	12
Acenaphthene	8	40	16.6	8	31.6	8	8	8	40	18.9	28.1	15.3
Anthracene	16	80	16	16	16	16	16	16	186	16	96.6	16
Benz(a)anthracene	14	70	14	19.9	30.7	14	14	14	271	49.8	226	27
Benzo(a)pyrene	15	75	15	15	32.4	15	15	15	243	45.5	203	17.9
Benzo(b)fluoranthene	24.2	75	15	24.2	51.9	15	15	15	406	78.8	317	15
Benzo(k)fluoranthene	14	70	14	14	14	14	14	14	172	29.3	121	14
Benzo(g,h,i)perylene	24	120	24	24	24	24	24	24	284	55.1	122	24
Chrysene	17.5	50	10	16.8	36.3	10	10	10	261	56	181	35.9
Dibenzo(a,h)anthracene	0.023	0.115	0.023	0.023	0.023	0.023	0.023	0.023	0.115	0.023	39.5	0.023
Indeno(1,2,3-cd)pyrene	0.018	90	0.018	0.018	41.1	0.018	0.018	0.018	250	45.5	118	0.018
Fluoranthene	33	0.085	30.1	46.4	62.2	0.017	0.017	0.017	678	122	390	99.3
Fluorene	10	50	38	41	10	10	10	10	50	10	50	28.7
Naphthalene	94.2	163	1450	187	9	9	9	9	157	166	551	6970
Phenanthrene	44.2	75	55.9	129	37	15	15	15	368	31.7	282	123
Pyrene	0.0324	0.075	0.0299	0.0597	0.0504	0.015	0.015	0.015	0.547	0.107	0.338	0.0677
PAH, Total Detected USEPA 16	0.245	0.59	1.67	0.542	0.374	0.118	0.118	0.118	3.82	0.806	3.1	7.39
Naphthalene-d8 % recovery**	85.9	98.5	91.6	83	100	88.6	89.9	85.2	93.7	94.9	92.4	91
Acenaphthene-d10 % recovery**	89.9	95.5	93.7	87.3	93.3	85.7	90.6	87.9	93.8	89.6	88	95.9
Phenanthrene-d10 % recovery**	90.6	88.4	96.2	93.2	95.9	91.2	95.1	93.3	99.4	86.6	89.3	84.4
Chrysene-d12 % recovery**	71.7	99.4	77.5	76.3	96.2	79.4	88.5	77.9	87.4	71.8	70	43.6
Perylene-d12 % recovery**	70.6	99.9	73.2	76.2	101	84.2	91.5	76.4	89.4	72.3	68.9	25
Total Aliphatics >C12-C44	41.5	260	32.6	27.6	8.23	0.1	0.1	0.1	191	283	169	112
Total Aromatics >EC12-EC44	15.2	311	38.2	18.8	82.4	12.2	11.2	0.1	237	113	86.9	145
Total Aliphatics & Aromatics >C5-C44	57.3	571	71.3	46.5	90.6	12.5	11.2	0.1	428	397	255	324
Metals - (Solid)												
Iron	385000	60600	19700	50300	22700	32600	49300	27900	47100	33700	23300	14500
Manganese	10600	3310	409	1300	182	547	390	291	3690	3010	3050	499
Metals - (Liquid)												
Calcium	218000	-	145000	-	-	159000	174000	-	118000	-	-	-
Magnesium	8150	-	9440	-	-	17900	29800	-	19300	-	-	-
Phenols												
Phenol	0.01	0.0108	0.0109	0.0113	0.088	0.0113	0.0112	0.179	0.011	0.01	0.01	0.01
Cresols	0.01	0.01	0.0109	0.158	0.01	0.01	0.01	0.0112	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.113	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.283	0.088	0.035	0.035	0.19	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE												
pH												
Sulphate, Total												
Sulphur, Total												
Sulphate, Total potentia												
Sulphate, acid soluble (total)												
Cyanide, Total												
Exchangeable Ammonia as N												
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	0.001	-	-	-	-	-	-
Date of Analysis	13/06/2018	-	14/06/2018	-	-	-	-	-	-	-	-	-
Analysed By	Andrzej Ferfecki	-	Andrzej Ferfecki	-	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	0.001	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)												
Analysts Comments												
Asbestos Quantification - Total - %	-	-	-	-	-	0.001	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
Comments	0	-	0	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	106	105	105	105	109	105	105	108	110	106	103	108
Toluene-d8**	97.3	96.6	99.3	98.1	98.4	98.2	99.4	100	96.3	98.9	97.7	98.5
4-Bromofluorobenzene**	93.2	91.7	97.2	89.4	97.5	90.8	93	102	92.9	90	96.8	100
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.572	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.126	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.212	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.23	0.16	0.13	0.928	0.13	0.13	0.13	1.25	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.572	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	40AE16 2.002.00 20/06/2018	40AE25 0.500.50 05/06/2018	40AE25 1.001.00 05/06/2018	40AE25 1.401.40 05/06/2018	40AE25 2.002.00 05/06/2018	40AE26 0.5 30/05/2018	40AE26 1.5 30/05/2018	40AE27 0.5 30/05/2018	40AE27 1 30/05/2018	40AE27 1.5 30/05/2018	40AE16V 2.802.80 20/06/2018	40AE25V 2.802.80 05/06/2018
Carbon												
Soil Organic Matter (SOM)	4.6	6.1	8.15	5.28	2.97	3.59	4.47	3.33	4.6	1.03	1.53	0.965
Metals (Solids)												
Arsenic	7.16	6.92	14.8	7.72	4.65	7.84	7.41	8.01	10.4	17.4	12.8	10.3
Cadmium	2.53	1.04	1.68	0.404	1.09	2.26	1.49	1.02	0.988	0.323	0.0661	0.208
Chromium	472	255	141	8.46	323	281	176	250	61.8	28	30.4	26.6
Copper	19.5	18.5	33	21.8	25.5	27.2	18.7	52	25.7	10.5	14.5	10.5
Lead	124	98.4	284	20.8	63.5	265	217	86.7	93.6	23.3	27.5	28.8
Mercury	1.4	1.4	1.4	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	14.5	9.53	17.6	24.8	9.42	19.6	11.1	14.4	16.6	38.5	38.2	27.3
Selenium	11.1	10	10	1.13	7.33	10	5.77	6.77	4.28	1	1	1
Vanadium	381	233	185	20.8	318	303	279	333	133	53.6	55	52.2
Zinc	252	296	681	53	256	640	784	201	313	109	104	105
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0409	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	3.31	0.04	0.04
Aliphatics >C10-C12	0.0842	0.0464	0.0912	0.04	0.04	0.228	0.04	0.04	0.04	3.58	0.04	0.04
Aliphatics >C12-C16	3.74	5.37	1.77	6.02	11	5.57	4.44	16.4	21.6	0.1	0.1	0.606
Aliphatics >C16-C21	47.7	24.2	9.4	16.4	29.9	21.2	18	44	47.1	0.1	0.1	1.45
Aliphatics >C21-C35	52.6	84.1	30.7	57	157	473	132	209	235	7.21	0.1	9.2
Aliphatics >C35-C44	12.9	20.8	7.89	9.83	46.5	214	55.7	63	89.8	2.56	0.1	1.47
Aromatics >EC5-EC7	0.04	0.04	0.184	0.826	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.0424	0.0565	0.04	0.04	0.04	0.04	0.04	2.93	0.04	0.04
Aromatics >EC10-EC12	0.0557	0.04	0.0608	0.04	0.04	0.151	0.04	0.04	0.04	2.39	0.04	0.04
Aromatics >EC12-EC16	1.8	2.7	1.95	1.42	0.1	3.64	1.65	0.1	1.86	0.1	0.1	0.1
Aromatics >EC16-EC21	21.4	14.8	7.63	6.04	5.94	15	10.3	5.01	14.9	0.1	0.1	0.1
Aromatics >EC21-EC35	138	93.5	24.8	21.4	40	135	80.1	38.1	208	0.884	1.73	3.92
Aromatics >EC35-EC44	39.8	48.8	7.4	2.84	7.11	77.5	43.4	8.85	94.8	0.1	0.675	1.17
Aromatics >EC40-EC44	13.8	20.3	2.6	0.283	1.27	30.1	17.6	2.33	38.6	0.1	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	22.5	52.7	41.9	12	45.1	22.2	60	28.7	28	12	12	12
Acenaphthene	96.9	49.8	23.1	8	129	178	40	107	25.9	8	8	8
Anthracene	178	139	89.6	71.7	461	127	80	457	55.6	16	16	16
Benz(a)anthracene	1420	732	241	14	1520	284	405	933	445	14	14	18.5
Benzo(a)pyrene	1880	1100	1950	15	1270	306	439	757	490	15	15	15
Benzo(b)fluoranthene	2150	1350	2180	18.6	1930	433	499	1090	703	15	15	27.6
Benzo(k)fluoranthene	694	477	814	14	835	173	237	399	295	14	14	14
Benzo(g,h,i)perylene	1480	1200	1490	24	1040	260	376	456	364	24	24	24
Chrysene	1380	793	488	21.2	1380	320	468	951	534	10	10	22.3
Dibenzo(a,h)anthracene	282	191	257	0.023	225	57.1	0.115	108	77.3	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	1660	1280	1630	0.018	952	275	326	465	362	0.018	0.018	0.018
Fluoranthene	2190	1110	376	30.6	3110	640	754	2110	673	0.017	0.017	36.1
Fluorene	48.3	51.9	43	10	87	144	50	131	30.9	10	10	10
Naphthalene	215	239	958	182	226	203	213	123	87.6	414	9	9
Phenanthrene	768	540	177	75.3	2780	540	353	1330	294	15	15	27.1
Pyrene	2.3	1.12	0.608	0.0301	2.88	0.595	0.833	1.9	0.676	0.015	0.015	0.0339
PAH, Total Detected USEPA 16	16.8	10.4	11.4	0.43	18.9	4.56	4.91	11.3	5.14	0.414	0.118	0.166
Naphthalene-d8 % recovery**	87.8	87.5	32.2	95.1	90.9	88.8	104	89.5	89.1	87.9	78	79.4
Acenaphthene-d10 % recovery**	91.7	96.3	31.1	92.8	98.1	92	93.1	84.5	92.6	79.8	78.4	74.5
Phenanthrene-d10 % recovery**	98.3	103	29.5	86.9	108	93.6	99.9	95.3	99.1	82	82.9	76.2
Chrysene-d12 % recovery**	85.8	83.2	25.3	46.1	108	77.5	95.3	106	109	75.8	72.6	79.5
Perylene-d12 % recovery**	85.1	81.8	23.6	26.8	102	74.4	86.9	96.5	102	78.3	70.5	71.7
Total Aliphatics >C12-C44	117	135	49.7	89.3	245	714	210	332	393	9.77	0.1	12.7
Total Aromatics >EC12-EC44	201	160	41.7	31.7	53	231	135	52	320	0.884	2.41	5.09
Total Aliphatics & Aromatics >C5-C44	318	294	91.8	122	298	945	346	384	713	22.9	2.41	17.8
Metals - (Solid)												
Iron	166000	105000	211000	22100	106000	107000	111000	113000	75000	33600	27900	30300
Manganese	30900	13400	14500	375	21700	15300	15300	20000	9610	448	351	1660
Metals - (Liquid)												
Calcium	-	89100	-	111000	-	-	138000	100000	154000	171000	-	51500
Magnesium	-	11300	-	24400	-	-	16700	14000	10200	30500	-	8920
Phenols												
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0105	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.023	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE												
pH												
Sulphate, Total												
Sulphur, Total												
Sulphate, Total potentia												
Sulphate, acid soluble (total)												
Cyanide, Total												
Exchangeable Ammonia as N												
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	27/06/2018	-	28/06/2018	-	-	04/07/2018	03/07/2018	28/06/2018	27/06/2018	-	27/06/2018
Analysed By	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	-	Lucy Caroe	James Richards	Andrzej Ferfecki	Andrzej Ferfecki	-	Lucy Caroe
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)												
Analysts Comments												
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected
Fibrous Tremolite	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected
Fibrous Actinolite	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected	Trace	-	Not Detected
Comments	-	0	-	0	-	-	0	0	0	0	-	0
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	108	109	109	110	105	103	113	112	109	106	106	109
Toluene-d8**	98	98.4	97.5	100	98.6	94.1	98.5	98.3	96.3	95.2	90.2	98.5
4-Bromofluorobenzene**	97.4	91.6	87.2	92.3	89.6	93.7	87.6	83.7	88.6	85.3	74.7	90.6
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	1.28	1.87	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	1.12	1.56	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	1.18	1.77	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	0.74	1.09	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	1.23	1.28	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	11.5	15.6	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	12.6	16.7	-

<u>Glan Lyn Commercial Soils Data</u>

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AE26V 2.5 30/05/2018	40AE27V 2.3 30/05/2018	40AF10 0.400.40 19/06/2018	40AF10 0.800.80 19/06/2018	40AF10 1.201.20 19/06/2018	40AF10 1.401.40 19/06/2018	40AF12 0.500.50 28/06/2018	40AF12 1.001.00 28/06/2018	40AF12 2.302.30 28/06/2018	40AF13 0.800.80 19/06/2018	40AF14 0.300.30 19/06/2018	40AF14 0.700.70 19/06/2018	40AF14 1.201.20 19/06/2018	40AF16 0.600.60 20/06/2018	40AF16 1.601.60 20/06/2018	40AF16 2.002.00 20/06/2018	40AF19 1.001.00 03/07/2018	40AF19 2.002.00 03/07/2018	40AF26 0.7 30/05/2018	40AF26 1.3 30/05/2018	40AFG18 1.001.00 03/07/2018	40AFG18 2.002.00 03/07/2018	40AFG18V 2.902.90 03/07/2018	40AF10V 2.202.20 19/06/2018
Carbon																								
Soil Organic Matter (SOM)	1.32	2.19	1.47	1.12	1.26	3.55	2.26	14.2	2.91	10.8	17.6	7.34	1.29	3.17	4.1	5.69	2.59	2.69	19.1	2.64	9.02	3.72	8.19	12.7
Metals (Solids)																								
Arsenic	14.3	9.95	9.83	9.69	6.15	7.04	24.9	14.7	8.66	13.8	10.2	9.09	8.58	9.31	10.5	13	5.47	1.79	11.5	17.5	14	12.5	14.2	20
Cadmium	0.298	0.935	0.269	0.277	0.191	0.2	0.02	0.2	0.679	5.38	6.58	1.13	1.28	0.666	2.95	0.742	0.02	0.199	1.22	0.0848	0.2	0.02	0.732	0.575
Chromium	39.1	23.7	40.9	41.3	20.7	229	66.7	9	16.5	514	415	100	3.59	9.81	13.8	13.1	81.5	16.4	43	12	28.7	29.5	41.3	37.7
Copper	12.1	15	9.72	15.4	12.4	26.2	12.2	22.1	11.5	14.5	14	25.1	6.84	21.4	24.9	35	1.4	6.1	23.9	24.3	30.8	13.3	34.7	29.6
Lead	31.7	31.1	22.7	19.9	8	86.2	37	231	60.4	559	512	113	93.5	56.1	154	78.3	6.39	12.9	131	23	48.8	26.4	54.3	50.9
Mercury	0.14	1.4	0.14	0.14	0.14	1.4	0.14	1.4	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14
Nickel	35.3	21.1	12.5	18.4	13.9	17.4	12.4	20.5	13.3	18.6	21.5	20.6	8.85	18.1	29.3	28	32.9	4.35	13.4	41.5	37.8	34.4	34.7	29.3
Selenium	1.15	10	4.91	4.1	5.11	10	3	10	1.09	10.1	10	2.7	1	1	1.32	1	1.34	4.84	4.16	1	10	1	1.85	1
Vanadium	72.9	67.4	112	253	39.5	140	143	84.9	26.6	392	345	101	13.2	24.4	28.7	50.4	184	64.7	275	35.2	108	50.3	61.3	63.4
Zinc	132	87.9	110	64.5	43.7	207	121	449	229	1730	2130	418	90.9	341	201	416	65.5	84.8	285	101	176	90.9	188	166
TPH Criteria Working Group (TPH CWG)																								
Benzene																								
Toluene																								
Ethylbenzene																								
sum of detected mpo xylene by GC																								
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.0978	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.429	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0663	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.0585	0.04	0.04	0.04	0.158	0.04	0.04	0.04	0.04	0.04	0.062	0.04	0.04	0.0477	0.0413	0.04	0.716	0.04	0.04	0.04	0.04	0.04	0.04	0.0504
Aliphatics >C10-C12	0.14	0.04	0.04	0.0425	0.16	0.04	0.04	0.0441	0.04	0.04	0.122	0.04	0.0516	0.0758	0.0588	0.04	0.762	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.791	5.11	1.11	2.9	2.15	4.1	12.2	15.3	1.53	4.12	3.33	0.412	2.58	9.6	3.18	5.53	5.01	0.736	4.6	0.1	2.01	0.1	0.1	0.29
Aliphatics >C16-C21	3.02	15.4	2.28	6.34	6.04	29.6	37.9	52.5	4.82	23.7	23.2	3.5	5.22	16.1	6.02	18.5	7.83	5.52	24.6	0.893	8.93	1.58	0.1	1.01
Aliphatics >C21-C35	12.4	49	12	20.5	30	287	78.9	141	27.6	83.7	77.7	18.1	10.9	25.5	10.8	38	8.87	66.7	124	15.1	79.2	1.81	6.17	16.7
Aliphatics >C35-C44	4.25	15.3	12.7	3.7	10.6	318	23	50.6	11.2	10	8.67	4.5	3.19	6.29	1.65	7.27	1.24	35.9	38.9	2.02	14	0.1	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.108	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.0505	0.04	0.04	0.04	0.328	0.04	0.04	0.04	0.04	0.04	0.0573	0.04	0.04	0.052	0.066	0.04	6.37	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.0931	0.04	0.04	0.04	0.107	0.04	0.04	0.04	0.04	0.04	0.0807	0.04	0.04	0.0509	0.04	0.04	0.508	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	1.87	1.21	3.01	0.1	3.99	2.87	5.2	1.67	4.78	4.38	1.12	0.752	2.72	1.5	2.05	4.25	0.1	1.57	0.713	2.23	0.1	0.16	0.1
Aromatics >EC16-EC21	1.34	6.27	2.72	3.75	0.1	22.1	12.7	19.7	5.19	21.9	20.9	3.31	1.98	5.57	3.87	9.5	6.03	3.82	11.3	1.8	7.62	0.1	1.2	1.22
Aromatics >EC21-EC35	8.67	22.7	13.6	9.37	5.72	598	36.7	57.5	28.1	43.6	37.2	14.2	5.83	12.8	11.8	30.8	4.86	64.2	87.1	7.6	44.4	7.87	47.4	117
Aromatics >EC35-EC44	6.1	18	24.2	0.1	0.848	754	21.1	57.8	16.1	8.85	5.53	7.37	1.41	2.81	1.44	17.3	1.28	65.1	42	1.72	18.3	1.26	6.57	12.5
Aromatics >EC40-EC44	2.76	8.33	12.2	0.1	0.1	324	8.6	28.4	6.78	3.2	2	2.69	0.1	0.1	0.1	7.13	0.1	28.4	16	0.1	6.84	0.1	1.68	3.58
Polyaromatic Hydrocarbons (PAHs)																								
Acenaphthylene	12	12	12	12	12	60	12	12	12	23.1	14.3	12	12	12	12	24	12	32	13.9	12	12	12	12	12
Acenaphthene	19.9	8	8	8	8	96.8	36.7	796	8	37.5	32.9	8	8	8	8	20.7	49.9	39.8	32.7	8	8	8	8	8
Anthracene	38.1	16	16	16	19.3	80	28.9	218	25.2	194	161	23.1	16	18.1	16	95	36.5	73.9	56.4	16	38.5	16	16	16
Benz(a)anthracene	105	63.9	35.3	38.6	86.7	288	39.5	65.8	36.1	171	173	30.6	14	42	19.7	266	14	682	474	18.8	90.4	14	14	45.5
Benzo(a)pyrene	101	71.4	28	35.5	79.2	298	30.2	41.7	31.2	79	58.9	15	15	38.7	23.9	208	15	976	551	15	94	15	15	48.1
Benzo(b)fluoranthene	133	140	49.3	47.4	148	433	61.6	88.4	66.7	262	190	41.6	15	88.5	35	329	15	1230	1260	26.5	142	15	36.8	105
Benzo(k)fluoranthene	45.8	36.7	20.7	16	56.6	165	22.1	25.8	20.3	88	42.9	17.8	14	23.9	14	125	14	427	414	14	58	14	14	28
Benzo(g,h,i)perylene	72.9	73.7	33.1	31.3	84.2	256	32	41.4	31.9	60.3	43.3	24	24	47.4	25.3	149	24	759	685	24	84.2	24	24	51
Chrysene	111	82.8	41.8	48.1	112	336	64.5	97.4	61.1	279	184	40.8	10	47	27.8	253	10	754	675	23.2	114	10	26.9	75.7
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.115	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.046	0.023	131	87	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	64.8	89.2	26	28.9	64.4	214	27.8	28.9	0.018	34.7	0.018	0.018	0.018	51.1	0.018	124	0.018	732	602	0.018	61.5	0.018	0.018	64.5
Fluoranthene	219	153	78.5	74	182	473	114	430	99	994	959	105	0.017	86.5	41.6	781	49.3	1050	802	47.5	210	0.017	43.4	112
Fluorene	21.1	10	10	10	21.1	53.9	33.5	527	10	104	95.1	12.7	10	17.4	10	0.02	59.5	20.4	27.9	10	11.9	10	10	10
Naphthalene	32	34.5	89	53.1	72.9	124	75.1	250	58.6	300	253	40.8	9	105	32.9	72.5	169	34.4	76.9	11.8	40.6	9	9	17
Phenanthrene	139	112	86.6	66.2	159	307	144	1080	152	1200	995	131	27.3	147	101	324	105	356	330	21.3	158	15	15	71.2
Pyrene	0.206	0.14	0.063	0.0608	0.157	0.389	0.112	0.367	0.0844	0.805	0.81	0.0928	0.015	0.0695	0.0445	0.701	0.0365	1.07	0.811	0.0455	0.197	0.015	0.0348	0.0862
PAH, Total Detected USEPA 16	1.31	0.998	0.551	0.5	1.24	3.43	0.822	4.05	0.666	4.64	4.01	0.536	0.118	0.782	0.352	3.45	0.506	8.37	6.9	0.195	1.3	0.118	0.142	0.704
Naphthalene-d8 % recovery**	81.7	89.8	95.7	89.1	99.6	110	102	98.3	103	98	105	90.2	93	92.7	87.1	90.8	89.3	89.9	85.5	88.7	94.1	86.4	94.8	102
Acenaphthene-d10 % recovery**	85	91.2	86.9	87	95	106	100	100	108	102	109	78.1	97.9	100	92.3	86.2	91.1	93.1	88.3	86.4	92	84.1	97.7	95.2
Phenanthrene-d10 % recovery**	87.5	91.1	90.1	85.4	102	100	105	94.9	114	97.2	103	88.9	102	98.3	92	97.6	97.1	98.6	94.6	95.3	101	97.7	100	99.3
Chrysene-d12 % recovery**	77	81.5	77.9	78.9	91.8	93.4	87.3	69.8	102	49.1	58.4	70.1	95.2	86.2	76.2	90.1	89.8	113	84.8	92.7	90.3	93.4	94.4	102
Perylene-d12 % recovery**	77	85	77.3	75.2	90.7	91.2	78.3	58.6	92.4	27.8	30.6	57.7	99.6	75.7	74.2	86.6	87.7	107	75	93.2	81.9	94.1	100	106
Total Aliphatics >C12-C44	20.4	84.9	28.1	33.4	48.9	638	152	259	45.1	122	113	26.5	21.9	57.4	21.7	69.4	22.9	109	192	18	104	3.39	6.17	18
Total Aromatics >EC12-EC44	16.1	48.9	41.7	16.1	6.57	1380	73.4	140	51.1	79.1	67.9	26	9.97	23.9	18.6	59.6	16.4	133	142	11.8	72.5	9.14	55.3	131
Total Aliphatics & Aromatics >C5-C44	36.9	134	69.8	49.6	56.8	2020	226	399	96.2	201	181	52.6	31.9	81.5	40.4	129	47.8	242	334	29.9	177	12.5	61.5	149
Metals - (Solid)																								
Iron	44100	78800	24500	31800	22100	88100	38900	207000	20000	187000	204000	61600	23600	21700	23900	63300	44900	28600	243000	30600	123000	29300	25900	23500
Manganese	1540	4250	5060	6500	3940	7300	6170	5310	1360	18100	16900	4490	1200	632	803	2130	3520	5250	14300	580	3810	305	498	313
Metals - (Liquid)																								
Calcium	153000	-	67300	77900	-	-	101000	8570	-	-	-	-	-	-	-	-	163000	-	178000	64000	-	-	31300	-
Magnesium	74400	-	6450	15100	-	-	9670	3700	-	-	-	-	-	-	-	-	23000	-	18200	12500	-	-	4230	-
Phenols																								
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.15	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0167	0.018	0.01	0.01	0.01	0.01	0.0107	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.16	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																								
Soluble Sulphate 2:1 extract as SO4 BRE																								
pH																								
Sulphate, Total																								
Sulphur, Total																								
Sulphate, Total potentia																								
Sulphate, acid soluble (total)																								
Cyanide, Total																								
Exchangeable Ammonia as N																								
Asbestos																								
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	28/06/2018	-	28/06/2018	10/07/2018	-	-	-	10/07/2018	-	-	-	-	-	-	-	-	04/07/2018	-	03/07/2018	04/07/2018	-	-	04/07/2018	-
Analysed By	Marcin Magdziarek	-	Lucy Caroe	Lucy Caroe	-	-	-	Lucy Caroe	-	-	-	-	-	-	-	-	Renata Bozhkov	-	Renata Bozhkov	Barbara Urbanek-Walsh	-	-	Marcin Magdziarek	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																								
Analysts Comments																								
Asbestos Quantification - Total - %	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Comments	0	-	0	0	-	-	-	0	-	-	-	-	-	-	-	-	0	-	0	0	-	-	0	-
Volatile Organic Compounds (VOCs)																								
Dibromofluoromethane**	106	101	110	104	104	108	104	113	110	98.3	105	106	112	110	106	106	117	101	115	105	112	106	118	105
Toluene-d8**	99.4	95.7	96.3	92.9	95.1	97.7	99.2	94.8	99.8	94.9	101	96	98.3	101	98.4	88.2	97.1	96.7	98.6	97.8	100	99.2	98	94.4
4-Bromofluorobenzene**	94.4	85.5	82.4	102	108	91.1	91.4	110	92.3	110	80.4	102	94.9	83.6	98.1	90.7	84.7	92.2	82	93.4	100	99.2	84.6	110
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.175	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.509	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.181	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.865	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																								
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AF12V	40AF13V	40AF14V	40AF16V	40AF19V	40AG12	40AG15	40AG15	40AG16	40AG16	40AG17	40AG17
	1.701.70	1.501.50	1.901.90	2.302.30	4.604.60	1.001.00	0.700.70	1.701.70	0.500.50	2.002.00	0.500.50	3.303.30
	28/06/2018	19/06/2018	19/06/2018	20/06/2018	03/07/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018
Carbon												
Soil Organic Matter (SOM)	1.42	2.31	1.76	51	3.62	3.03	2.71	7.46	3.65	2.22	1.79	3.34
Metals (Solids)												
Arsenic	15	11.5	12.8	9.93	15.3	7.27	5.48	13	9.92	5.96	6.16	11.5
Cadmium	0.148	0.198	0.146	0.02	0.2	0.0465	0.0283	0.0736	0.0259	0.182	0.02	0.2
Chromium	35.3	39.6	35.1	3.77	73.1	10.3	6.13	4.54	7.94	4.66	4.27	9
Copper	13.7	14.1	16	11.7	34.4	22.6	10.4	22.6	22.5	17	16.4	19.4
Lead	25.9	31.4	26.7	8.28	54.5	19.5	15.1	24	33.1	17.7	14.7	31.1
Mercury	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	1.4
Nickel	41.9	37.7	43	23	22.7	23.8	11.6	18.2	28.5	14.5	13.8	16.7
Selenium	1	1.54	1	1.56	10	1	1	1	1	1	1	31.7
Vanadium	61.5	68.3	62.3	21.1	74.7	20.4	15.9	16.3	27.5	13.7	19	79.3
Zinc	118	105	122	35.7	208	73.7	59.4	77	93.9	49.4	39.9	71.4
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.1	0.1	0.1	1.17	5.2	9.72	0.875	2.48	0.1	0.1	0.1	0.393
Aliphatics >C16-C21	0.1	0.1	0.1	4.29	29.8	68.4	3.53	4.18	0.843	3.86	9.7	3.47
Aliphatics >C21-C35	0.1	0.1	0.1	20	217	92.6	18.1	11.8	7.45	3.54	5.58	9.4
Aliphatics >C35-C44	0.1	0.1	0.1	0.456	33.3	3.05	3.37	2.09	1.44	0.584	0.1	0.82
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	0.1	0.211	1.72	3.79	0.717	0.561	1.87	0.1	0.487	0.645	0.124
Aromatics >EC16-EC21	0.652	0.1	0.469	6.55	17.5	6.88	4.72	5.29	0.1	1.74	2.12	0.988
Aromatics >EC21-EC35	2.14	1.45	3.89	162	81.4	19.2	15.4	10.1	0.1	4.86	6.09	4.43
Aromatics >EC35-EC44	0.534	0.1	5.09	14.6	27.8	0.777	0.867	1.13	0.1	5.99	5.47	0.754
Aromatics >EC40-EC44	0.1	0.1	2.89	3.69	11	0.1	0.1	0.1	0.1	3.23	2.91	0.1
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	12	12	12	12	16.8	12	12	12	12	12	12	12
Acenaphthene	8	8	8	8	21.1	8	25.7	8	8	8	8	8
Anthracene	16	16	16	16	82.8	16	16	30.8	16	16	16	16
Benz(a)anthracene	14	14	14	14	134	18.6	17.4	41.6	14	14	14	18.5
Benzo(a)pyrene	15	15	15	15	97.2	15	15	15	15	15	15	15
Benzo(b)fluoranthene	15	15	15	15	229	36.8	21.4	53.2	22.2	17.1	15	38.1
Benzo(k)fluoranthene	14	14	14	14	79.9	14	14	18.2	14	14	14	14
Benzo(g,h,i)perylene	24	24	24	24	98.1	24	24	24	24	24	24	24
Chrysene	10	10	10	10	192	46.6	34.3	88.7	24.2	19.8	15.4	29.8
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	25.1	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	0.018	73.3	0.018	0.018	0.018	0.018	0.018	0.018	21.9
Fluoranthene	0.017	0.017	0.017	0.017	368	40.2	65	144	27.2	24.6	24.6	38.7
Fluorene	10	10	10	10	59.5	10	12.5	18.1	10	10	10	10
Naphthalene	9	9	9	9	131	34.1	14.4	117	36.6	14.7	9	11.7
Phenanthrene	15	15	15	15	424	99.8	67.5	364	52.4	37.3	21.2	52.4
Pyrene	0.015	0.015	0.015	0.015	0.307	0.0375	0.054	0.0945	0.0208	0.0197	0.0213	0.0332
PAH, Total Detected USEPA 16	0.118	0.118	0.118	0.118	2.34	0.314	0.312	0.97	0.183	0.133	0.118	0.244
Naphthalene-d8 % recovery**	96.9	81.6	82.7	96.5	103	87.3	96.9	101	103	105	103	98.9
Acenaphthene-d10 % recovery**	100	89.2	87.2	94.5	106	84.3	82.3	104	96.1	89	97.7	95.6
Phenanthrene-d10 % recovery**	103	96.9	92.4	107	102	83.7	93.7	106	98.2	101	93.9	94.9
Chrysene-d12 % recovery**	104	95.7	90.9	103	78.1	74.8	83.6	78.6	88.5	83.8	83.9	84.9
Perylene-d12 % recovery**	99.3	93.8	94.3	102	73.1	66	86.5	73	81.4	87.7	88.5	82.1
Total Aliphatics >C12-C44	0.1	0.1	0.1	25.9	286	174	25.9	20.5	9.74	7.99	15.3	14.1
Total Aromatics >EC12-EC44	3.32	1.45	9.66	185	131	27.5	21.5	18.4	0.1	13.1	14.3	6.29
Total Aliphatics & Aromatics >C5-C44	3.32	1.45	9.66	211	416	201	47.4	38.9	9.74	21.1	29.6	20.4
Metals - (Solid)												
Iron	39100	26000	38900	23500	106000	22200	16500	19500	22100	23300	30500	78700
Manganese	492	225	637	336	6600	412	1120	771	994	500	667	6600
Metals - (Liquid)												
Calcium	118000	-	-	18400	-	82400	163000	-	176000	-	257000	-
Magnesium	14700	-	-	2380	-	15700	30200	-	27400	-	20100	-
Phenols												
Phenol	0.01	0.01	0.0108	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0107	0.01
Cresols	0.01	0.01	0.0108	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE												
pH												
Sulphate, Total												
Sulphur, Total												
Sulphate, Total potentia												
Sulphate, acid soluble (total)												
Cyanide, Total												
Exchangeable Ammonia as N												
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	10/07/2018	-	-	13/06/2018	-	13/06/2018	18/06/2018	-	18/06/2018	-	-	-
Analysed By	Andrzej Ferfecki	-	-	Andrzej Ferfecki	-	Andrzej Ferfecki	James Richards	-	James Richards	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)												
Analysts Comments												
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Fibrous Tremolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Fibrous Actinolite	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-
Comments	0	-	-	0	-	0	0	-	0	-	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	105	108	105	104	108	105	110	108	108	110	109	106
Toluene-d8**	94.9	94.3	98.7	97.2	98.2	97.8	96.1	92.7	95.5	92	99.7	97.8
4-Bromofluorobenzene**	106	108	96.9	90	93.7	95.3	90.4	74	89.9	75.2	95.5	93.1
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	40AG19	40AG19	40AG19	40AG22	40AG22	40AG22	40AG22	40AG25	40AG25	40AG25	40AG25	40AG26
	0.500.50	1.501.50	2.002.00	0.400.40	1.001.00	2.002.00	3.003.00	0.500.50	1.201.20	2.002.00	3.003.00	0.5
	03/07/2018	03/07/2018	03/07/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	30/05/2018
Carbon												
Soil Organic Matter (SOM)	5.05	1.38	6.05	22.2	4.17	4.05	4.86	48.6	8.33	8.33	1.67	4.67
Metals (Solids)												
Arsenic	14	7.79	14.2	15.6	17.5	12.4	4.48	5.59	1.85	6.65	4.15	6.61
Cadmium	0.2	0.02	1.34	1.39	0.02	1.98	0.553	0.296	0.345	0.315	0.371	1.25
Chromium	9	1.23	9	9	10.5	9	41.2	17.9	92	12.6	259	77.3
Copper	28.1	20.1	17.7	18.2	32.9	46	15.4	31.4	9.14	25.2	9.65	42.9
Lead	185	22.9	47.8	35.3	22.9	92.5	54.9	39.8	16.8	31.1	23.2	118
Mercury	1.4	0.14	1.4	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	33.9	24.3	34	34.3	46.9	20.5	10.9	27.1	6.33	23.5	5.74	16.1
Selenium	10	7.85	10	10	1.09	10	3.46	1.59	6.91	1.8	11.4	3.39
Vanadium	55.5	57.7	112	104	45	35.3	43	98.2	125	37.2	1560	106
Zinc	399	66.7	171	114	62.9	355	163	66.4	74.7	100	71.4	499
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.01	0.04	0.04	0.04	0.0638	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.01	0.04	0.04	0.04	0.226	0.04	0.04	0.04	0.04	0.176	0.04
Aliphatics >C12-C16	0.363	0.366	0.154	0.926	2.64	13.5	0.561	2.33	2.6	2.39	40.2	1.66
Aliphatics >C16-C21	3.3	4.66	2.7	4.26	17.6	14.7	8.48	9.7	13.9	6.2	59.7	10.7
Aliphatics >C21-C35	24.3	13.6	19.4	15.4	127	156	46.8	61.3	60.8	21.4	62.1	86.8
Aliphatics >C35-C44	3.91	1.78	2.48	2.23	49	41.1	6.79	20.9	13.9	7.01	26.9	37.3
Aromatics >EC5-EC7	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.01	0.04	0.04	0.04	0.0467	0.04	0.04	0.04	0.057	0.04	0.04
Aromatics >EC10-EC12	0.04	0.01	0.04	0.04	0.04	0.15	0.04	0.04	0.04	0.04	0.118	0.04
Aromatics >EC12-EC16	0.588	0.1	0.507	1.42	0.1	3.86	1.61	0.875	1.09	0.1	7.57	0.63
Aromatics >EC16-EC21	4.02	0.915	3.32	11.8	3.49	6.46	9.06	3.87	4.77	0.1	26.4	4.05
Aromatics >EC21-EC35	24.5	5.37	14.1	23.3	17.2	41.4	38.4	26.7	26.7	0.978	55.5	46
Aromatics >EC35-EC44	10.4	0.698	4.99	7.21	14.7	16.5	20.3	13.9	10.9	0.1	35.8	49
Aromatics >EC40-EC44	4.06	0.1	1.85	2.9	6.61	4.27	8.11	5.29	3.9	0.1	15.1	23.3
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	15.1	12	12	12	12	12	31.3	12	12	12	12	60
Acenaphthene	8	8	18.2	9.15	8	8	30.8	8	30	12.4	21.4	40
Anthracene	32.5	16	16	60.1	16	16	68.6	16	32.7	16	32	80
Benz(a)anthracene	124	26.1	37.7	64.2	14	24	225	27.2	137	34.3	198	294
Benzo(a)pyrene	107	25.5	26.4	35.7	15	17.3	252	22.4	151	30.3	250	291
Benzo(b)fluoranthene	255	39.6	44.6	63.6	15	38	310	48.5	234	57.9	343	462
Benzo(k)fluoranthene	73	18.7	19	16.8	14	14	135	14	83.5	20.3	135	164
Benzo(g,h,i)perylene	117	26.9	28.3	28.4	24	24	205	24	122	27.5	207	284
Chrysene	161	37.9	41.1	73.8	10	31.2	256	56.4	188	56.9	241	355
Dibenzo(a,h)anthracene	29	0.023	0.023	0.023	0.023	0.023	45	0.023	0.023	0.023	36.2	0.115
Indeno(1,2,3-cd)pyrene	131	0.018	24.9	22.3	0.018	0.018	179	0.018	139	26.2	171	279
Fluoranthene	202	53.2	56.3	99.4	0.017	63.3	407	50.8	198	55.3	322	539
Fluorene	12	10	15.2	62.5	10	10	41.4	16.3	33.3	14.5	27.2	50
Naphthalene	49.4	20.9	39.9	40.9	12.5	16.3	74.7	30.4	57.9	42.8	34.6	45
Phenanthrene	144	69.9	62.6	347	39.5	67.3	274	87.7	191	73.3	199	267
Pyrene	0.182	0.0453	0.0626	0.105	0.015	0.051	0.375	0.0474	0.204	0.048	0.319	0.494
PAH, Total Detected USEPA 16	1.63	0.364	0.477	1.03	0.118	0.308	2.91	0.387	1.8	0.5	2.54	3.43
Naphthalene-d8 % recovery**	99.3	105	98.9	89.8	88.1	82.7	91.6	68.3	94.9	72.4	90.2	104
Acenaphthene-d10 % recovery**	94.7	104	92.8	89.3	89	83.4	94.4	72.5	95.1	77.7	89.2	91.6
Phenanthrene-d10 % recovery**	94.3	109	90.1	84.3	87.9	84.8	94.9	60.9	96.6	74.1	92.8	99.4
Chrysene-d12 % recovery**	82.3	102	88.6	50.6	71	77.4	80.1	45.1	95.9	70	93.7	97
Perylene-d12 % recovery**	74.2	95.2	81.3	38.4	65.9	72.4	75.1	32.2	91.4	66	87	83
Total Aliphatics >C12-C44	31.9	20.5	24.7	22.8	196	225	62.6	94.2	91.3	37	189	136
Total Aromatics >EC12-EC44	39.4	6.98	22.9	43.7	35.4	68.2	69.3	45.3	43.5	0.978	125	99.7
Total Aliphatics & Aromatics >C5-C44	71.3	27.4	47.7	66.5	232	294	132	140	135	38.1	314	236
Metals - (Solid)												
Iron	172000	53700	374000	298000	41500	43100	24400	22900	38000	22400	88100	53700
Manganese	3680	1530	3750	2430	622	2490	4560	1220	11800	1680	32800	5360
Metals - (Liquid)												
Calcium	207000	-	-	-	-	-	-	-	-	136000	-	149000
Magnesium	27900	-	-	-	-	-	-	-	-	15900	-	10900
Phenols												
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE												
pH												
Sulphate, Total												
Sulphur, Total												
Sulphate, Total potentia												
Sulphate, acid soluble (total)												
Cyanide, Total												
Exchangeable Ammonia as N												
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	02/07/2018	-	29/06/2018
Analysed By	-	-	-	-	-	-	-	-	-	Lucy Caroe	-	Lucy Caroe
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)												
Analysts Comments												
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected
Comments	-	-	-	-	-	-	-	-	-	Soil containing material typical of AIE	-	0
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	109	115	118	116	116	112	102	104	109	111	111	110
Toluene-d8**	99.6	98.5	96	96.3	98.7	92.9	97.9	96.8	98.6	98.7	97.9	98.2
4-Bromofluorobenzene**	94.1	92.3	83.7	94	87.3	104	96.4	96.7	102	90.6	92.3	86.1
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	0.9	2.33	0.71
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	5.64	7.21	8.28
Water Total M(ar)	-	-	-	-	-	-	-	-	-	6.49	9.38	8.93

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AG27	40AG27	40AG27	40AG15V	40AG16V	40AG17V	40AG19V	40AG22V	40AG25V	40AG27V	40AH10
	0.4	1	2.5	3.203.20	0.900.90	1.001.00	3.503.50	3.203.20	3.103.10	3.3	0.400.40
	30/05/2018	30/05/2018	30/05/2018	28/06/2018	28/06/2018	28/06/2018	03/07/2018	05/06/2018	05/06/2018	30/05/2018	22/06/2018
Carbon											
Soil Organic Matter (SOM)	0.821	11.7	11.2	7.91	4.03	7.31	4.22	3.52	2.98	2.55	0.683
Metals (Solids)											
Arsenic	0.6	7.45	17.6	18.1	11	16.2	10.6	11	12.8	6	7.58
Cadmium	0.0516	3.09	0.415	0.0501	0.02	0.31	0.259	0.382	0.399	5.74	0.802
Chromium	29.4	6.84	36.4	35.6	38.7	32.1	32.2	34.9	32	185	268
Copper	1.4	15.8	28.7	28.2	28.2	32.8	23.5	25	16.8	21.7	18.8
Lead	0.7	354	43	37.6	23	39	27	37	26.4	58.7	27.4
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4
Nickel	0.986	10.3	28	29.5	40.9	28.2	36.5	31.6	31.7	16.8	9.45
Selenium	2.75	2.02	1	1	1	1	1	1.22	1.15	10.5	13.8
Vanadium	29.6	39.7	57.9	55.1	58.1	49.4	50.8	54.5	51.1	283	430
Zinc	38.9	1730	151	132	112	136	109	129	132	126	55.5
TPH Criteria Working Group (TPH CWG)											
Benzene											
Toluene											
Ethylbenzene											
sum of detected mpo xylene by GC											
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.325
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.66
Aliphatics >C12-C16	0.25	3	1.04	0.1	0.1	1.14	0.1	0.1	0.19	0.364	0.307
Aliphatics >C16-C21	2.8	13.6	1.54	0.1	0.1	1.45	0.1	0.1	0.1	6.04	1.75
Aliphatics >C21-C35	91.6	115	12.7	4.84	0.902	9.11	0.1	1.25	2.28	49.4	16.4
Aliphatics >C35-C44	147	56.9	0.385	0.1	0.1	0.1	0.1	0.1	3.32	24.2	6.86
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.217
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.44
Aromatics >EC12-EC16	0.1	0.1	3.78	0.175	0.295	0.1	0.1	0.1	0.1	0.1	0.1
Aromatics >EC16-EC21	1.77	3.73	2.74	0.724	0.1	1.21	1.26	0.1	0.1	3.67	2.9
Aromatics >EC21-EC35	84.9	66.6	84.9	40.5	9.09	46.3	9.09	0.112	2.58	89.3	31.7
Aromatics >EC35-EC44	232	81.9	8.52	5.36	3.58	4.73	9.74	0.549	5.57	31	13.1
Aromatics >EC40-EC44	120	39.6	2.48	1.34	1.67	0.1	4.87	0.1	2.83	10.1	4.79
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	12	60	12	12	12	12	12	12	12	12	12
Acenaphthene	8	40	596	8	8	8	8	8	8	47.2	9.44
Anthracene	16	80	31.5	16	16	16	16	16	16	166	32.6
Benz(a)anthracene	42.2	70	28.2	14	14	14	14	14	14	1530	428
Benzo(a)pyrene	34.4	75	29	15	15	15	15	15	15	2090	551
Benzo(b)fluoranthene	50.8	155	43.8	34.5	15	15	15	15	15	2670	747
Benzo(k)fluoranthene	19.9	70	14	14	14	14	14	14	14	1060	302
Benzo(g,h,i)perylene	31.9	120	24	24	24	24	24	24	24	1950	501
Chrysene	39.1	104	44.3	21.9	10	10	10	10	10	1460	475
Dibenzo(a,h)anthracene	0.023	0.115	0.023	0.023	0.023	0.023	0.023	0.023	0.023	357	86.5
Indeno(1,2,3-cd)pyrene	23.7	90	0.018	0.018	0.018	0.018	0.018	0.018	0.018	1620	441
Fluoranthene	69.1	123	108	39.1	0.017	0.017	0.017	0.017	0.017	2080	575
Fluorene	10	50	376	10	10	10	10	10	10	15.1	10
Naphthalene	9	45	308	9	9	9	9	9	9	40.8	14.9
Phenanthrene	27.6	75	237	28.2	15	15	15	15	15	612	140
Pyrene	0.0622	0.112	0.0788	0.0305	0.015	0.015	0.015	0.015	0.015	2.27	0.611
PAH, Total Detected USEPA 16	0.401	0.59	1.88	0.154	0.118	0.118	0.118	0.118	0.118	18	4.92
Naphthalene-d8 % recovery**	90.7	88.9	102	95.7	91.3	85.1	90.3	91.1	92.3	85.9	93
Acenaphthene-d10 % recovery**	92.8	85.6	97	89.8	93	82.8	86.5	87.9	85.5	86.7	84.8
Phenanthrene-d10 % recovery**	96.7	85.8	93.8	91.9	92.8	94.2	85.6	91.7	88.3	96.6	96.1
Chrysene-d12 % recovery**	101	61.4	92.8	90	88.4	88.2	81.6	98	94.8	82.5	90.4
Perylene-d12 % recovery**	97.6	57.2	92.6	93.3	89.6	89.5	91.5	107	89	86.2	89.9
Total Aliphatics >C12-C44	242	188	15.7	4.84	0.902	11.7	0.1	1.25	5.8	80	25.3
Total Aromatics >EC12-EC44	318	152	100	46.7	13	52.2	20.1	0.661	8.15	124	47.7
Total Aliphatics & Aromatics >C5-C44	560	340	116	51.6	13.9	63.9	20.1	1.91	13.9	204	74.6
Metals - (Solid)											
Iron	9440	52900	23300	25700	24400	25600	31400	31100	35300	99800	139000
Manganese	3950	2530	239	161	280	210	580	506	1280	15900	24100
Metals - (Liquid)											
Calcium	136000	-	96400	115000	-	224000	-	-	118000	152000	-
Magnesium	14800	-	7360	17100	-	31100	-	-	9720	23300	-
Phenols											
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.0114	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE											
pH											
Sulphate, Total											
Sulphur, Total											
Sulphate, Total potentia											
Sulphate, acid soluble (total)											
Cyanide, Total											
Exchangeable Ammonia as N											
Asbestos											
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	0.001	0.001	-
Date of Analysis	04/07/2018	-	10/07/2018	10/07/2018	-	10/07/2018	-	-	-	-	-
Analysed By	Renata Bozhkov	-	Andrzej Ferfecki	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	0.001	0.001	-
Additional Asbestos Components (Using TM048)											
Analysts Comments											
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	0.001	0.001	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Detected	Not Detected	-	Not Detected	-	-	-	-	-
Comments	0	-	0	0	-	0	-	-	-	-	-
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	114	115	107	104	104	108	105	107	111	109	109
Toluene-d8**	97	98.5	94.2	94.2	94.9	94.8	90.9	98.2	98.3	97.3	97.8
4-Bromofluorobenzene**	82.5	90.2	103	104	110	109	78.4	89.5	86.8	94.8	99.8
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-

Determinand	40AH10	40AH10	40AH14	40AH14	40AH16	40AH19	40AH19	40AH19	40AH21	40AH26	40AH26
	1.001.00	2.002.00	0.500.50	1.001.00	0.500.50	0.500.50	1.001.00	1.601.60	1.001.00	0.5	1.2
	22/06/2018	22/06/2018	28/06/2018	28/06/2018	03/07/2018	03/07/2018	03/07/2018	03/07/2018	07/06/2018	30/05/2018	30/05/2018
Carbon											
Soil Organic Matter (SOM)	4.69	7.34	0.679	9.81	4.59	1.22	0.931	9.36	1.76	49.7	3.59
Metals (Solids)											
Arsenic	8.16	17.6	13.1	23.5	15.8	5.39	5.44	10.2	4	6.32	6.56
Cadmium	0.218	1.24	0.101	1.61	0.2	0.02	0.02	0.547	1.2	0.441	0.869
Chromium	41.1	77	5.24	15.1	88.2	26.4	21.3	84.3	197	101	49.6
Copper	14.2	37	14.1	45	57.6	1.4	1.4	25.1	19.9	26.2	18
Lead	11.6	360	24.7	631	106	23.2	30.9	50.6	77.9	52.3	85.8
Mercury	0.14	14	0.14	0.335	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	15.3	29.9	21.7	22.9	42.1	4.34	4.65	24.8	11.3	16.1	13.8
Selenium	4.01	10	1	1	10	5.96	5.71	3.5	6.65	5.26	3.65
Vanadium	83	90.4	19.4	27.9	95.5	32	23	203	207	157	96.2
Zinc	64.7	2070	97.2	2450	434	282	368	190	209	84.9	343
TPH Criteria Working Group (TPH CWG)											
Benzene											
Toluene											
Ethylbenzene											
sum of detected mpo xylene by GC											
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.102	5.3	0.1	1.71	3.34	0.1	0.297	0.1	2.09	0.1	3.49
Aliphatics >C16-C21	0.894	23.3	0.1	10.8	8.8	2.2	0.921	1.06	13.6	5.28	18.8
Aliphatics >C21-C35	9.39	81.3	1.96	75.6	39.5	15.3	9.26	28.6	158	44.2	186
Aliphatics >C35-C44	5.91	21.7	0.1	16.2	4.31	1.47	0.782	3.38	80.2	12.1	81.7
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.208	1.17	0.1	3.19	2.63	0.244	0.174	2	1.53	0.939	1
Aromatics >EC16-EC21	1.87	11.1	1.67	9	6.34	1.25	0.652	6.84	7.62	3.67	8.41
Aromatics >EC21-EC35	16	40.1	0.1	62.6	36.1	9.62	7.02	63.4	119	24.1	105
Aromatics >EC35-EC44	12.8	14.2	0.1	32.3	10.8	2.96	1.29	17.7	139	11.1	77.6
Aromatics >EC40-EC44	5.77	4.78	0.1	12.7	4.03	0.994	0.1	6.81	60	4.27	32.3
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	12	14.7	12	12	12	12	12	67.4	60	12	16.6
Acenaphthene	12.1	8	8	13.5	8	8	8	18.8	122	16.1	14.7
Anthracene	45.2	57	16	47.2	16	16	16	119	88.7	28.8	41.1
Benz(a)anthracene	133	158	14	97.4	73.4	31	16.6	428	380	192	202
Benzo(a)pyrene	159	135	15	107	78.4	49.3	19.8	367	375	243	266
Benzo(b)fluoranthene	262	262	15	249	92.8	53.2	30.3	663	534	305	373
Benzo(k)fluoranthene	80.1	78.5	14	82.1	40.4	27.5	14	206	185	125	139
Benzo(g,h,i)perylene	141	114	24	128	116	56.4	33	270	321	184	232
Chrysene	163	218	10	165	90.9	36.5	25.2	442	387	209	253
Dibenzo(a,h)anthracene	0.023	29	0.023	30.9	0.023	0.023	0.023	67.4	0.115	39.4	57.5
Indeno(1,2,3-cd)pyrene	160	119	0.018	145	77.9	36.3	0.018	301	331	188	239
Fluoranthene	324	441	0.017	186	107	45.1	32.6	757	677	267	354
Fluorene	19.7	19.3	10	30.9	10	10	10	75	66.9	19.5	11.8
Naphthalene	83.8	94.5	9	107	26.3	9	9	268	80.4	49.7	37.7
Phenanthrene	301	241	15	255	67.3	26.1	22.4	451	319	155	150
Pyrene	0.275	0.381	0.015	0.164	0.125	0.0525	0.0366	0.592	0.593	0.294	0.406
PAH, Total Detected USEPA 16	2.16	2.36	0.118	1.81	0.895	0.414	0.216	5.09	4.46	2.31	2.79
Naphthalene-d8 % recovery**	90.6	88.3	94.8	88	89.6	93.3	89.6	103	90.9	78.8	93.1
Acenaphthene-d10 % recovery**	97	83.5	92.1	87.4	83.1	87.7	86.4	93.2	83.6	75.3	93.1
Phenanthrene-d10 % recovery**	97.6	84.5	92.8	86.3	81.8	99.4	93.9	96	93.1	58.3	89.1
Chrysene-d12 % recovery**	80.9	68.6	89.3	75.3	80.3	94.2	90.5	98.6	89.5	38.7	75.7
Perylene-d12 % recovery**	78.4	62.5	94	70.3	79	94.5	91.1	97.8	84.3	30.6	77.8
Total Aliphatics >C12-C44	16.3	132	1.96	104	56	18.9	11.3	33	253	61.5	290
Total Aromatics >EC12-EC44	30.9	66.6	1.67	107	55.8	14.1	9.14	90	268	39.8	192
Total Aliphatics & Aromatics >C5-C44	47.2	198	3.63	211	112	33	20.4	123	521	101	482
Metals - (Solid)											
Iron	30900	145000	24400	50900	133000	20500	18400	61200	115000	72900	62300
Manganese	4500	4970	823	971	9040	7170	4310	7260	15800	13500	6790
Metals - (Liquid)											
Calcium	-	-	-	-	-	181000	-	216000	189000	-	184000
Magnesium	-	-	-	-	-	26300	-	31800	25200	-	30200
Phenols											
Phenol	0.01	0.01	0.01	0.0163	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.375	0.01	0.01	0.01	0.01	0.01	0.011	0.01
Xylenols	0.015	0.015	0.015	0.114	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.505	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE											
pH											
Sulphate, Total											
Sulphur, Total											
Sulphate, Total potentia											
Sulphate, acid soluble (total)											
Cyanide, Total											
Exchangeable Ammonia as N											
Asbestos											
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	04/07/2018	-	04/07/2018	04/07/2018	-	04/07/2018
Analysed By	-	-	-	-	-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	Marcin Magdziarek	-	Marcin Magdziarek
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)											
Analysts Comments											
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Tremolite	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Actinolite	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Comments	-	-	-	-	-	0	-	0	0	-	0
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	111	119	98	110	105	111	110	109	116	110	110
Toluene-d8**	96.1	95.7	94	93.2	96	95.6	99.8	97.4	98	98.7	106
4-Bromofluorobenzene**	90.1	85	109	114	98.7	80.4	91.8	92.9	87	94.4	84.1
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d	6.31	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	2.55	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	5.83	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	0.98	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	3.19	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	58.2	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	59.6	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AH27	40AH27	40AH10V	40AH14V	40AH16V	40AH19V	40AH21V	40AI11	40AI11	40AI11	40AI13
	0.5	1	3.303.30	1.301.30	1.001.00	3.803.80	1.401.40	0.500.50	1.201.20	1.801.80	0.500.50
	30/05/2018	30/05/2018	22/06/2018	28/06/2018	03/07/2018	03/07/2018	07/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018
Carbon											
Soil Organic Matter (SOM)	4.64	23.4	5.09	1.29	6.05	3.41	3.45	0.379	1.13	2.05	0.35
Metals (Solids)											
Arsenic	4.87	14.8	12.7	10	12.4	7.96	7.3	2.4	4.39	7.36	6
Cadmium	0.706	0.255	0.02	0.02	0.22	0.254	0.12	0.02	0.02	0.2	0.2
Chromium	40.5	31.6	39.4	26.7	34.5	38.5	95.5	4.04	44.4	442	423
Copper	11.7	28.4	31.8	10.1	31.5	21.2	8.35	14	4.45	14	14
Lead	56.4	27.5	22.2	25.6	37.4	23.8	135	0.7	35.7	90.4	13.1
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	1.4	1.4
Nickel	8.93	30.4	42.7	34.3	30.2	41.4	11.2	0.777	3.62	9.12	3.88
Selenium	2.85	1.71	1	1	1	1.29	2.76	9.41	4.83	10	10
Vanadium	57	48.1	57.2	50.4	52.3	57.7	86.1	14.5	49	297	261
Zinc	310	91.6	102	108	137	91.4	989	23.4	214	424	196
TPH Criteria Working Group (TPH CWG)											
Benzene											
Toluene											
Ethylbenzene											
sum of detected mpo xylene by GC											
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.0416	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	2.28	1.99	0.228	0.1	0.1	0.1	1.69	1.7	2.56	15	8
Aliphatics >C16-C21	12.4	4.54	0.131	0.1	0.1	0.1	18.1	7.34	8.19	49.4	30.3
Aliphatics >C21-C35	118	58.7	0.915	0.369	7.97	0.1	181	18.8	24.4	247	154
Aliphatics >C35-C44	42.9	1.18	0.1	0.1	0.1	0.1	123	6.83	6.6	34.8	17.2
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.719	1.97	0.1	0.1	0.1	0.1	0.225	0.1	0.1	4.1	1.48
Aromatics >EC16-EC21	4.85	7.84	0.1	0.1	1.75	0.1	7.23	1.26	1.64	13.8	8.15
Aromatics >EC21-EC35	46.1	225	1.91	1.51	26.2	3.71	158	9.65	9.57	59.7	43.9
Aromatics >EC35-EC44	35.1	33.8	0.1	0.1	9.83	1.01	167	12.4	6.72	19.5	9.85
Aromatics >EC40-EC44	15.3	9.55	0.1	0.1	2.89	0.1	73.8	5.96	2.58	7.36	3.56
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	12	12	12	12	12	12	12	12	12	12	12
Acenaphthene	9.02	8	8	8	8	8	8	8	8	8	8
Anthracene	25	16	16	16	16	16	35.4	16	16	16	16
Benz(a)anthracene	145	14	14	14	14	14	181	14	49.9	46.1	33
Benzo(a)pyrene	138	15	15	15	15	15	194	15	41.9	40.8	27.3
Benzo(b)fluoranthene	216	39.1	15	15	15	15	335	15	83.3	110	60.9
Benzo(k)fluoranthene	68.6	14	14	14	14	14	120	14	28.1	33.2	17.8
Benzo(g,h,i)perylene	137	24	24	24	24	24	223	24	46.8	51.6	31.2
Chrysene	169	26.7	10	10	10	10	176	10	52.7	79.9	58.1
Dibenzo(a,h)anthracene	31.4	0.023	0.023	0.023	0.023	0.023	59.4	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	128	0.018	0.018	0.018	0.018	0.018	188	0.018	44.7	47	30.2
Fluoranthene	236	0.017	0.017	0.017	0.017	0.017	289	0.017	132	113	71.6
Fluorene	10	10	10	10	10	10	11.9	10	10	10	10
Naphthalene	24.5	9	9	9	9	9	53.6	9	9	17.1	9
Phenanthrene	117	15	15	15	15	15	130	15	73.3	66.9	38.4
Pyrene	0.265	0.015	0.015	0.015	0.015	0.015	0.275	0.015	0.11	0.1	0.0658
PAH, Total Detected USEPA 16	1.71	0.118	0.118	0.118	0.118	0.118	2.27	0.118	0.663	0.706	0.434
Naphthalene-d8 % recovery**	99.8	94	91.8	90.3	89.2	92.5	91.2	98.1	98.4	93.6	89.6
Acenaphthene-d10 % recovery**	98	94.2	90.7	87.8	88.3	91.2	96.6	93.6	92.2	81.2	80.2
Phenanthrene-d10 % recovery**	101	96	90.8	95.1	99.5	88.1	96.1	89.9	85.6	96.4	90.4
Chrysene-d12 % recovery**	91.1	85	86.3	92.9	97.9	79.8	84.7	84.3	82.3	83.3	87.7
Perylene-d12 % recovery**	90	88	89.1	93.5	101	81.8	74.8	91.7	83.3	81.4	89.2
Total Aliphatics >C12-C44	176	66.4	1.27	0.369	7.97	0.1	323	34.6	41.7	347	210
Total Aromatics >EC12-EC44	86.8	268	1.91	1.51	37.7	4.72	333	23.3	17.9	97.2	63.4
Total Aliphatics & Aromatics >C5-C44	262	335	3.18	1.87	45.7	4.72	656	57.9	59.6	444	273
Metals - (Solid)											
Iron	48300	21600	21500	39900	30100	30100	59200	4700	30400	166000	139000
Manganese	4670	396	368	737	308	440	8080	5540	6200	21700	17400
Metals - (Liquid)											
Calcium	73600	58200	117000	216000	74800	-	147000	-	-	42800	-
Magnesium	7090	7180	13100	11800	16100	-	25900	-	-	12500	-
Phenols											
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.0119	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE											
pH											
Sulphate, Total											
Sulphur, Total											
Sulphate, Total potentia											
Sulphate, acid soluble (total)											
Cyanide, Total											
Exchangeable Ammonia as N											
Asbestos											
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	-	10/07/2018	-	-	15/06/2018	-
Analysed By	Renata Bozhkov	Renata Bozhkov	Marcin Magdziarek	Marcin Magdziarek	Marcin Magdziarek	-	Lucy Caroe	-	-	James Richards	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)											
Analysts Comments											
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	Not Detected	Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Tremolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Actinolite	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-
Comments	0	0	Bundle of fibres in soi	0	0	-	0	-	-	0	-
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	116	117	110	118	116	104	105	105	105	106	115
Toluene-d8**	96.9	97.6	99.7	96.9	92.7	95	94.8	95.5	95.5	96.5	94.2
4-Bromofluorobenzene**	79.1	83.3	82	84.1	79.1	109	110	109	91.5	88.1	94
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-

Determinand	40AI13	40AI13	40AI15	40AI15	40AI16	40AI17	40AI18	40AI19	40AI19	40AI19	40AI25	40AI25
	1.001.00	1.501.50	1.501.50	2.702.70	0.500.50	1.001.00	2.002.00	0.500.50	1.301.30	2.002.00	0.500.50	0.900.90
	27/06/2018	27/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	03/07/2018	03/07/2018	03/07/2018	07/06/2018	07/06/2018
Carbon												
Soil Organic Matter (SOM)	0.945	5.41	4.12	2.93	1.74	2.88	0.607	0.728	0.374	2.84	6.98	4.17
Metals (Solids)												
Arsenic	4.7	10.8	9.79	9.16	7.24	9.79	7.17	3.95	2.85	14.7	7.48	7.3
Cadmium	0.02	0.146	0.164	0.282	0.0692	0.02	0.02	0.02	0.02	1.31	0.444	0.658
Chromium	118	6.69	11	12.8	6.19	16	0.9	2.13	1.52	26.8	11	85.1
Copper	7.01	20.2	14.7	15.8	9	22.6	7.81	1.4	1.4	38.4	21.2	22.8
Lead	33.7	88.5	30.1	47	9.67	25.2	5.81	12.2	7.44	378	33.5	59.7
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	3.43	17.1	17	15.1	9.88	19.8	6.83	4.29	2	73.3	23.9	18
Selenium	2.42	1	1.3	1.01	1	1.38	4.73	6.23	8.26	1.32	1.26	4.74
Vanadium	81.3	25.9	31.2	54.1	15.2	34.2	21.3	23.3	15.6	480	34.1	165
Zinc	332	337	177	267	46	76.1	104	153	113	551	86	260
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.0723	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	8.45	3.5	9.75	0.67	0.851	2.94	0.633	0.1	0.507	2.06	1.34	1.45
Aliphatics >C16-C21	34.9	11.7	30.8	4.02	2.16	8.51	0.951	0.488	2.61	11.8	2.73	14.4
Aliphatics >C21-C35	170	46	40.8	24.9	11.5	28.1	5.02	3.33	9.33	123	12.5	94.7
Aliphatics >C35-C44	26.1	12.2	7.98	4.97	2.46	6.28	0.1	0.1	0.1	40.3	1.82	64.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.0482	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	1.92	0.791	1.15	1.13	0.1	0.841	9.51	0.1	0.1	1.3	1.38	0.664
Aromatics >EC16-EC21	8.05	6.83	11.9	6.34	1.02	6.16	44.3	0.1	0.648	6.55	4.25	10.1
Aromatics >EC21-EC35	40.1	44.8	32.8	40.1	7.6	46.2	101	1.49	4.25	70.7	13.9	104
Aromatics >EC35-EC44	14.1	18	8.21	18.3	0.737	31	35.7	0.1	1.07	44.7	4.48	92.1
Aromatics >EC40-EC44	5.52	6.35	2.56	8.11	0.1	13.5	15.1	0.1	0.1	18.2	1.4	41.7
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	12	16.3	12	12	12	12	12	12	12	60	12	24
Acenaphthene	8	39.9	13	8	8	14.6	8	8	8	40	8	16
Anthracene	16	84.8	28.9	26.8	16	19.7	16	16	16	80	16	56.7
Benz(a)anthracene	48.7	795	180	223	26.5	51.6	14	14	14	436	41.3	706
Benzo(a)pyrene	39.3	1120	216	281	23.8	60.6	15	15	15	480	33.9	904
Benzo(b)fluoranthene	85.9	1300	340	401	36.7	104	15	17.7	15	671	58.7	1120
Benzo(k)fluoranthene	30.8	517	117	152	14	34.4	14	14	14	255	24	379
Benzo(g,h,i)perylene	41.7	835	175	225	24	61	24	24	24	458	27.5	754
Chrysene	77.3	741	220	233	27.3	65.7	10	10	14.6	572	53.9	771
Dibenzo(a,h)anthracene	0.023	193	45	55.8	0.023	0.023	0.023	0.023	0.023	0.115	0.023	125
Indeno(1,2,3-cd)pyrene	38.7	688	175	244	21.6	44	0.018	0.018	0.018	487	25.9	739
Fluoranthene	115	1030	253	296	50.8	91.8	0.017	0.017	0.017	595	64.2	1130
Fluorene	10	28.2	17.6	11.7	10	15.9	10	10	10	50	14.1	0.02
Naphthalene	16.4	42.9	40.3	37.3	29.5	22.7	9	9	9	45	12.1	0.018
Phenanthrene	44.9	346	114	81.1	49.8	89.4	15	15	15	198	69.6	345
Pyrene	0.114	1.07	0.257	0.284	0.0425	0.0775	0.015	0.015	0.0175	0.495	0.0466	1.25
PAH, Total Detected USEPA 16	0.652	8.86	2.19	2.55	0.309	0.753	0.118	0.118	0.118	4.65	0.472	8.28
Naphthalene-d8 % recovery**	96.5	98.6	90.7	90.6	95	98	90.1	92.8	90.1	98.1	85.6	87.9
Acenaphthene-d10 % recovery**	90.4	94	85.6	76	96	101	85.9	91.3	84.2	94	83	91.4
Phenanthrene-d10 % recovery**	92.9	90.5	90.5	87.7	99.8	106	96.1	101	93.8	97.9	79.8	92.9
Chrysene-d12 % recovery**	79.3	84.5	77.6	85.4	89.9	83.6	92.1	96	89.6	99.5	84.5	80.2
Perylene-d12 % recovery**	79.7	80.5	75.5	80.1	90.5	81.2	92.2	97.7	88.2	102	85.4	80
Total Aliphatics >C12-C44	240	73.4	89.3	34.6	17	45.9	6.61	3.82	12.4	177	18.4	175
Total Aromatics >EC12-EC44	64.2	70.3	54.1	65.9	9.36	84.2	190	1.49	5.97	123	24	207
Total Aliphatics & Aromatics >C5-C44	304	144	144	100	26.3	130	197	5.31	18.4	300	42.3	381
Metals - (Solid)												
Iron	70000	35400	26500	18400	12000	29100	38500	36000	19200	33200	25900	58200
Manganese	8300	1100	2140	1950	414	1720	3790	3950	6350	1580	1120	8750
Metals - (Liquid)												
Calcium	73100	130000	-	-	-	-	-	-	-	-	157000	-
Magnesium	8220	19200	-	-	-	-	-	-	-	-	22700	-
Phenols												
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.107	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.068	0.015	0.015	0.138	0.015	0.0486	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.245	0.035	0.035	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE												
pH												
Sulphate, Total												
Sulphur, Total												
Sulphate, Total potentia												
Sulphate, acid soluble (total)												
Cyanide, Total												
Exchangeable Ammonia as N												
Asbestos												
Asbestos Quantification - Gravimetric - %	0.002	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	-	02/07/2018	-
Analysed By	-	-	-	-	-	-	-	-	-	-	Marcin Magdziarek	-
Asbestos Quantification - PCOM Evaluation - %	0.001	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)												
Analysts Comments												
Asbestos Quantification - Total - %	0.002	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	-	Trace	-
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	-	Not Detected	-
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	-	Not Detected	-
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	-	Not Detected	-
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	-	Not Detected	-
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	-	Not Detected	-
Comments	-	-	-	-	-	-	-	-	-	-	Loose fibre in soi	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	106	112	114	110	114	107	99.3	107	105	108	111	106
Toluene-d8**	99.8	99.1	94.4	89.5	99.7	96	93.1	95	99	98.2	98.1	99.2
4-Bromofluorobenzene**	86.1	91.3	89.8	70.9	88.1	98	109	94.8	91.2	88.9	88.8	94
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	2.06	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	0.78	0.96	0.76
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	9.41	8.79	11.7
Water Total M(ar)	-	-	-	-	-	-	-	-	-	10.1	9.67	12.3

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AI26	40AI26	40AI27	40AI27	40AI11V	40AI15V	40AI16V	40AI19V	40AI25V	40AI26V	40AJ10
	0.5	1.2	0.7	1.5	4.954.95	0.400.40	1.001.00	4.304.30	1.001.00	2.6	0.500.50
	30/05/2018	30/05/2018	30/05/2018	30/05/2018	27/06/2018	28/06/2018	28/06/2018	03/07/2018	07/06/2018	30/05/2018	22/06/2018
Carbon											
Soil Organic Matter (SOM)	7.24	6.33	4.91	76.5	6.12	1.69	4.22	2.31	6.86	1.93	2.78
Metals (Solids)											
Arsenic	7.03	8.11	5.46	45.8	14.6	11.5	10.4	9.26	12.8	8.32	5.36
Cadmium	0.276	0.887	0.812	0.02	0.02	0.02	0.02	0.286	0.65	0.565	0.431
Chromium	119	68.2	79.4	7.25	39.2	35.2	34	34.6	42.5	65.4	51.3
Copper	24.1	23.7	16.5	13.4	29.9	16.5	16.3	23.7	28.8	20.6	7.74
Lead	21.2	121	66.6	3.55	26.6	25.9	27.6	25.6	41.6	32.6	23.4
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	19.8	15.6	10.4	11.8	33.4	40.4	33.1	36.8	28.5	16.6	8.07
Selenium	4.09	3.55	3.24	2.61	1	1	1	1.15	1.37	5.31	5.16
Vanadium	88.1	107	111	18.9	60.9	57.7	59.8	54.7	54.1	94.3	119
Zinc	67.3	305	204	38.8	110	109	107	116	148	336	101
TPH Criteria Working Group (TPH CWG)											
Benzene											
Toluene											
Ethylbenzene											
sum of detected mpo xylene by GC											
Aliphatics >C5-C6	0.04	0.04	0.04	0.112	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.364	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.0851	0.524	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.571	0.139	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	1.16	1.97	10.3	0.1	0.676	0.308	0.254	0.428	1.04	0.1	2.36
Aliphatics >C16-C21	3.35	17.1	27.9	0.1	0.1	0.1	0.479	0.1	2.2	2.67	13
Aliphatics >C21-C35	15.4	160	345	136	2.28	1.18	3.83	0.218	13.6	19.5	35.3
Aliphatics >C35-C44	5.84	41.5	237	0.1	0.1	0.1	0.1	0.21	1.33	4.46	6.2
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.0672	0.35	0.04	0.04	0.0428	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.381	0.0918	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	1.74	0.194	13.4	3.2	0.18	0.1	0.383	0.1	0.1	0.542	0.1
Aromatics >EC16-EC21	4.65	4.56	34.6	8.17	0.1	0.1	0.901	0.1	0.1	3.33	0.1
Aromatics >EC21-EC35	12.3	51.8	561	944	10.3	2.98	12.4	4.6	37.3	30.8	3.73
Aromatics >EC35-EC44	5.42	34.6	453	24.4	0.1	0.1	1.14	0.711	10.9	16.5	0.1
Aromatics >EC40-EC44	2.27	14.2	198	3.51	0.1	0.1	0.1	0.1	3.54	6.17	0.1
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	12	12	60	12	12	12	12	12	12	12	12
Acenaphthene	8	12.8	2660	178	8	8	8	8	8	11.9	8.75
Anthracene	16	21	622	182	16	16	16	16	16	32.6	23.3
Benz(a)anthracene	14	97.6	274	216	14	14	14	14	46	253	169
Benzo(a)pyrene	15	90.1	187	158	15	15	15	15	43.7	285	252
Benzo(b)fluoranthene	15	134	406	273	15	15	15	15	96	494	393
Benzo(k)fluoranthene	14	63.7	126	126	14	14	14	14	28.9	154	134
Benzo(g,h,i)perylene	24	102	158	145	24	24	24	24	24	315	286
Chrysene	10	106	276	256	10	10	10	10	72.7	233	187
Dibenzo(a,h)anthracene	0.023	0.023	0.115	0.023	0.023	0.023	0.023	0.023	0.023	58.6	49.1
Indeno(1,2,3-cd)pyrene	0.018	93.4	118	88	0.018	0.018	0.018	0.018	36.7	224	253
Fluoranthene	19.8	168	1390	700	0.017	0.017	0.017	0.017	62.6	370	231
Fluorene	10	14.2	1700	242	10	10	10	10	10	10	10
Naphthalene	27.3	24.5	3720	537	9	9	9	9	9	21.4	23
Phenanthrene	27.3	93.7	3760	1030	15	15	15	15	34.3	143	112
Pyrene	0.015	0.173	1.02	0.628	0.015	0.015	0.015	0.015	0.0484	0.36	0.245
PAH, Total Detected USEPA 16	0.118	1.19	16.4	4.76	0.118	0.118	0.118	0.118	0.469	2.96	2.37
Naphthalene-d8 % recovery**	107	90.8	90.9	92.7	95.7	89.3	84.7	80.2	90.4	80.8	89.9
Acenaphthene-d10 % recovery**	99.8	92	93.5	95.4	98.5	91.5	87	84.5	87.6	84.4	97.6
Phenanthrene-d10 % recovery**	98.2	92.3	89.3	96	96.1	83.1	96.8	89.3	94.4	94.5	115
Chrysene-d12 % recovery**	82.7	72.9	74.9	70.8	91.8	87.9	94.6	72.2	97.1	78.2	99
Perylene-d12 % recovery**	80.6	68.9	73.6	72.3	93.5	89.7	94.8	70.5	94.6	78.6	96.1
Total Aliphatics >C12-C44	25.8	220	620	136	2.95	1.49	4.56	0.857	18.2	26.6	56.9
Total Aromatics >EC12-EC44	24.1	91.2	1060	980	10.5	2.98	14.8	5.31	48.2	51.2	3.73
Total Aliphatics & Aromatics >C5-C44	49.9	312	1680	1120	13.4	4.47	19.4	6.17	66.4	77.8	60.6
Metals - (Solid)											
Iron	27900	83600	93000	17400	25500	32100	36300	25500	24100	37600	34300
Manganese	6080	8240	8230	236	260	485	292	425	628	8310	7540
Metals - (Liquid)											
Calcium	180000	-	130000	171000	-	63100	248000	-	48500	128000	-
Magnesium	51700	-	23400	12000	-	5110	7370	-	8760	17500	-
Phenols											
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE											
pH											
Sulphate, Total											
Sulphur, Total											
Sulphate, Total potentia											
Sulphate, acid soluble (total)											
Cyanide, Total											
Exchangeable Ammonia as N											
Asbestos											
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	0.001	0.001
Date of Analysis	04/07/2018	-	04/07/2018	04/07/2018	-	15/06/2018	18/06/2018	-	-	-	-
Analysed By	Lucy Caroe	-	Lucy Caroe	Marcin Magdziarek	-	Renata Bozhkov	Christian Hallam	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	0.001	0.001
Additional Asbestos Components (Using TM048)											
Analysts Comments											
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	0.001	0.001
Chrysotile (White) Asbestos	Detected	-	Not Detected	Not Detected	-	Detected	Not Detected	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-
Comments	Soil containing ACM debris	-	0	0	-	Loose fibres in soi	0	-	-	-	-
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	108	107	109	104	102	119	99.2	110	110	109	112
Toluene-d8**	96.6	97.6	97.6	98.2	94.5	83.3	96.9	93.1	100	97.7	94.5
4-Bromofluorobenzene**	86.3	81.7	85.1	100	88	71.2	98.7	81	90.7	93.2	90.7
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	1.8	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	1.4	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.8	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	2	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	2.6	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	8	0.4	0.4	0.4	0.4
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-

Determinand	40AJ10	40AJ10	40AJ12	40AJ12	40AJ12	40AJ14	40AJ14	40AJ23	40AJ23
	1.001.00	1.501.50	0.500.50	1.001.00	2.002.00	0.500.50	1.001.00	0.700.70	1.601.60
	22/06/2018	22/06/2018	27/06/2018	27/06/2018	27/06/2018	28/06/2018	28/06/2018	07/06/2018	07/06/2018
Carbon									
Soil Organic Matter (SOM)	2.65	1.83	2.9	3.34	2.19	7.21	1.7	4.14	2.07
Metals (Solids)									
Arsenic	7.15	7.34	16.7	7.95	29.8	8.73	11.7	4.12	9.28
Cadmium	0.847	0.279	0.509	0.02	0.02	0.0817	0.28	0.205	0.418
Chromium	33.8	30.4	100	64.6	24.3	14.2	10.8	6.02	22.7
Copper	16.1	33	64.9	26.5	37.4	29.3	33	6.8	24.3
Lead	57.6	38.1	74.2	40.9	40.1	21.4	37.3	8.03	25.8
Mercury	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	11.8	7.91	18.9	20.4	14.3	23.8	24.5	7.16	24.9
Selenium	6.03	3.32	1.65	4.43	2.98	10	1.3	1	1.38
Vanadium	77.1	63.2	94	116	50.4	30.1	40.2	13.7	40.9
Zinc	206	179	331	202	197	91.8	128	27.7	104
TPH Criteria Working Group (TPH CWG)									
Benzene									
Toluene									
Ethylbenzene									
sum of detected mpo xylene by GC									
Aliphatics >C5-C6	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.0982	0.04
Aliphatics >C6-C8	0.04	0.01	0.04	0.0805	0.04	0.04	0.04	0.977	0.0836
Aliphatics >C8-C10	0.04	0.01	0.04	0.23	0.04	0.04	0.04	2.78	0.602
Aliphatics >C10-C12	0.04	0.01	0.04	0.57	0.04	0.0655	0.04	4.61	2.06
Aliphatics >C12-C16	2.45	0.854	0.616	13.3	2.38	4.93	21.2	256	30
Aliphatics >C16-C21	8.73	9.06	7.35	30.8	8.57	9.92	69.7	626	44.4
Aliphatics >C21-C35	44.1	46.3	65.1	137	89.7	222	253	1800	112
Aliphatics >C35-C44	15.6	13.8	24.9	57.1	16.4	20.1	107	830	53.2
Aromatics >EC5-EC7	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.01	0.04	0.158	0.04	0.04	0.04	1.85	0.415
Aromatics >EC10-EC12	0.04	0.01	0.04	0.381	0.04	0.0429	0.04	3.08	1.37
Aromatics >EC12-EC16	1.08	2.2	1.37	3.97	0.732	7.02	9.68	282	14.7
Aromatics >EC16-EC21	5.23	5.71	9.27	15.4	4.2	17.9	63.4	790	34.4
Aromatics >EC21-EC35	42.5	17.9	103	99.1	31.9	74.4	335	2240	99
Aromatics >EC35-EC44	24.9	9.66	22.2	72	16.9	17.1	157	880	46.7
Aromatics >EC40-EC44	9.82	4.22	23.1	30.9	7.56	6.78	67.3	372	19.3
Polyaromatic Hydrocarbons (PAHs)									
Acenaphthylene	12	40.9	35.4	12	12	12	60	372	60
Acenaphthene	12.8	45.2	61.2	60.2	10.6	94.8	40	2420	128
Anthracene	36.9	163	224	60.1	20.4	20.6	80	1670	115
Benz(a)anthracene	248	616	585	239	75.7	51.3	94.2	2050	161
Benzo(a)pyrene	327	593	590	295	85.6	50.1	117	1200	101
Benzo(b)fluoranthene	498	851	989	491	127	81.5	102	937	103
Benzo(k)fluoranthene	160	303	300	159	43.3	26.3	70	195	70
Benzo(g,h,i)perylene	313	453	503	303	73	48.4	229	688	120
Chrysene	253	631	634	292	91.8	83.6	146	4740	264
Dibenzo(a,h)anthracene	64.2	129	126	59	0.023	0.023	0.115	267	0.115
Indeno(1,2,3-cd)pyrene	217	392	412	310	65.3	34.9	90	328	90
Fluoranthene	360	1200	1130	532	152	104	0.085	1470	184
Fluorene	10	45.2	73.7	42.2	10	17.6	50	2810	202
Naphthalene	51	89.3	154	74.9	22.3	42.1	45	408	69.5
Phenanthrene	171	631	744	237	86	159	75	9540	446
Pyrene	0.371	0.981	0.898	0.496	0.152	0.108	0.184	4.65	0.358
PAH, Total Detected USEPA 16	3.08	7.16	7.45	3.65	1.01	0.922	0.872	33.7	2.13
Naphthalene-d8 % recovery**	81.8	105	105	89.2	98.6	99.1	88.5	86.3	92.9
Acenaphthene-d10 % recovery**	83.9	99.9	107	85.5	94.6	93.1	85.6	91.9	90.1
Phenanthrene-d10 % recovery**	94.9	97.9	111	85.6	92.2	89.3	85.6	95.8	90.3
Chrysene-d12 % recovery**	80.4	94.4	88	82.7	90.5	90.3	76.5	76.3	85.6
Perylene-d12 % recovery**	79.2	90.1	87.5	85.2	88.5	83.5	76.7	71.3	83.3
Total Aliphatics >C12-C44	70.9	70	98	238	117	257	451	3510	240
Total Aromatics >EC12-EC44	73.7	35.4	136	190	53.7	116	565	4200	195
Total Aliphatics & Aromatics >C5-C44	145	105	234	430	171	373	1020	7720	439
Metals - (Solid)									
Iron	35900	15400	56500	60800	45500	14300	23600	6300	29300
Manganese	4540	6260	5380	8840	7200	530	1230	418	1460
Metals - (Liquid)									
Calcium	112000	-	-	-	-	-	-	172000	-
Magnesium	31400	-	-	-	-	-	-	32600	-
Phenols									
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.0165	0.01	0.01	0.01
Xylenols	0.0465	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics									
Soluble Sulphate 2:1 extract as SO4 BRE									
pH									
Sulphate, Total									
Sulphur, Total									
Sulphate, Total potentia									
Sulphate, acid soluble (total)									
Cyanide, Total									
Exchangeable Ammonia as N									
Asbestos									
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-
Date of Analysis	05/07/2018	-	-	-	-	-	-	-	-
Analysed By	Barbara Urbanek-Walsh	-	-	-	-	-	-	Lucy Caroe	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)									
Analysts Comments									
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	-	-	-	-	-	Detected	-
Amosite (Brown) Asbestos	Not Detected	-	-	-	-	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	-	-	-	-	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	-	-	-	-	-	Not Detected	-
Fibrous Tremolite	Not Detected	-	-	-	-	-	-	Not Detected	-
Fibrous Actinolite	Not Detected	-	-	-	-	-	-	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	-	-	-	-	-	Not Detected	-
Comments	0	-	-	-	-	-	-	Soil containing material typical of asbestos rop	-
Volatile Organic Compounds (VOCs)									
Dibromofluoromethane**	110	105	110	106	110	108	107	107	108
Toluene-d8**	90.5	98.9	98.7	99.8	88.6	97.4	100	98.4	97
4-Bromofluorobenzene**	77.5	104	99.3	88.8	81.2	96	104	94.8	90.2
Methyl Tertiary Butyl Ethe	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.18	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.14	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.185	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	1.1	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.8	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics									
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	0.5	-	-	-	-	0.5	0.5
Gross Calorific Value Original Q(V/gr/ar	-	-	0.5	-	-	-	-	0.5	0.5
Net Calorific Value in Dry Matter Q(V/net/d	-	-	0.5	-	-	-	-	0.5	0.5
Net Calorific Value in Original Q(V/net/ar	-	-	0.5	-	-	-	-	0.5	0.5
Water Analytical M (ad)	-	-	2.69	-	-	-	-	1.39	1.31
Water Gross M(ex)	-	-	51.7	-	-	-	-	9.11	10
Water Total M(ar)	-	-	53	-	-	-	-	10.4	11.2

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AJ23	40AJ26	40AJ27	40AJ27	40AJK16	40AJK16V	40AJ10V	40AJ12V	40AJ14V	40AJ23V
	2.002.00	1.5	0.7	1.5	0.500.50	1.501.50	2.702.70	2.602.60	1.201.20	2.202.20
	07/06/2018	30/05/2018	30/05/2018	30/05/2018	28/06/2018	28/06/2018	22/06/2018	27/06/2018	28/06/2018	07/06/2018
Carbon										
Soil Organic Matter (SOM)	1.71	3.9	1.81	4.19	8.07	12.7	1.09	57.6	6.76	1.18
Metals (Solids)										
Arsenic	5.18	6.98	6.22	7.36	16.6	12.7	10.1	11.2	15.6	10.4
Cadmium	0.187	0.805	1.74	0.228	0.362	0.174	0.02	0.02	0.638	0.187
Chromium	12.9	138	144	15.3	34.6	38.7	33	8.88	32.5	28.2
Copper	19.5	53.6	16.6	16.3	25.9	26.2	12.6	12.7	27.7	12
Lead	25.3	56.2	115	31.6	35.8	39.1	29.9	5.23	44.4	25
Mercury	0.14	0.14	1.38	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	16.7	13.1	14	13.4	34.2	36	39.4	21.5	28.2	37.6
Selenium	1.21	3.94	4.21	2.54	1	1	1	2.34	1.29	1
Vanadium	21.7	161	133	38.3	55.1	54.6	60.2	20.7	51.2	50.1
Zinc	80.7	258	613	126	150	123	114	20.6	154	105
TPH Criteria Working Group (TPH CWG)										
Benzene										
Toluene										
Ethylbenzene										
sum of detected mpo xylene by GC										
Aliphatics >C5-C6	0.04	0.04	0.04	0.248	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	3.9	0.04	0.0584	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.106	10.1	0.04	0.0917	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.141	16.1	0.04	0.04	0.04	0.04	0.0512	0.04
Aliphatics >C12-C16	0.149	0.816	16	816	0.1	4.47	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	19.7	12.9	106	1100	0.1	4.91	0.1	0.1	0.1	0.1
Aliphatics >C21-C35	61.6	251	431	3580	7.38	20.9	0.1	71.5	4.89	0.1
Aliphatics >C35-C44	8.15	85.3	128	1380	0.1	0.1	0.1	0.835	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.148	6.7	0.04	0.0605	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.095	10.7	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	3.06	16.1	507	0.1	9.01	0.1	1.16	1.16	0.1
Aromatics >EC16-EC21	0.1	49.4	75.1	1360	0.1	13.4	0.1	7.51	2.23	0.1
Aromatics >EC21-EC35	9.46	162	226	4070	35.3	74.4	0.314	330	35.6	2.44
Aromatics >EC35-EC44	8	59.6	79.5	1250	6	16.7	0.1	45	6.65	0.1
Aromatics >EC40-EC44	3.39	22.5	33	532	1.62	4.59	0.1	14.1	1.43	0.1
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	12	60	43.9	1040	12	12	12	12	12	12
Acenaphthene	8	124	263	6190	8	54.2	8	8	8	8
Anthracene	16	607	506	3990	16	105	16	16	16	16
Benz(a)anthracene	16.7	2520	986	7500	14	77.9	14	14	14	14
Benzo(a)pyrene	15	1650	624	5080	15	107	15	15	15	15
Benzo(b)fluoranthene	26.9	2500	890	2800	25.8	226	15	15	15	15
Benzo(k)fluoranthene	14	806	322	862	14	68.5	14	14	14	14
Benzo(g,h,i)perylene	24	1000	433	2340	24	129	24	24	24	24
Chrysene	20	2390	1130	12600	10	163	10	10	10	10
Dibenzo(a,h)anthracene	0.023	256	142	1070	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	20.8	1060	387	1060	0.018	103	0.018	0.018	0.018	0.018
Fluoranthene	30.5	5910	1860	6090	28.4	381	0.017	0.017	0.017	0.017
Fluorene	10	185	294	6540	10	95.3	10	10	10	10
Naphthalene	9	45	215	828	31.5	24.7	9	9	9	9
Phenanthrene	24.7	2440	2400	5300	15	729	15	15	15	15
Pyrene	0.0287	4.95	2.15	18.3	0.015	0.256	0.015	0.015	0.015	0.015
PAH, Total Detected USEPA 16	0.168	26.4	12.6	81.6	0.118	2.52	0.118	0.118	0.118	0.118
Naphthalene-d8 % recovery**	97.7	92.6	91.9	110	85.7	104	105	99.2	83.1	85.4
Acenaphthene-d10 % recovery**	91.2	89.5	99.9	115	86.3	102	98.9	99.7	83.8	86.1
Phenanthrene-d10 % recovery**	94.8	96.4	97.7	105	85.9	99.5	106	102	90.4	89.8
Chrysene-d12 % recovery**	82.8	95.9	85.8	99.8	82.1	97	93.4	92.3	89.1	79.8
Perylene-d12 % recovery**	82.6	89.4	84.6	112	84	93.2	96	92.4	96	79.1
Total Aliphatics >C12-C44	89.6	350	681	6880	7.38	30.3	0.1	72.3	4.89	0.1
Total Aromatics >EC12-EC44	17.5	274	397	7180	41.3	113	0.314	383	45.6	2.44
Total Aliphatics & Aromatics >C5-C44	107	624	1080	14100	48.7	144	0.314	456	50.6	2.44
Metals - (Solid)										
Iron	13700	59100	83500	19800	24900	20100	44200	19100	22200	35700
Manganese	1170	8110	9720	2870	207	291	492	411	367	379
Metals - (Liquid)										
Calcium	141000	-	139000	-	73900	259000	-	92500	-	-
Magnesium	17700	-	21000	-	15700	41500	-	16800	-	-
Phenols										
Phenol	0.0826	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.0103	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.0207	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.114	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE										
pH										
Sulphate, Total										
Sulphur, Total										
Sulphate, Total potentia										
Sulphate, acid soluble (total)										
Cyanide, Total										
Exchangeable Ammonia as N										
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-
Date of Analysis	02/07/2018	-	02/07/2018	-	02/07/2018	-	-	-	-	-
Analysed By	Marcin Magdziarek	-	James Richards	-	Lucy Caroe	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)										
Analysts Comments										
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-
Comments	Soil containing material typical of asbestos cemen	-	0	-	0	-	-	-	-	-
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	107	114	111	110	107	94	108	105	103	109
Toluene-d8**	97.2	92	98.1	98.5	98.2	99.8	98.4	99	98.8	98.6
4-Bromofluorobenzene**	93.9	80	88.5	87.7	88.1	103	91.5	95.9	103	99.7
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d	0.5	0.5	0.5	0.5	0.5	-	-	-	0.5	3.64
Gross Calorific Value Original Q(V/gr/ar	0.5	0.5	0.5	0.5	0.5	-	-	-	0.5	1.91
Net Calorific Value in Dry Matter Q(V/net/d	0.5	0.5	0.5	0.5	0.5	-	-	-	0.5	3.2
Net Calorific Value in Original Q(V/net/ar	0.5	0.5	0.5	0.5	0.5	-	-	-	0.5	0.59
Water Analytical M (ad)	1.21	1.71	1.1	1.31	0.5	-	-	-	1.97	3.37
Water Gross M(ex)	8.96	6.14	9.67	12.8	8.44	-	-	-	39.8	45.7
Water Total M(ar)	10.1	7.74	10.7	13.9	8.44	-	-	-	40.9	47.5

Determinand	40AJ26V	40AK11	40AK11	40AK11	40AK13	40AK13	40AK13	40AK15	40AK27	40AK27
	2.8	0.500.50	1.001.00	2.002.00	0.500.50	1.001.00	2.002.00	0.500.50	0.5	1
	30/05/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	30/05/2018	30/05/2018
Carbon										
Soil Organic Matter (SOM)	1.18	2.17	1.1	1.93	3	3.4	2.74	0.45	54	12.1
Metals (Solids)										
Arsenic	7.04	7.67	8.03	6.89	9.02	8.06	11.4	1.35	7.81	6.75
Cadmium	0.575	0.704	1.7	2.02	0.985	0.821	0.515	0.542	3.37	0.7
Chromium	72.5	106	141	434	65.3	72	73.2	397	0.9	72.1
Copper	14.7	19.5	25.4	36.1	24.7	18.7	16.9	1.4	19.3	14.8
Lead	28.2	73.4	82.4	91.5	64.7	69.6	38.4	11.9	138	57.8
Mercury	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	9.07	12	16.7	14.1	22.3	12.9	19.4	1.04	43.4	15.9
Selenium	5.11	6.94	10	18.1	7.98	4.36	1.95	7.99	1	2.49
Vanadium	132	127	193	702	109	125	70.9	274	16.8	59.6
Zinc	106	249	283	120	325	362	129	34.9	727	207
TPH Criteria Working Group (TPH CWG)										
Benzene										
Toluene										
Ethylbenzene										
sum of detected mpo xylene by GC										
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.0857	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	4.79	3.9	13.5	8.2	23.1	16.7	1.82	0.1	0.1	0.1
Aliphatics >C16-C21	19.7	11.9	31.5	51.6	59.2	45	5.6	0.653	3.55	4.57
Aliphatics >C21-C35	116	71.4	114	1000	239	218	22.8	11.6	84.2	56.4
Aliphatics >C35-C44	39.2	21.4	40.5	948	94.5	108	5.58	0.78	5.13	19.4
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.0578	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	0.738	4.06	2.92	31.7	6.45	0.683	0.1	0.1	0.527
Aromatics >EC16-EC21	2.1	4.35	15.9	22.9	0.1	26.3	3.39	0.1	2.38	2.59
Aromatics >EC21-EC35	17.3	30.3	59.7	245	147	181	17.2	2.3	26	33.7
Aromatics >EC35-EC44	4.22	18.2	39.5	261	101	145	7.63	0.1	7.85	32.5
Aromatics >EC40-EC44	1.13	7.69	17.3	129	41.8	60.8	2.9	0.1	2.51	14.5
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	12	21.3	12	12	19.9	24	12	12	12	12
Acenaphthene	8.94	9.2	46.8	71	55.3	189	27.6	8	8	8
Anthracene	76.4	131	166	653	155	183	51.6	16	16	28.7
Benz(a)anthracene	301	379	396	1420	577	445	137	14	19.1	148
Benzo(a)pyrene	207	259	323	1270	546	383	106	15	15	158
Benzo(b)fluoranthene	341	416	467	1960	902	615	196	17	28.6	232
Benzo(k)fluoranthene	135	135	157	803	343	229	59.3	14	14	84.9
Benzo(g,h,i)perylene	189	193	239	1200	546	376	86.2	24	24	165
Chrysene	284	332	331	1450	557	445	124	13.7	30.7	188
Dibenzo(a,h)anthracene	43.7	52.1	52.7	198	96.1	75	28.6	0.023	0.023	33.7
Indeno(1,2,3-cd)pyrene	157	155	197	957	472	275	78.5	0.018	0.018	151
Fluoranthene	776	723	1090	1990	1210	1060	311	0.017	80.4	221
Fluorene	10	15.4	35.6	24.2	10	96.7	17.9	10	10	13.6
Naphthalene	41.6	25.1	41.4	22.6	71.1	134	28.6	9	31.9	29.2
Phenanthrene	332	283	906	593	802	806	127	15	74.7	155
Pyrene	0.752	0.626	0.914	5	1.2	1	0.293	0.015	0.0605	0.208
PAH, Total Detected USEPA 16	3.64	3.76	5.36	17.6	7.55	6.31	1.67	0.118	0.326	1.82
Naphthalene-d8 % recovery**	83.3	93.4	86	88.1	91.7	87.2	88.9	91.2	91.9	90.5
Acenaphthene-d10 % recovery**	85.7	101	92.5	96.2	93.5	93.1	96.6	90.7	85.2	94.9
Phenanthrene-d10 % recovery**	99.5	115	104	103	103	102	107	91.4	69.6	95
Chrysene-d12 % recovery**	82.1	97.5	87	71.8	88.7	91.7	81.1	88.2	31.6	72.4
Perylene-d12 % recovery**	85.4	100	92.1	73.3	89	86.9	81.2	83	16.6	71.3
Total Aliphatics >C12-C44	180	109	199	2010	416	388	35.7	13.1	92.8	80.3
Total Aromatics >EC12-EC44	23.6	53.6	119	532	280	359	28.9	2.3	36.2	69.3
Total Aliphatics & Aromatics >C5-C44	204	162	318	2540	696	746	64.7	15.4	129	150
Metals - (Solid)										
Iron	63400	69200	78600	158000	83400	59000	39500	151000	239000	50700
Manganese	12400	14200	11000	37600	17600	8990	2920	28300	3230	5520
Metals - (Liquid)										
Calcium	164000	-	168000	-	208000	-	205000	40500	-	198000
Magnesium	23200	-	17100	-	26500	-	24100	2370	-	15700
Phenols										
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.048	0.01	0.0116	0.0113
Cresols	0.01	0.0109	0.01	0.01	0.01	0.0112	0.01	0.01	0.01	0.0113
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.048	0.035	0.035	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE										
pH										
Sulphate, Total										
Sulphur, Total										
Sulphate, Total potentia										
Sulphate, acid soluble (total)										
Cyanide, Total										
Exchangeable Ammonia as N										
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-
Date of Analysis	04/07/2018	-	04/07/2018	-	04/07/2018	-	04/07/2018	04/07/2018	-	02/07/2018
Analysed By	Barbara Urbanek-Walsh	-	Lucy Caroe	-	Lucy Caroe	-	Barbara Urbanek-Walsh	Renata Bozhkov	-	James Richards
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)										
Analysts Comments										
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Detected	-	Not Detected
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Trace	-	Not Detected	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Comments	0	-	0	-	Loose fibres in soi	-	0	Loose fibres in soil	-	0
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	111	108	110	104	109	109	107	113	110	103
Toluene-d8**	97.8	98.2	98.4	98.2	97.1	97.5	95.5	99.9	97.6	96.4
4-Bromofluorobenzene**	81.9	87.8	85	81.6	88.1	85.2	85.9	81.6	86.2	87.9
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.56	0.15
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	0.5	0.5
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	0.5	0.5
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	0.5	0.5
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	0.5	0.5
Water Analytical M (ad)	-	-	-	-	-	-	-	-	1.06	1.11
Water Gross M(ex)	-	-	-	-	-	-	-	-	11.3	10.6
Water Total M(ar)	-	-	-	-	-	-	-	-	12.2	11.6

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances	40AK27	40AK11V	40AK15V	40AL10	40AL10	40AL10	40AL10	40AL12	40AL12	40AL12	40AL15	40AL17	40AL17	40AL20	40AL20	40AL20	40AL28	40AL28	40AL28	40AL28	40AL10V	40AL12V	40AL15V	40AL17V	40AL20V
													1.7	2.902.90	0.900.90	0.500.50	1.001.00	1.501.50	2.002.00	0.500.50	1.501.50	2.502.50	0.500.50	0.700.70	1.701.70	0.500.50	1.001.00	2.502.50	0.500.50	1	1.5	2.5	2.802.80	3.503.50	1.001.00	3.203.20	3.503.50
													30/05/2018	22/06/2018	22/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	28/06/2018	22/06/2018	22/06/2018	05/06/2018	05/06/2018	05/06/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	27/06/2018	27/06/2018	28/06/2018	22/06/2018	05/06/2018
Carbon																																					
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00	2.93	10.7	2.17	2.33	1.84	1.67	6.55	1.76	3.45	3.05	4.43	1.45	3.07	1.57	3.69	1.98	4.72	>100	21.7	7.19	31.7	2.16	15.6	12.5	4.1
Metals (Solids)																																					
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51	16.6	21	30.2	25.7	10.3	7.37	7.42	6.84	5.12	13.2	12.7	13.3	2.45	16	11	4.82	3.88	4.22	5.98	16.8	9.15	10.2	11.8	22.3	10.3
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30	0.02	0.579	0.315	0.722	0.2	0.02	0.02	0.128	0.02	0.0366	1.64	1.87	0.449	0.417	0.377	0.664	0.561	0.227	0.509	0.02	0.134	0.02	0.178	0.931	0.278
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14	39.3	37	77.6	55.3	101	19.1	118	80.2	80.8	5.64	144	277	12.5	18.5	16.6	180	81.2	21.8	291	37.8	13.8	35.8	32.6	36.3	35.4
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00	23.9	28.1	34.9	34	24.1	13.8	18.7	17.1	15.7	14.7	25.1	34.7	8.2	30.5	24.8	16.8	10.2	63	21.7	25.4	15.6	16.2	24.8	31	17
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26	28.3	51.3	161	132	48.8	26.1	21.2	49.8	24.4	31.1	80.7	75.7	28.6	23.3	29.5	25	15.6	20.4	23.9	38.4	15.8	23.7	37.9	67	24.3
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14	0.14	0.14
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05	39.1	26	13.3	12.8	22	19.4	3.19	11.8	8.74	17	19	20.5	6.74	41.4	34	8.62	7.24	8.01	15.2	31.2	23.7	38.5	31.5	27.8	29.6
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77	1	1	6.21	3.92	10	1	9.2	2.56	3.89	1	10	10.5	2.79	1.36	2.06	5.08	3.59	1.5	7.48	1	1	1	1	1.42	1
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00	69.6	60.5	128	111	164	37.8	397	108	127	21.7	216	632	38.3	44	35.4	301	172	38.1	714	62.8	27.9	57.5	49.9	56.9	55.5
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49	70.3	170	2160	2080	330	140	94.6	266	90.2	55.6	341	318	114	104	106	80.1	73.6	35	76.7	130	69	105	134	176	103
TPH Criteria Working Group (TPH CWG)																																					
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00																									
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00																									
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00																									
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00																									
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00	0.04	0.04	0.04	0.04	0.04	0.0598	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0432	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00	0.04	0.04	0.04	0.04	0.04	0.0469	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.048	0.04	0.04	0.04	0.0728	0.04
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00	0.04	0.04	0.04	0.04	0.0511	0.0587	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.048	0.04	0.04	0.04	0.0455	0.04
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00	0.1	0.1	11.1	8.68	7.22	3.6	1.17	3.87	2.97	5.51	3.89	8.17	4.72	1.32	5.8	2.28	0.1	3.94	10.2	0.1	0.1	0.1	0.213	0.1	0.1
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00	0.1	0.1	38.9	29.9	22.5	9.76	8.32	16.9	15.8	11.8	9.81	19.8	19.1	2.54	6.8	7.11	4.8	25.4	20.6	0.1	1.83	0.1	1.24	0.1	0.1
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00	2.55	8.39	221	189	126	57.7	64.8	78.2	126	27.3	34.5	62.1	143	8.97	6.89	48	42.4	363	93	8.22	41.6	2	16.7	2.02	1.02
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00	0.1	0.1	62.7	56.6	59.6	21.7	27.9	24.6	24.1	6.48	12.1	18.3	41.5	1.87	1.7	21.1	15.8	111	37	0.1	0.1	0.1	0.469	0.1	0.1
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00	0.04	0.04	0.04	0.04	0.04	0.0512	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0491	0.04
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00	0.1	0.524	3.38	2.84	1.69	3.6	0.902	1.74	1.95	2.49	2.15	3.85	2.83	0.1	0.98	0.1	0.1	3.18	1.67	0.1	0.1	0.1	0.204	2.49	0.1
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00	0.1	3.59	15.3	14.5	8.86	8.06	23.5	8.37	15.1	6.18	10	14.6	11.9	0.1	3.36	0.1	3.08	19	8.58	1	4.34	0.1	2.77	2.38	0.312
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00	8.5	82.1	121	95.1	76.8	44.6	91.2	39.9	89.6	21.8	38.3	59.5	65.6	2.54	7.36	20.2	28.2	125	56.6	47.4	131	7.37	97	37.3	11.9
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00	1.23	13	66.2	51.5	59.6	29.4	41.5	24.3	35.8	9.33	18.2	28.3	37.6	5.7	6.44	15.9	17.8	88.6	35.4	14	31.5	1.3	19.4	4.16	2
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00	0.1	3.95	27.2	20.8	25.5	11.6	16.3	10.4	13.6	3.7	7.41	10.9	15.4	3.21	3.4	6.41	7.45	38.1	14.9	5.49	9.94	0.1	3.35	0.521	0.491
Polyaromatic Hydrocarbons (PAHs)																																					
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42	12	12	58.5	52.6	12	12	16.6	12	12	12	125	1620	18.8	12	12	12	12	17.2	12	12	12	12	12	12	12
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93	8	8	28.9	34.3	17.9	30.1	123	25.3	34.2	8	42.3	192	12.1	8	8	17.9	11.1	22.9	16.8	8	8	8	8	24	8
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86	16	16	140	171	51.2	39.7	1530	108	378	16	284	2970	129	16	16	39.9	55.1	99.4	52	16	16	16	16	31.3	16
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56	14	40.4	1190	626	182	107	6520	417	774	46.7	576	3390	648	26.8	38.4	292	243	288	554	23.7	14	14	14	146	14
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81	15	44.1	1160	593	151	87.5	4820	329	566	48.5	490	2600	559	23.2	35.9	371	266	224	587	24	15	15	15	150	15
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77	15	92.3	1660	826	239	171	7800	532	857	65.2	601	3800	574	33.2	61.6	399	338	403	841	52.9	77.3	15	61.4	215	15
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77	14	38.4	706	318	92.4	55.9	2800	205	359	26.4	248	1210	292	14	18.6	156	123	172	286	14	14	14	14	77.8	14
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07	24	45.8	862	474	122	74.2	3070	277	421	49.8	402	1850	378	24	24	311	224	221	378	24	24	24	24	107	24
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79	10	66.2	1070	555	167	142	6410	480	807	51.5	499	2220	679	27.3	66.4	317	261	325	579	38.4	55.7	10	44	185	10
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23	0.023	0.023	202	109	30.4	0.023	764	58.2	92.8	0.023	98	469	84	0.023	0.023	63.5	44.2	72.2	87.1	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37	0.018	40	844	419	102	74.7	3070	274	429	38.7	339	1710	317	0.018	24	316	242	176	368	0.018	0.018	0.018	34.5	96.2	0.018
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23	0.017	121	1760	962	381	234	10600	965	2270	84.5	1480	9940	1850	46.9	65.8	421	411	454	756	60.5	118	0.017	69.9	402	25.6
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09	10	10	46.6	61.4	16.7	36.5	121	17	33.4	10	142	2670	19.7	10	10	10	10	48.6	10	10	10	10	10	63.4	10
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51	9	9	65	79	37.9	94.7	60.2	33	35.7	17.2	827	38100	35.9	9	28.7	20.4	24.7	91	69.1	9	9	9	9	9	9
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56	15	63.5	511	514	211	184	4150	468	1940	62.6	893	11600	607	28.6	121	161	178	385	239	34.2	15	15	30.7	197	15
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00	0.015	0.0944	1.53	0.945	0.322	0.178	13.3	1.2	1.9	0.0801	1.14	6.32	1.41	0.0411	0.0515	0.494	0.441	0.434	0.838	0.046	0.0812	0.015	0.0524	0.335	0.015
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00	0.118	0.646	11.8	6.74	2.12	1.51	65.1	5.39	10.9	0.571	8.19	90.7	7.61	0.227	0.512	3.38	2.86	3.43	5.65	0.28	0.332	0.118	0.293	2.03	0.118
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00	95.2	101	94.6	96.6	90.8	87.5	98	96.6	88	97.7	78.5	73.3	91.6	91.9	92.3	91	91	83.4	87.4	89.9	102	82.1	88.5	92.6	90.1
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00	91	105	97.6	101	96.4	74.5	87.4	92.2	89.5	90.7	75.6	85.9	94.5	93.3	84.7	93.7	95	88.7	91.6	87.9	107	80.5	89.1	94.7	89.2
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00	89.5	108	95.5	99.5	95.9	87.3	98.1	88.1	91.7	90.3	91.7	95.3	95.3	93	81.4	94.9	98.3	89.2	92.7	91.7	112	80.1	89.5	95.9	85.5
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00	85.5	87.4	77.1	86.2	82.7	76	107	92.5	87.7	88.1	76.1	76.9	85.1	79.9	73.7	80.9	83.6	70.7	93.2	89.4	88.8	79.8	88.6	90.4	77.3
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00	85.2	88.9	72.2	83.1	80.1	75.5	112	96.2	90.3	86.9	77.3	79.3	83.2	74.1	73.3	79.2	81.2	63.3	79.5	86.5	89.5	82	88.4	86.3	81.3
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00	2.55	8.39	333	284	215	92.8	102	124	169	51	60.2	108	208	14.7	21.2	78.4	63	503	161	8.22	43.5	2	18.6	2.02	1.02
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00	9.72	99.2	206	164	147	85.8	157	74.2	142	39.8	68.7	106	118	8.24	18.1	36.2	49.1	236	102	62.4	167	8.67	119	46.3	14.2
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00	12.3	108	539	448	362	179	259	198	312	90.9	129	215	326	22.9	39.3	115	112	739	263	70.7	211	10.7	138	48.5	15.2
Metals - (Solid)																																					
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00			32400	22400	63200	51600	133000	25800	78900	47900	37200	18500	91900	130000	35400	33300	31500	85800	48400	19000	116000	32500	22500	29700	23300	20800	32700
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00			249	230	18000	11200	8250	1820	29900	6890	10400	619	10700	21800	3310	940	1990	12500	6410	1190	21700	285	170	394	185	272	374
Metals - (Liquid)																																					
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00			243000	-	50500	205000	-	26600	-	-	-	-	-	-	-	69400	113000	-	125000	-	-	160000	-	3490	-	-	265000
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00			19100	-	7960	16700	-	1760	-	-	-	-	-	-	-	10500	23800	-	15900	-	-	13700	-	1470	-	-	26700
Phenols																																					
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0182	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0112	0.01	0.01	0.01	0.01
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0182	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0162	0.01	0.0105
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																																					
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55																									
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93																									
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00																										
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55																									
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55																									
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55																									
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00																									
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00																									
Asbestos																																					
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-
Date of Analysis	TM048	No units		430	0	0					0.00		18/06/2018	-	18/06/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	02/07/2018	-	21/06/2018	-	-	18/06/2018
Analysed By	TM048	No units		430	0	0					0.00		Barbara Urbanek-Walsh	-	Marcin Magdziarek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	James Richards	-	Barbara Urbanek-Walsh	-	-	James Richards
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00																										
Analysts Comments	TM304	No units		83	0	0					0.00																										
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00		Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
Fibrous Tremolite	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
Fibrous Actinolite	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00		Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
Comments	TM048	No units		430	0	0			0.00	0.00	0.00		Loose fibres in soil	-	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	-	-	0
Volatile Organic Compounds (VOCs)																																					
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00		107	106	108	110	112	109	106	111	119	102	105	107	111	113	106	108	107	107	109	114	105	113	121	107	114
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00		97.1	98.2	95.5	99.8	98.5	97.4	98	99.4	89.7	98.8	97.2	95.2	99	95.1	97	98.7	99.1	94.5	97.6	99	97.7	99.7	99.7	95.3	96.2
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00		91.8	95.5	86	104	92.2	81.5	85.7	86.8	75.2	105	94.6	94	94.2	87.7	92	87.5	90.6	84.1	86.1	88	86.1	94.6	95.6	92.6	91
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00		0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00		0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00		0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00		0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																																					
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00		-	-	-	-	-	-	-	-	-	-	3.79	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00		-	-	-	-	-	-	-	-	-	-	1.87	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00		-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00		-	-	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00		-	-	-	-	-	-	-	-	-	-	3.2	-	-	-	-	-	-	-	1.02	0.71	0.77	-	-	-	-
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00		-	-	-	-	-	-	-	-	-	-	49.2	-	-	-	-	-	-	-	6.42	9.43	8.64	-	-	-	-
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00		-	-	-	-	-	-	-	-	-	-	50.8	-	-	-	-	-	-	-	7.37	10.1	9.34	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AL28V 3 29/05/2018	40AM27 1.001.00 30/05/2018	40AM28 0.5 29/05/2018	40AM28 1 29/05/2018	40AM28 2 29/05/2018	40AM27V 1.8 30/05/2018	40AN11 0.500.50 22/06/2018	40AN11 1.001.00 22/06/2018	40AN11 1.501.50 22/06/2018	40AN13 0.500.50 14/06/2018	40AN13 1.101.10 14/06/2018	40AN24 0.500.50 06/06/2018	40AN24 1.001.00 06/06/2018	40AN24 1.701.70 06/06/2018	40AN24 2.302.30 06/06/2018	40AN26 0.500.50 06/06/2018	40AN26 1.001.00 06/06/2018	40AN26 1.701.70 06/06/2018	40AN26 2.302.30 06/06/2018	40AN28 0.5 29/05/2018
Carbon																				
Soil Organic Matter (SOM)	18.4	3.57	3.57	1.59	18.8	6.02	7.81	10.7	4.86	6.59	1.78	1.39	1.1	1.42	2.71	1.76	5	3.03	4.57	4.86
Metals (Solids)																				
Arsenic	7.67	6.6	9.91	11	9.21	10.4	11.6	9.41	6.42	16.1	5.13	8.26	3.84	4.4	9.54	5.14	8.59	7.14	14.3	24.5
Cadmium	0.389	1.69	0.866	0.337	0.314	2.13	2.16	2.51	0.221	0.37	1.58	1.48	0.282	0.943	0.673	0.194	0.383	0.92	0.698	1.04
Chromium	12.1	44.7	64.2	88.4	17.7	34.1	117	216	0.9	40.8	23.9	31.8	33.5	19.5	44.7	11.1	9.15	80	162	342
Copper	28	19.9	88.5	18.5	16.8	38.8	32.6	29.5	15.9	32.2	27.4	43.3	6.56	14.1	24.9	8.61	12	32.3	73	117
Lead	31.2	47.6	72.8	20.8	20.5	149	135	102	11.3	33.3	78.7	113	12.2	59.9	42.4	11.7	16.2	67.6	71.3	252
Mercury	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.2
Nickel	18.3	14.2	18.2	10.9	21.3	26.3	25.1	30	19.3	36.4	12.6	20.3	4.99	11	25.7	17.6	33.4	17.9	24.8	26.6
Selenium	1.76	2.56	3.13	3.6	1.74	10	10	10	1	1.73	1.94	1.43	4.02	3.31	2.52	1	1	3.29	3.56	2.32
Vanadium	75.6	118	138	85.3	38	58.6	359	160	16.3	64.5	53.2	56.9	84.9	46	80.6	17.4	20.9	168	104	83.2
Zinc	140	204	219	105	105	614	468	409	40.7	122	268	298	50.1	86.5	131	48.2	103	202	270	491
TPH Criteria Working Group (TPH CWG)																				
Benzene																				
Toluene																				
Ethylbenzene																				
sum of detected mpo xylene by GC																				
Aliphatics >C5-C6	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.343	0.54	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	1.16	2.7	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.398	5.39	3.89	2.36	0.1	6.17	3.19	2.89	8.28	0.847	20	19	43.5	107	35	1.81	3.06	3.43	3.28	0.73
Aliphatics >C16-C21	0.559	23.3	16	6.52	5.1	28.2	15	13.9	24	1.22	62.1	116	100	233	41.1	9.98	5.38	16.3	13.7	4.06
Aliphatics >C21-C35	20.7	189	107	57.2	37.1	104	71.6	74.9	31.9	2.02	216	577	86.5	257	50.6	60.6	21.5	118	88.3	26.7
Aliphatics >C35-C44	7.9	69.3	31.4	13.8	0.1	24.8	19.7	23.6	3.38	0.1	62.3	178	23	55.8	10	42.8	2.58	30.7	25.5	6.37
Aromatics >EC5-EC7	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.229	0.36	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.776	1.8	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.609	2.3	1.39	0.1	0.1	1.64	1.16	2.16	5.17	0.1	3.85	4.74	15.8	41.4	5.29	0.687	1.7	1.09	1.7	0.974
Aromatics >EC16-EC21	2.03	11.2	7.72	0.1	5.43	9.9	8.46	9.71	13.2	0.203	21.5	49.3	35.1	108	17.4	4.27	6.82	6.41	9.87	4.77
Aromatics >EC21-EC35	16.4	83.2	47.5	38.2	63.3	50	47.4	53.9	18.2	12.8	97.2	242	39.7	102	34.9	48	17.4	54.8	56.2	23.2
Aromatics >EC35-EC44	11	48.6	23	8.69	3.22	22.2	26.2	30	4.16	2.02	73.3	115	26.2	28.7	15.7	62.8	2.96	31	27.1	9.29
Aromatics >EC40-EC44	4.52	20.1	8.81	3.16	0.1	8.8	10.6	11.8	1.14	0.1	32.4	47.5	12.6	9.87	6.29	30.7	0.1	13.2	10.9	3.75
Polyaromatic Hydrocarbons (PAHs)																				
Acenaphthylene	40.5	69.9	25.4	12	60	17.6	13.8	17.4	12	12	60	60	12	12	12	12	12	60	48	32.1
Acenaphthene	8	51.7	36.1	8	159	14.5	13	26.1	8	8	40	40	20.9	35.7	8	8	8	40	85.6	76.4
Anthracene	85.9	170	74.8	16	80	55.1	43.6	76.8	16	16	149	80	37.4	30	20.9	17.2	16	80	223	243
Benz(a)anthracene	577	526	352	22.7	70	216	190	332	16.6	14	194	70	181	54.9	61.5	82.6	41.2	434	701	1040
Benzo(a)pyrene	803	606	351	15	75	255	202	365	15	15	188	99.6	105	46.3	63.4	95.9	34.2	446	708	932
Benzo(b)fluoranthene	861	862	572	29.5	75	358	347	576	23.9	15	305	109	135	86.8	105	173	79.3	828	860	1360
Benzo(k)fluoranthene	359	330	176	14	70	140	105	183	14	14	126	70	65.2	29.6	35.9	57.1	22.2	284	374	461
Benzo(g,h,i)perylene	673	537	291	24	120	234	177	286	24	24	231	155	63.5	128	67.3	106	42.7	353	505	571
Chrysene	534	500	434	27.4	50	232	197	325	23.1	10	249	75.4	190	61.4	67.8	108	93	512	610	1070
Dibenzo(a,h)anthracene	125	120	56.7	0.023	0.115	51.2	0.023	59.5	0.023	0.023	0.115	0.115	0.023	0.023	0.023	0.023	0.023	0.115	116	132
Indeno(1,2,3-cd)pyrene	638	521	280	0.018	90	207	194	304	0.018	0.018	169	98.7	49.5	50.8	49.8	110	28.3	386	532	610
Fluoranthene	1080	995	634	38.3	208	335	320	532	23.2	0.017	313	150	434	132	117	118	75.7	585	1330	1950
Fluorene	19	85.9	42.6	10	115	17.9	11.1	30.4	17.5	10	50	50	102	153	10	10	10	50	109	101
Naphthalene	30.3	211	89	16.3	45	65.3	78.1	129	32.7	9	45	45	20.8	22.5	17.9	26.2	31.1	45	266	163
Phenanthrene	287	618	338	39.2	496	196	196	302	67.5	15	184	87.9	236	296	84.1	105	168	258	848	884
Pyrene	1.07	0.898	0.604	0.0363	0.075	0.327	0.329	0.494	0.0225	0.015	0.308	0.195	0.434	0.166	0.107	0.115	0.0759	0.59	1.11	1.62
PAH, Total Detected USEPA 16	7.18	7.1	4.36	0.21	0.978	2.72	2.42	4.04	0.227	0.118	2.42	0.97	2.07	1.29	0.797	1.11	0.692	4.68	8.42	11.2
Naphthalene-d8 % recovery**	85.4	93.7	88.3	87.9	91.7	95.2	99.4	95.8	86.7	85.9	88.4	91.2	90.5	95.7	85.1	94	92	85.9	89.6	84.8
Acenaphthene-d10 % recovery**	85.2	94.1	88.8	86.4	93.9	94.3	100	97.9	86.4	90.4	94	95.3	92.3	104	88.4	91.5	92.6	86.3	89.8	84.9
Phenanthrene-d10 % recovery**	83.1	93	99.2	89.1	93	101	95.8	96.4	83.5	94.5	91.3	97.1	93	102	92.3	91.8	94.4	84.1	96	81.6
Chrysene-d12 % recovery**	68.7	79.4	96.6	84.2	76.5	87.2	84.9	85.3	84.1	78	81.2	80.4	82.2	109	82.5	96.2	77.1	86.1	96.4	82.2
Perylene-d12 % recovery**	63.6	86.1	88.3	78.4	75.8	82.2	80.4	84.2	84.2	80.2	80.9	81.1	79.3	113	82.8	96.4	71.6	82.9	92.2	75.3
Total Aliphatics >C12-C44	29.6	287	159	79.9	42.1	163	109	115	67.6	4.08	360	890	253	652	137	115	32.6	168	131	37.8
Total Aromatics >EC12-EC44	30	145	79.6	46.8	72	83.7	83.3	95.8	40.8	15	196	412	117	280	73.3	116	28.9	93.3	94.9	38.3
Total Aliphatics & Aromatics >C5-C44	59.6	433	238	127	114	246	193	211	108	19.1	556	1300	372	938	210	231	61.4	261	226	76.1
Metals - (Solid)																				
Iron	50000	57100	47300	30300	29200	95800	104000	93600	19300	29600	41700	26200	14400	24300	46700	16300	20400	63100	65800	69300
Manganese	2160	4790	4510	6890	1410	3840	11700	9050	426	243	3330	2980	4350	3350	4100	742	519	8260	8320	4990
Metals - (Liquid)																				
Calcium	-	165000	-	74400	-	138000	-	105000	-	-	-	-	-	115000	104000	-	-	94700	176000	-
Magnesium	-	35500	-	32600	-	31100	-	18500	-	-	-	-	-	12900	12800	-	-	12200	33200	-
Phenols																				
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.011	0.0658	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.16	0.147	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0114	0.0113	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.0228	0.0226	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0658	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.194	0.181	0.035	0.035
Inorganics																				
Soluble Sulphate 2:1 extract as SO4 BRE																				
pH																				
Sulphate, Total																				
Sulphur, Total																				
Sulphate, Total potentia																				
Sulphate, acid soluble (total)																				
Cyanide, Total																				
Exchangeable Ammonia as N																				
Asbestos																				
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	18/06/2018	-	18/06/2018	-	18/06/2018	-	-	-	-	-	-	-	20/06/2018	21/06/2018	-	-	21/06/2018	21/06/2018	-
Analysed By	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	-	-	-	-	-	-	Lucy Caroe	Barbara Urbanek-Walsh	-	-	Andrzej Ferfecki	Lucy Caroe	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																				
Analysts Comments																				
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Detected	-	-	Not Detected	Detected	-
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-
Fibrous Tremolite	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-
Fibrous Actinolite	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-
Comments	-	0	-	Loose fibres in soi	-	0	-	-	-	-	-	-	-	0	Loose fibres in soil.	-	-	0	Soil containing material typical of asbestos cemen	-
Volatile Organic Compounds (VOCs)																				
Dibromofluoromethane**	114	107	121	105	110	109	106	104	108	112	109	112	109	111	101	105	105	107	105	104
Toluene-d8**	97.2	95.4	97.6	98	95.7	96.4	98.3	99.2	97.9	95.9	98.8	97.9	98.6	96.9	97.4	94.7	98.6	93.6	99.9	96.2
4-Bromofluorobenzene**	94.1	87.1	96.3	83.9	84.8	89	92.5	96.5	91.4	81	99.7	95.3	94.3	87.5	97.2	93	97	97.7	96.2	95.3
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																				
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	1.68	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	30.2	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	31.4	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AN28 1 29/05/2018	40AN11V 2.202.20 22/06/2018	40AN13V 1.001.00 14/06/2018	40AN20V 0.800.80 14/06/2018	40AN26V 2.602.60 06/06/2018	40AN28V 1.2 29/05/2018	40AO14 0.500.50 14/06/2018	40AO16 0.500.50 14/06/2018	40AO16 1.001.00 14/06/2018	40AO16 2.002.00 14/06/2018	40AO16 3.003.00 14/06/2018
Carbon											
Soil Organic Matter (SOM)	2.07	2.57	5.34	1.1	1.78	3.14	3.88	3.15	6.55	5.45	1.97
Metals (Solids)											
Arsenic	11.5	8.1	13	9.36	13.5	15.9	7.01	6.29	12.1	9.59	10.1
Cadmium	0.02	0.353	0.381	0.239	0.294	0.767	0.353	1.89	1.1	0.938	0.859
Chromium	32.8	10.1	39.6	30.6	34.8	14.2	55.5	99.6	78.1	56.1	128
Copper	22.9	13	25.9	11.9	12.7	38.9	23.3	24.8	48.1	318	63
Lead	23.5	15.9	32.1	28	26.2	74.3	48.1	787	123	69.7	112
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.171
Nickel	36.1	35	37.5	38.7	34.8	25.1	17.4	10.9	19.3	41.8	12.7
Selenium	1	1.24	1.32	1	1	2.59	2.2	5.95	3.21	2.59	3.58
Vanadium	52.7	25.6	59.5	51.8	58.2	50.7	99.7	185	242	116	156
Zinc	90.7	74.2	115	111	116	145	187	165	336	251	238
TPH Criteria Working Group (TPH CWG)											
Benzene											
Toluene											
Ethylbenzene											
sum of detected mpo xylene by GC											
Aliphatics >C5-C6	0.04	0.0472	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.0779	0.04	0.04	0.04	0.04	0.04	0.0415	0.04	0.061	0.04
Aliphatics >C8-C10	0.04	1.43	0.04	0.04	0.04	0.04	0.04	0.0501	0.04	1.14	0.04
Aliphatics >C10-C12	0.04	17.8	0.04	0.04	0.04	0.04	0.04	0.166	0.04	0.306	0.04
Aliphatics >C12-C16	0.1	997	0.1	0.1	0.1	1.03	6.54	1.79	7.62	5.97	4.1
Aliphatics >C16-C21	0.1	709	0.1	0.157	0.1	4.82	22.2	8.96	32.6	24.8	19
Aliphatics >C21-C35	1.49	176	7.22	1.02	7.71	85.7	115	52.7	171	149	126
Aliphatics >C35-C44	0.1	13.2	0.1	0.1	1.33	18.4	70.3	14.4	54.4	45.6	45.5
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.953	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.764	0.04
Aromatics >EC10-EC12	0.04	11.8	0.04	0.04	0.04	0.04	0.04	0.111	0.04	0.203	0.04
Aromatics >EC12-EC16	0.1	188	0.1	1.66	0.1	1.49	2.18	1.19	4	3.18	1.71
Aromatics >EC16-EC21	0.1	295	0.1	1.59	0.1	4.28	11.7	4.98	17.3	14.4	11.7
Aromatics >EC21-EC35	8.52	82	13	3.74	2.6	40.3	72.9	34.7	86.1	92.1	66.8
Aromatics >EC35-EC44	3.11	15.8	1.44	0.636	5.21	15.2	87.2	15.5	39	37.9	39.2
Aromatics >EC40-EC44	1.13	6.58	0.1	0.1	2.21	5.04	42.1	6.15	15.9	15.6	16
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	12	12	12	12	12	12	13.8	12	14.6	12	31.3
Acenaphthene	8	8	8	8	8	12.3	22	13.2	79.4	22.7	28.7
Anthracene	16	16	16	16	16	22.7	80.7	53.3	290	81.3	104
Benz(a)anthracene	14	28.3	14	14	14	86.5	251	165	386	293	473
Benzo(a)pyrene	15	15	15	15	15	74.6	223	170	273	212	523
Benzo(b)fluoranthene	15	39.7	15	15	15	162	447	278	529	352	875
Benzo(k)fluoranthene	14	14	14	14	14	58.9	173	89.6	192	99.8	286
Benzo(g,h,i)perylene	24	24	24	24	24	75	214	152	230	152	431
Chrysene	10	36.2	10	10	10	111	281	196	448	301	519
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	44.6	33.5	44	40.7	95
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	0.018	0.018	53.7	161	120	259	144	333
Fluoranthene	0.017	110	0.017	0.017	0.017	146	430	308	1280	498	781
Fluorene	10	10	10	10	10	19.5	17.9	12.9	50	21.7	30.7
Naphthalene	9	9	9	9	9	30.2	77.7	48.1	77.4	54	74.4
Phenanthrene	15	15	15	15	15	104	238	215	1560	367	329
Pyrene	0.015	0.0951	0.015	0.015	0.015	0.132	0.392	0.292	1.07	0.437	0.802
PAH, Total Detected USEPA 16	0.118	0.309	0.118	0.118	0.118	1.09	3.07	2.15	6.78	3.08	5.72
Naphthalene-d8 % recovery**	91.1	101	101	92.8	76.7	102	104	102	89.1	93.6	95.9
Acenaphthene-d10 % recovery**	89.4	104	87.6	88.8	77.6	93.9	94.6	91.5	92.3	95.7	83.9
Phenanthrene-d10 % recovery**	90	95	76.2	89.5	84.4	85.8	94.4	84.1	94.8	99.5	87.2
Chrysene-d12 % recovery**	86.6	90.6	98.2	91.4	85.4	97	100	86.9	79.8	107	94.3
Perylene-d12 % recovery**	88.1	97	99.7	94	81.3	98.9	103	87.7	74.2	93.3	96.4
Total Aliphatics >C12-C44	1.49	1890	7.22	1.18	9.04	110	214	77.9	266	225	195
Total Aromatics >EC12-EC44	11.6	581	14.5	7.63	7.81	61.2	174	56.4	146	148	119
Total Aliphatics & Aromatics >C5-C44	13.1	2510	21.7	8.82	16.8	171	388	135	412	375	314
Metals - (Solid)											
Iron	37800	14700	26900	30300	34700	43300	53600	46200	59700	35100	55400
Manganese	465	406	243	414	594	2420	4150	9740	6780	4160	8740
Metals - (Liquid)											
Calcium	140000	-	-	161000	-	198000	-	207000	-	100000	-
Magnesium	13400	-	-	36300	-	36200	-	28600	-	16800	-
Phenols											
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE											
pH											
Sulphate, Total											
Sulphur, Total											
Sulphate, Total potentia											
Sulphate, acid soluble (total)											
Cyanide, Total											
Exchangeable Ammonia as N											
Asbestos											
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	0.001	-
Date of Analysis	21/06/2018	-	-	18/06/2018	-	15/06/2018	-	15/06/2018	-	-	-
Analysed By	Lucy Caroe	-	-	Renata Bozhkov	-	Renata Bozhkov	-	Renata Bozhkov	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	0.001	-
Additional Asbestos Components (Using TM048)											
Analysts Comments											
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	0.001	-
Chrysotile (White) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Amosite (Brown) Asbestos	Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Fibrous Tremolite	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Fibrous Actinolite	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-
Comments	Soil containing material typical of AIE	-	-	0	-	0	-	0	-	-	-
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	106	106	104	104	111	109	108	103	107	106	112
Toluene-d8**	95.5	95	97.2	98.2	96.8	95.7	93.2	95.5	97	98.3	98.6
4-Bromofluorobenzene**	92	93.2	95.1	93.6	94.1	91.4	92.2	94.4	93.4	94.7	92
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.147	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-

Determinand	40AO17 0.500.50 14/06/2018	40AO17 1.001.00 14/06/2018	40AO17 2.002.00 14/06/2018	40AO17 3.003.00 14/06/2018	40AO23 0.500.50 06/06/2018	40AO23 1.001.00 06/06/2018	40AO23 1.301.30 06/06/2018	40AO25 0.500.50 06/06/2018	40AO25 1.001.00 06/06/2018	40AO25 2.002.00 06/06/2018	40AO25 2.802.80 06/06/2018
Carbon											
Soil Organic Matter (SOM)	3.78	2.22	2.64	2.26	4.45	2.17	1.48	0.952	1.09	0.705	3.19
Metals (Solids)											
Arsenic	40	7.66	4.39	4.75	7.04	5.34	6	6.22	6	3.35	10
Cadmium	0.875	1.46	0.435	1.62	1.5	1.33	0.796	0.88	0.743	0.447	0.85
Chromium	76.5	173	40.4	29.4	31.8	82.5	292	273	155	49.2	52.8
Copper	37.8	35.9	13	20.1	50.9	19.7	14	40.2	21.5	37.5	40.8
Lead	91.2	76.2	33.9	93.2	120	66	42.7	55	59.7	39.2	94
Mercury	0.14	1.4	0.14	0.14	0.14	0.14	1.4	1.4	1.4	0.14	0.14
Nickel	33.7	13.9	9.4	10.7	15.1	14	7.67	11.4	18.7	8.43	16.4
Selenium	16.1	10	2.17	3.16	3.24	2.74	10	10.4	10	4.13	2.67
Vanadium	117	305	56.5	77.1	55.6	108	486	537	297	141	105
Zinc	225	262	126	253	320	179	149	113	134	100	260
TPH Criteria Working Group (TPH CWG)											
Benzene											
Toluene											
Ethylbenzene											
sum of detected mpo xylene by GC											
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.0515	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.196	0.04
Aliphatics >C12-C16	5.36	5.04	4.02	4.14	4.7	2.4	87.9	1.19	7.85	5.17	3.1
Aliphatics >C16-C21	19.7	23.8	16.7	16.7	17.9	8.71	279	20.8	32.5	6.64	15.9
Aliphatics >C21-C35	93.4	238	93.5	62.8	79.5	34.7	859	166	199	10.3	82.8
Aliphatics >C35-C44	26.7	207	31.8	22.3	47.9	9.45	145	42	58.1	1.4	21.3
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.13	0.04
Aromatics >EC12-EC16	0.1	2.3	1.31	1.31	0.1	1.81	8.1	1.41	1.22	1.25	1.24
Aromatics >EC16-EC21	0.1	14.5	7.14	5.19	0.1	5.32	48.8	10.3	10.2	3.94	8.34
Aromatics >EC21-EC35	18.7	162	48.7	31.6	3.69	26.3	192	82.3	103	5.48	48.6
Aromatics >EC35-EC44	10	156	25	17.4	7.58	13.6	115	42	76	1.87	23.4
Aromatics >EC40-EC44	2.72	67.3	9.93	6.93	3.38	5.43	47.9	16.1	29.3	0.1	9.51
Polyaromatic Hydrocarbons (PAHs)											
Acenaphthylene	60	60	24	12	12	19.7	60	12	60	12	22.1
Acenaphthene	40	47.7	53.8	11.3	8	23.2	40	19.3	55.5	19.8	41.6
Anthracene	80	141	87.8	34.9	28.2	110	80	50.8	112	28.8	140
Benz(a)anthracene	111	290	280	163	116	726	230	466	662	101	571
Benzo(a)pyrene	117	249	249	193	122	412	179	531	748	78.6	465
Benzo(b)fluoranthene	161	459	449	310	237	908	408	894	1270	183	666
Benzo(k)fluoranthene	70	153	142	95.3	102	442	137	312	369	50.4	253
Benzo(g,h,i)perylene	120	226	248	202	142	369	228	487	711	61.1	303
Chrysene	141	298	313	193	160	934	319	625	816	133	569
Dibenzo(a,h)anthracene	0.115	0.115	0.046	31.7	26.6	78.4	0.115	73.5	0.115	0.023	83.1
Indeno(1,2,3-cd)pyrene	90	250	165	157	129	388	179	341	535	65.8	324
Fluoranthene	228	677	522	302	183	1910	564	1000	1390	239	1020
Fluorene	50	50	30.3	10	10	13.9	50	10	50	19.5	53
Naphthalene	45	75.5	72.7	47.2	23.5	37.4	45	18.3	53.4	36.5	79.6
Phenanthrene	130	512	424	172	124	762	207	349	621	152	573
Pyrene	0.246	0.621	0.5	0.299	0.17	1.44	0.516	0.921	1.46	0.21	0.961
PAH, Total Detected USEPA 16	1.13	4	3.54	2.21	1.56	8.58	2.97	6.09	8.81	1.38	6.12
Naphthalene-d8 % recovery**	89.9	80.8	106	89.3	85.1	88.8	92.2	92.8	93.6	97.2	87.3
Acenaphthene-d10 % recovery**	82.3	83.9	91.7	89.6	86.6	89.5	93.1	94.6	91.5	93	91.2
Phenanthrene-d10 % recovery**	87.2	87.2	87.5	90.7	88.7	86.8	93.7	95.7	92.9	92.6	96.7
Chrysene-d12 % recovery**	77.1	71.4	96.8	82.6	85.3	91.4	84.5	86.5	84.1	96.7	105
Perylene-d12 % recovery**	76.5	70.7	100	81.8	85	91.6	86	88	78.6	95.3	93.3
Total Aliphatics >C12-C44	145	473	146	106	150	55.3	1370	230	297	23.5	123
Total Aromatics >EC12-EC44	28.7	335	82.2	55.5	11.3	47.1	365	136	190	12.5	81.6
Total Aliphatics & Aromatics >C5-C44	174	808	228	162	161	102	1740	366	488	36.4	205
Metals - (Solid)											
Iron	55100	70400	24300	36400	43700	22600	144000	148000	98900	37500	48300
Manganese	43500	12900	3390	4720	4710	6990	21900	28100	15900	6650	4780
Metals - (Liquid)											
Calcium	-	-	-	-	116000	-	163000	-	-	141000	-
Magnesium	-	-	-	-	16200	-	22000	-	-	20700	-
Phenols											
Phenol	0.01	0.01	0.01	0.01	0.011	0.01	0.01	0.0112	0.01	0.01	0.0112
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.0219	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics											
Soluble Sulphate 2:1 extract as SO4 BRE											
pH											
Sulphate, Total											
Sulphur, Total											
Sulphate, Total potentia											
Sulphate, acid soluble (total)											
Cyanide, Total											
Exchangeable Ammonia as N											
Asbestos											
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	02/07/2018	-	02/07/2018	-	-	29/06/2018	-
Analysed By	-	-	-	-	James Richards	-	James Richards	-	-	Lucy Caroe	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)											
Analysts Comments											
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	Detected	-	Not Detected	-	-	Detected	-
Amosite (Brown) Asbestos	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Anthophyllite	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Tremolite	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Fibrous Actinolite	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Non-Asbestos Fibre	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-
Comments	-	-	-	-	Fibre bundles in soi	-	0	-	-	Loose fibres in soi	-
Volatile Organic Compounds (VOCs)											
Dibromofluoromethane**	103	108	110	112	109	106	107	111	109	101	104
Toluene-d8**	96.1	88.1	94.7	97.2	96.7	97.2	98.3	95.6	98.4	88.2	99.4
4-Bromofluorobenzene**	96.6	80.5	90.6	99.8	88.1	89.7	90.4	85	95.5	70.1	98.2
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics											
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Water Analytical M (ad)	-	-	-	-	0.56	1.08	1.22	1.14	1.13	1.09	1.12
Water Gross M(ex)	-	-	-	-	9.24	8.91	8.99	8.46	9.77	9.61	9.79
Water Total M(ar)	-	-	-	-	9.75	9.9	10.1	9.5	10.8	10.6	10.8

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AO28	40AO14V	40AO16V	40AO17V	40AO25V	40AO28V	40AP10	40AP10	40AP10	40AP10	40AP11	40AP11	40AP11	40AP11	40AP13	40AP13	40AP13	40AP15
	0.7	0.700.70	3.603.60	4.004.00	3.003.00	1	0.500.50	1.001.00	1.701.70	2.302.30	0.500.50	1.001.00	1.501.50	2.002.00	0.400.40	1.001.00	1.501.50	0.500.50
	30/05/2018	14/06/2018	14/06/2018	14/06/2018	06/06/2018	30/05/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018
Carbon																		
Soil Organic Matter (SOM)	7.29	4.38	64.1	10.8	6.4	5.86	3.43	3.29	2.12	3.72	3.78	1.79	1.17	1.18	1.07	3.83	2.57	12.3
Metals (Solids)																		
Arsenic	15.5	12.9	5.55	20.9	13.5	9.9	14.8	10.1	11.9	9.67	9.21	8.34	9.62	14.1	8.3	11.2	8.85	10.4
Cadmium	0.52	0.466	0.236	0.74	0.451	0.841	1.83	1.02	0.726	2.53	2.03	0.23	0.51	1.15	0.24	0.342	1.09	0.647
Chromium	39.9	30.4	15.6	33.8	32.5	48.1	137	66.5	56.1	115	71.5	96.7	127	16.5	3.83	8.37	77.4	54.9
Copper	33	17.8	30.9	25.8	17.7	22	28.5	34	29.1	36.4	24.5	17.7	23.3	23.7	8.5	24.9	27.9	31.3
Lead	38.8	29.6	7.14	50.3	38.1	98.1	208	97.8	90.3	110	150	38.5	49.4	95.5	14.4	16.6	67.8	57.2
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	33.2	38	20.4	27.6	25.4	16.2	19.5	16.7	16.5	26.2	18	11.9	17.4	19.2	7.48	19.1	14.8	17
Selenium	1.48	1	2.58	1.29	1	3.28	10	3.15	2.65	10	10	4.03	6.25	2.38	1	1.41	3.4	2.83
Vanadium	63.5	51.4	32.1	53.6	51.6	80.9	162	88.4	94.7	163	127	129	102	37.8	8.59	16.9	139	71.2
Zinc	128	117	62.4	154	135	281	296	297	251	467	512	191	265	252	22.3	58.2	470	233
TPH Criteria Working Group (TPH CWG)																		
Benzene																		
Toluene																		
Ethylbenzene																		
sum of detected mpo xylene by GC																		
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0459	0.04	0.01	0.04	0.0433	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0885	0.04	0.01	0.04	0.0682	0.04	0.0547	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.049	0.04	0.0613	0.04	0.04	0.327	0.04	0.01	0.0515	0.0573	0.0699	0.137	0.0757	0.04	0.0941
Aliphatics >C12-C16	0.718	0.1	0.1	0.854	0.1	12	11.5	10.2	21.7	4.96	4.44	4.91	4.81	5.19	1.08	1.41	6.03	6.68
Aliphatics >C16-C21	0.712	0.1	0.1	0.1	0.1	23.5	32.5	31.1	50.1	18.7	17.4	18.8	17.5	14.2	2.52	2.73	35.3	28.9
Aliphatics >C21-C35	5.04	0.1	78.1	6	9.07	105	134	139	131	91.1	102	93	82.1	66.6	12.7	8.91	106	86.1
Aliphatics >C35-C44	0.1	0.1	0.1	0.1	0.1	41.1	32.2	39	28.7	25.1	29.7	23.9	23.9	22.1	3.5	1.19	20.1	12.7
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.065	0.04	0.01	0.04	0.0509	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.0405	0.04	0.04	0.218	0.04	0.01	0.04	0.04	0.0466	0.0905	0.0509	0.04	0.0627
Aromatics >EC12-EC16	0.267	0.1	0.1	0.277	0.1	4.1	3.47	0.298	30	1.46	1.95	2.49	1.6	1.02	1.8	2.54	1.15	2.96
Aromatics >EC16-EC21	0.663	0.1	4.12	0.996	1.5	13.8	15.1	8.93	0.1	9.34	11.1	10.4	7.6	4.24	2.69	3.11	9.27	14.1
Aromatics >EC21-EC35	19	11.6	344	30.2	38.4	78.6	65.5	74.4	86	49.4	58.4	43.3	33.5	21.6	10.3	5.05	39.6	54
Aromatics >EC35-EC44	3.47	0.1	28.2	3.24	5.86	52.5	35.6	31.9	31.4	23	29.5	22.8	22.7	14.4	4.28	1.21	13.7	19.4
Aromatics >EC40-EC44	0.1	0.1	9.41	0.1	2	21.6	15.1	11.9	13	9.28	11.9	9.58	10.2	6.2	1.5	0.17	4.91	7.29
Polyaromatic Hydrocarbons (PAHs)																		
Acenaphthylene	12	12	12	12	12	17.9	24.7	37.9	18.1	183	26	12	12	12	12	12	13.5	18.8
Acenaphthene	8	8	8	8	30.1	60.7	57.1	43.8	51.2	50	26.6	80.4	54.3	8	24.1	8	27.6	20.4
Anthracene	16	16	16	16	16	188	130	158	111	205	93	654	89.7	16	130	16	57.7	50.2
Benz(a)anthracene	14	14	14	44.4	23.4	650	492	867	378	1450	563	1160	206	23.2	1060	14	284	288
Benzo(a)pyrene	15	15	15	46	15	739	425	769	308	1750	435	736	165	21.2	839	15	295	284
Benzo(b)fluoranthene	15	15	15	111	38.2	1080	738	1300	536	2410	706	939	228	39.3	890	15	484	423
Benzo(k)fluoranthene	14	14	14	29.2	14	335	235	411	165	766	266	395	100	14	455	14	160	134
Benzo(g,h,i)perylene	24	24	24	24	24	630	342	676	262	1210	355	457	127	24	431	24	260	229
Chrysene	10	10	10	72.4	26.9	612	572	790	371	1410	580	1080	216	30.3	865	21.2	300	319
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	107	80.8	163	61	223	68.4	117	0.023	0.023	179	0.023	63.5	47
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	51	0.018	648	348	501	204	1320	416	570	150	24.1	428	0.018	268	194
Fluoranthene	0.017	0.017	0.017	108	51.7	1110	812	1120	658	1630	672	3030	549	33.5	1100	0.017	488	500
Fluorene	10	10	10	10	10	55.1	45	45.9	38.9	47.2	18.6	142	27	10	41	10	25.2	21.4
Naphthalene	9	9	9	9	39.7	66.5	107	113	105	107	77.1	86.7	74	9	23.9	34.9	80.3	47.2
Phenanthrene	15	15	15	71.5	35.7	607	574	540	498	609	295	2310	470	29	498	93.1	314	266
Pyrene	0.015	0.015	0.015	0.0862	0.0415	1.16	1.06	1.69	0.997	2.17	1.32	2.37	0.503	0.0356	0.83	0.015	0.564	0.527
PAH, Total Detected USEPA 16	0.118	0.118	0.118	0.619	0.287	8.06	6.05	9.23	4.76	15.5	5.91	14.1	2.96	0.236	7.79	0.149	3.68	3.37
Naphthalene-d8 % recovery**	102	85.9	106	95.6	89.3	96.7	93.7	86.7	89.2	95.1	98.8	93.5	93.1	88.8	94.8	85.9	86.3	98
Acenaphthene-d10 % recovery**	92.1	84.8	94.9	88.6	92.1	96.6	105	91.6	99.2	97.8	101	95.4	101	92.4	93.5	84.5	91.5	88.9
Phenanthrene-d10 % recovery**	85.6	89.9	90.2	91.9	95.2	97	116	105	108	97.8	100	96.6	103	93.4	97.9	83.7	95.7	87.8
Chrysene-d12 % recovery**	97.5	99.7	98.5	92.3	82.1	89.3	101	83.7	86.4	88.9	93.6	91.6	83.8	78	113	72.9	75.3	104
Perylene-d12 % recovery**	104	90.2	102	91.8	82.8	91.5	101	85.9	89.3	88.2	92.6	90.6	82.6	72.6	101	75.1	75	104
Total Aliphatics >C12-C44	6.47	0.1	78.1	6.85	9.07	181	210	219	232	140	154	141	128	108	19.8	14.2	167	134
Total Aromatics >EC12-EC44	23.3	11.6	376	34.7	45.8	149	120	116	147	83.2	101	79	65.5	41.2	19.1	11.9	63.6	90.5
Total Aliphatics & Aromatics >C5-C44	29.8	11.6	454	41.6	54.9	330	330	335	380	223	255	220	194	149	39.2	26.3	231	225
Metals - (Solid)																		
Iron	26100	33500	9170	18600	28600	53300	88500	57500	89100	91100	108000	69000	67100	54500	6400	16100	48500	28600
Manganese	351	340	388	356	297	6230	9120	6100	5070	11000	6690	9660	18100	3910	319	484	6810	3040
Metals - (Liquid)																		
Calcium	169000	-	284000	49400	-	91300	145000	-	-	-	-	-	203000	86800	-	151000	161000	-
Magnesium	28600	-	5290	16300	-	12100	15600	-	-	-	-	-	12400	11500	-	20600	16800	-
Phenols																		
Phenol	0.0433	0.01	0.01	0.01	0.01	0.01	0.0222	0.0109	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.522	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0116	0.01	0.0232	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.186	0.015	0.015
Phenols, Total Detected monohydric	0.0433	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.731	0.035	0.035
Inorganics																		
Soluble Sulphate 2:1 extract as SO4 BRE																		
pH																		
Sulphate, Total																		
Sulphur, Total																		
Sulphate, Total potentia																		
Sulphate, acid soluble (total)																		
Cyanide, Total																		
Exchangeable Ammonia as N																		
Asbestos																		
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	02/07/2018	-	21/06/2018	21/06/2018	-	20/06/2018	21/06/2018	-	-	-	-	-	21/06/2018	21/06/2018	-	15/06/2018	15/06/2018	-
Analysed By	Marcin Magdziarek	-	James Richards	Marcin Magdziarek	-	Barbara Urbanek-Walsh	Marcin Magdziarek	-	-	-	-	-	James Richards	Andrzej Ferfecki	-	Renata Bozhkov	Renata Bozhkov	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																		
Analysts Comments																		
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Detected	-	Not Detected	Not Detected	-	Detected	Detected	-	-	-	-	-	Detected	Not Detected	-	Trace	Not Detected	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
Fibrous Tremolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
Fibrous Actinolite	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
Comments	Loose fibre in soi	-	0	0	-	Loose fibres in soil	Loose fibres in soi	-	-	-	-	-	Soil containing material typical of asbestos cement debri	0	-	Loose fibres in soi	0	-
Volatile Organic Compounds (VOCs)																		
Dibromofluoromethane**	108	116	117	111	106	118	111	114	108	112	110	115	112	124	108	105	105	105
Toluene-d8**	100	99.8	99.8	99.1	98.6	97.7	95.3	88.9	96	98.7	88.7	94.3	96.8	96.3	99.5	97.8	96.9	98.2
4-Bromofluorobenzene**	95.7	93.7	96.3	92.9	93.9	94.8	88.2	74	87.3	105	75.7	83.8	92.9	93.5	92.9	96.4	94.6	98.8
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																		
Gross Calorific Value in Dry Matter Q(V/gr/d	0.5	-	-	-	-	-	-	-	0.5	0.5	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	0.5	-	-	-	-	-	-	-	0.5	0.5	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	0.5	-	-	-	-	-	-	-	0.5	0.5	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	0.5	-	-	-	-	-	-	-	0.5	0.5	-	-	-	-	-	-	-	-
Water Analytical M (ad)	1.08	-	-	-	-	-	-	-	1.98	1.52	-	-	-	-	-	-	-	-
Water Gross M(ex)	9.31	-	-	-	-	-	-	-	33.9	33	-	-	-	-	-	-	-	-
Water Total M(ar)	10.3	-	-	-	-	-	-	-	35.2	34	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AP15	40AP15	40AP15	40AP10V	40AP11V	40AP13V	40AP15V	40AQ18	40AQ20	40AQ20	40AQ21	40AQ24	40AQ24	40AQ24	40AQ27	40AQ27	40AQ27	40AQ27	40AQ18V	40AQ20V	40AQ21V	40AQ24V
	1.001.00	2.002.00	3.003.00	2.602.60	2.402.40	2.002.00	4.204.20	0.200.20	0.800.80	1.501.50	1.501.50	0.500.50	1.001.00	2.002.00	0.200.20	0.700.70	1.201.20	1.901.90	0.300.30	1.801.80	3.003.00	2.102.10
	14/06/2018	14/06/2018	14/06/2018	22/06/2018	22/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	07/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	14/06/2018	14/06/2018	07/06/2018	06/06/2018
Carbon																						
Soil Organic Matter (SOM)	3.83	4.38	5.03	5.26	46	58.6	0.469	3.19	2.83	2.74	2.43	1.47	6.36	1.6	0.35	0.35	0.35	3.53	26.4	81.2	1.68	1.41
Metals (Solids)																						
Arsenic	7.48	8.11	11.5	12.6	31.2	11	6.84	10.6	6.77	10.7	5.97	5.37	8.15	9.48	6	6.7	6	8.79	14.9	3.64	9.48	12.8
Cadmium	0.465	0.528	0.02	0.02	0.58	0.266	0.485	0.384	0.229	0.326	0.448	0.573	0.547	0.732	0.657	0.401	0.443	0.424	0.378	0.0904	0.251	0.208
Chromium	33	24.8	33.3	37.2	13.4	12.7	25.8	27.8	9.45	51	283	155	162	266	416	466	468	60.6	29.6	5.01	43.8	32.8
Copper	18.2	24.7	24.3	26.2	34.1	17.1	10.1	22.2	42	18	17.8	17.6	30.2	18.5	14.9	14	14	54.2	30.9	8.31	15.2	13.6
Lead	30.6	45.5	25.1	30.9	9.86	9.55	21.2	25.9	28.5	19.9	47	34.5	67.7	45.7	14.4	16.1	19.2	42.2	16.7	2.2	30.4	25.6
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14
Nickel	14.3	16.8	31	34.6	57.9	26.1	7.78	18.5	33.1	12.9	12.4	10.3	12.4	18.4	5.34	2.99	2	52.8	34.9	9.48	39.7	40.3
Selenium	1.59	2.57	1	1	3.26	2.91	1	2.46	1.17	2.31	7.35	6.13	6.97	10	12.4	14.2	13.7	1.61	2.74	1.88	1.26	1
Vanadium	58.7	48.6	52	55.3	49.1	28.6	43.1	80.9	28	44.5	248	276	237	444	965	929	1020	59.8	49.1	10.4	72.2	57.8
Zinc	83.4	140	113	115	75.8	27.6	79.7	53.8	102	46.6	238	171	416	131	36.2	24	33.9	1270	53.9	9.1	116	104
TPH Criteria Working Group (TPH CWG)																						
Benzene																						
Toluene																						
Ethylbenzene																						
sum of detected mpo xylene by GC																						
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.0479	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.103	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.106	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0814	0.04	0.04	0.04
Aliphatics >C10-C12	0.0888	0.384	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0644	0.04	0.04	0.04	0.04	0.04	0.04	0.0902	0.04	0.04	0.04
Aliphatics >C12-C16	8.37	10.8	0.1	0.1	0.1	0.1	6.19	0.863	0.1	0.1	8.26	8.23	5.08	0.407	10.7	4.53	1.27	0.1	0.873	1.05	0.1	0.166
Aliphatics >C16-C21	66.8	107	0.1	0.1	2.56	5.8	23.6	3.58	1.44	4.48	20.8	25.6	17.1	4.81	20.9	13.9	3.01	0.1	2.09	0.952	0.335	0.1
Aliphatics >C21-C35	1820	3220	11	7.04	133	201	60.9	20.3	1.53	24.4	134	231	146	69	67.1	63.8	29.4	0.1	53	70.5	7.84	0.449
Aliphatics >C35-C44	632	841	0.1	0.1	3.4	46.9	9.35	3.25	0.1	2.81	32.2	50.5	35.9	29.8	13.7	9.08	13.8	0.1	0.1	0.353	0.63	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.0718	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.055	0.151	0.04	0.04
Aromatics >EC10-EC12	0.0599	0.256	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0433	0.04	0.04	0.04	0.04	0.04	0.04	0.0594	0.04	0.04	0.04
Aromatics >EC12-EC16	6.42	9.3	0.1	0.1	2.71	0.1	1.77	1.34	0.1	1.14	1.5	2.36	1.07	0.558	0.1	0.1	0.1	0.1	0.1	0.493	0.1	0.1
Aromatics >EC16-EC21	22.2	32.1	0.1	0.555	6.96	10.4	7.06	3.11	0.7	3.87	10.7	18	7.21	5.47	3.56	0.814	1.21	0.1	7.02	3.54	0.602	0.1
Aromatics >EC21-EC35	412	732	41.4	29.2	304	253	21.4	21.4	0.1	11.1	46.2	92.2	57.9	61.9	5.76	1.36	26.6	0.1	178	445	2.74	1.17
Aromatics >EC35-EC44	383	239	10.6	8.8	25.8	59.7	5.15	3.61	0.1	1.38	16.3	49.1	29.9	45.9	0.1	0.565	23.2	0.1	19.8	14.1	0.41	0.834
Aromatics >EC40-EC44	173	65.8	3.52	3.31	7.36	23	1.69	0.1	0.1	0.1	6.42	18.9	12.3	17.8	0.1	0.1	9.38	0.1	3.82	0.1	0.1	0.21
Polyaromatic Hydrocarbons (PAHs)																						
Acenaphthylene	12	12	12	12	12	12	12	12	12	12	12	12	12	13.3	12	12	12	12	12	24	12	12
Acenaphthene	21.7	89.2	8	8	8	8	8	8	8	11.1	10.8	8	12.6	8	35.2	78.2	8	8	8	16	14.9	8
Anthracene	19.5	137	16	16	16	16	16	16	16	16	64.3	16	100	51.6	45.7	154	16	16	16	32	29	16
Benz(a)anthracene	101	396	14	14	14	14	31.4	14	14	26.1	545	108	342	422	387	322	54.7	14	14	0.028	63.9	14
Benzo(a)pyrene	117	330	15	15	15	15	21.6	15	15	20	340	77.6	329	310	178	161	50.9	15	15	1210	55.7	15
Benzo(b)fluoranthene	137	407	15	15	15	15	35.7	32.7	15	27.6	377	133	453	628	416	267	86	15	15	3	86.5	15
Benzo(k)fluoranthene	66.7	180	14	14	14	14	14	14	14	14	202	57.1	246	294	178	111	27.7	14	14	0.028	28.9	14
Benzo(g,h,i)perylene	135	216	24	24	24	24	24	24	24	24	215	69.4	280	291	163	110	48.2	24	24	<0.048	50.2	24
Chrysene	110	388	10	10	10	10	38.1	25.2	20.3	29.6	477	130	360	482	441	283	62.8	10	10	0.02	70.4	10
Dibenzo(a,h)anthracene	0.023	43.4	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	46.2	0.023	55.7	60.2	38	28.1	0.023	0.023	0.023	0.046	0.023	0.023
Indeno(1,2,3-cd)pyrene	104	195	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	188	62.3	237	302	187	117	42.6	0.018	0.018	0.036	38	0.018
Fluoranthene	185	857	0.017	0.017	0.017	0.017	75.6	30.9	29	70.2	1180	131	422	680	830	1070	180	0.017	0.017	0.034	174	0.017
Fluorene	29.4	81.2	10	10	10	10	10	10	14	11.6	11.5	10	15	10	10	13.8	10	10	10	0.02	10	10
Naphthalene	44.5	65.6	9	9	9	9	15.1	13	36.4	15.5	24.9	32.6	44.4	16.5	14.2	49	9	9	24.1	0.018	17.4	19.7
Phenanthrene	182	868	15	15	15	15	90.6	53	117	62.7	122	65.9	217	282	525	471	229	15	15	3	143	15
Pyrene	0.176	0.751	0.015	0.015	0.015	0.015	0.0557	0.0275	0.015	0.0639	1.42	0.282	0.6	0.618	0.742	0.883	0.144	0.015	0.015	0.03	0.179	0.015
PAH, Total Detected USEPA 16	1.43	5.01	0.118	0.118	0.118	0.118	0.364	0.182	0.216	0.338	5.22	1.15	3.71	4.45	4.18	4.12	0.926	0.118	0.118	1.21	0.951	0.118
Naphthalene-d8 % recovery**	89.9	91.5	93.7	92.4	92.1	99.7	94.1	83.8	92.9	92	88.3	92.4	91.4	88.2	87.1	90.3	89.8	80.6	97.1	96.8	90.4	87.5
Acenaphthene-d10 % recovery**	90.1	91	91.1	87.2	95.4	97.3	92.4	88.4	87.3	91.7	86.3	90.8	89.3	89.3	88.1	94.8	93.5	83.2	95.6	97.1	86.6	57.4
Phenanthrene-d10 % recovery**	85.7	99.5	91.4	88.1	100	98	97.3	95.1	89.1	93	92	93.1	91.5	92.2	84.5	99.2	98.2	90.1	94.7	99.5	89.4	94.3
Chrysene-d12 % recovery**	91	108	91.6	86.4	82.8	97.9	107	78.3	84	89.5	91.5	88.4	86.7	95.3	89.3	94.7	90	89.4	87.8	109	89.3	93.1
Perylene-d12 % recovery**	94	90.6	90.8	85.9	74.6	99.1	94.6	77	82.3	93.7	92.5	93.9	91.1	97.2	93.1	90.5	84.7	92.9	88.1	107	95.4	88.6
Total Aliphatics >C12-C44	2530	4180	11	7.04	139	254	100	28	2.96	31.7	196	315	204	104	112	91.3	47.4	0.1	55.9	72.9	8.81	0.615
Total Aromatics >EC12-EC44	823	1010	52.1	38.5	339	323	35.3	29.5	0.7	17.5	74.7	162	96.2	114	9.32	2.74	51	0.1	205	463	3.75	2.01
Total Aliphatics & Aromatics >C5-C44	3350	5190	63.1	45.6	478	577	135	57.5	3.66	49.2	270	477	300	218	122	94	98.4	0.1	261	536	12.6	2.62
Metals - (Solid)																						
Iron	24300	21600	30700	27600	27800	20300	55000	31000	24000	18100	53300	66100	91600	160000	177000	214000	226000	35900	17300	7950	32300	30600
Manganese	3810	1990	280	261	390	428	2490	2300	535	4000	19300	15600	18200	25300	37600	39000	14.2	489	180	308	763	697
Metals - (Liquid)																						
Calcium	188000	-	252000	-	255000	-	-	-	-	-	155000	-	83400	255000	-	169000	-	161000	-	-	-	-
Magnesium	21500	-	6760	-	7470	-	-	-	-	-	17500	-	7980	17700	-	41300	-	12900	-	-	-	-
Phenols																						
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0264	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.176	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.176	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																						
Soluble Sulphate 2:1 extract as SO4 BRE																						
pH																						
Sulphate, Total																						
Sulphur, Total																						
Sulphate, Total potentia																						
Sulphate, acid soluble (total)																						
Cyanide, Total																						
Exchangeable Ammonia as N																						
Asbestos																						
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	15/06/2018	-	18/06/2018	-	18/06/2018	-	-	-	-	-	29/06/2018	-	29/06/2018	20/06/2018	-	15/06/2018	-	18/06/2018	-	-	-	-
Analysed By	Renata Bozhkov	-	Barbara Urbanek-Walsh	-	Marcin Magdziarek	-	-	-	-	-	Lucy Caroe	-	Andrzej Ferfecki	Barbara Urbanek-Walsh	-	Renata Bozhkov	-	Barbara Urbanek-Walsh	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																						
Analysts Comments																						
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-
Comments	0	-	0	-	0	-	-	-	-	-	Fibre bundles in soi	-	0	0	-	0	-	0	-	-	-	-
Volatile Organic Compounds (VOCs)																						
Dibromofluoromethane**	109	109	98.9	99.6	8.9	118	107	105	103	108	109	112	107	116	113	113	123	106	110	108	103	110
Toluene-d8**	97.7	97.2	97.9	97.8	94.9	100	95.4	92.5	97.2	97.7	98.1	99.2	99.6	98.9	97.4	95.9	97.6	97.1	99.1	99.6	89.9	97
4-Bromofluorobenzene**	95	95.9	97	97.5	98.7	97	81.7	81.9	98.9	97.2	93.9	93.5	99.7	95.1	92.5	95.5	95	96.2	102	98.7	70.1	96.8
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																						
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-	-	0.5	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-	-	0.5	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-	-	0.5	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	0.5	0.5	0.5	-	-	-	-	-	0.5	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	1.05	0.6	0.5	-	-	-	-	-	1.53	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	6.72	12.6	15.2	-	-	-	-	-	37.4	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	7.7	13.2	15.2	-	-	-	-	-	38.4	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AQ27V	40AR11	40AR11	40AR11	40AR16	40AR16	40AR21	40AR25	40AR25	40AR11V	40AR13V	40AR16V	40AR21V	40AR25V	40AS12	40AS12	40AS18	40AS18	40AS18	40AS27	40AS27
	2.002.00	0.500.50	1.001.00	1.701.70	0.500.50	1.001.00	0.500.50	0.500.50	1.001.00	2.302.30	0.200.20	1.401.40	0.700.70	1.301.30	0.500.50	1.001.00	0.500.50	1.001.00	2.002.00	0.200.20	0.700.70
	06/06/2018	22/06/2018	22/06/2018	22/06/2018	14/06/2018	14/06/2018	07/06/2018	06/06/2018	06/06/2018	22/06/2018	14/06/2018	14/06/2018	07/06/2018	06/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	06/06/2018	06/06/2018
Carbon																					
Soil Organic Matter (SOM)	2.33	1.5	0.379	2.1	2.53	0.893	1.57	0.872	7.48	1.7	50.2	1.11	1.17	4.69	2.21	2.1	3.91	1.18	1.81	1.95	11.2
Metals (Solids)																					
Arsenic	7.81	5.9	9.65	6.68	11.3	7.37	8.82	6.74	17.5	8.9	14.2	12.6	9.82	10.2	6.82	7.27	45.1	15.5	2.74	3.67	18.3
Cadmium	0.69	0.409	0.322	0.743	1.5	0.471	0.804	0.242	0.02	0.229	0.281	0.21	0.245	0.399	0.336	0.221	1.84	0.998	0.253	0.263	0.757
Chromium	57	63.6	8.18	91.6	222	36.9	124	52.3	35.8	37.9	11	30.3	31.7	10.7	0.989	35.9	24.2	9	105	50.1	40.9
Copper	15.2	6.34	5.73	19.6	75.3	18	49.8	21.2	24.3	15.6	17.5	11.6	12.7	22.9	9.21	23.8	18.5	14	8.66	12.9	29.6
Lead	58.4	20.9	13.1	49.4	91.4	45.9	61.2	17.9	37.3	29.5	6.62	28.4	28.4	25.5	13.1	24.9	34.8	40.6	11.7	14.8	49.8
Mercury	0.14	0.14	0.14	0.14	1.4	0.14	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14	0.14	0.14
Nickel	16.2	6.99	9.06	12	65.7	12.4	21.4	8.1	29	42	30.7	38.1	37.7	44.6	10.2	13.9	18.3	18.8	7.21	10.9	30.9
Selenium	3.71	3.53	1.79	5.2	10	1.83	10	4.75	1	1	1.98	1	1.13	1.45	1	5.3	2.53	10	5.06	4.38	1.5
Vanadium	106	137	40	157	329	42.3	183	137	57.6	60.6	28.4	53.2	56.5	35.9	14.2	108	49.2	16.5	199	171	70
Zinc	236	104	126	170	476	144	116	46.7	136	98.3	21.5	111	108	128	31.7	49.9	447	75.4	41	54.9	146
TPH Criteria Working Group (TPH CWG)																					
Benzene																					
Toluene																					
Ethylbenzene																					
sum of detected mpo xylene by GC																					
Aliphatics >C5-C6	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.01	0.217	0.0749	0.04	0.04	0.04	0.0472	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0622	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.01	1.19	0.339	0.04	0.04	0.04	0.189	0.04	0.04	0.04	0.04	0.04	0.04	0.0564	0.04	0.0754	0.106	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	2.39	28.6	7.37	4.19	6	2.7	39.5	15.3	0.1	0.267	0.296	1.31	1.46	3.71	1.93	6.44	14.1	0.573	1.12	0.793	0.1
Aliphatics >C16-C21	18.9	48.8	23.8	17.2	22.7	10.6	96.7	42.2	0.1	0.355	0.572	1.72	3.33	6.53	2.42	11.3	22.6	1.63	2.28	1.53	0.1
Aliphatics >C21-C35	111	74.7	31.7	153	132	99.3	325	200	3.18	1.36	8.84	1.48	17.4	15.5	3.75	62.8	43.5	17.4	15.6	7.8	2.99
Aliphatics >C35-C44	36	26.6	10.9	40.7	41.1	26.4	87.6	27.1	0.1	0.1	5.83	0.1	1.65	4.89	0.1	27.9	11.3	3.57	3.05	0.813	0.1
Aromatics >EC5-EC7	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.01	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.01	0.145	0.0491	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0531	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.01	0.79	0.226	0.04	0.04	0.04	0.125	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.051	0.0712	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	9.08	1.77	2.03	2.68	0.329	0.1	4.11	0.114	0.1	0.188	0.1	0.402	1.77	0.1	2.55	4.99	0.1	0.461	0.1	0.1
Aromatics >EC16-EC21	0.45	20.3	8.69	13.5	19.6	3.46	23.1	18.9	1.2	0.1	4.58	0.425	2.52	4.65	0.1	6.73	10.4	0.466	2.04	0.1	1.22
Aromatics >EC21-EC35	8.04	45.4	22.9	76.9	107	31.4	59.7	60.5	54.8	2.93	127	0.865	11.2	13.6	0.1	42.3	26.3	8.56	15.3	4.59	25.7
Aromatics >EC35-EC44	1.37	24.8	14.6	38.4	52.3	17.3	8.16	15.3	17.2	0.677	56.2	5.18	1.95	3.47	0.1	28.1	12.3	3.87	4.34	1.07	2.68
Aromatics >EC40-EC44	1.06	9.9	5.82	15.4	20.2	8.01	1.76	5.63	7.35	0.1	28.5	3.1	0.1	1.18	0.1	11.3	4.69	1.31	1.33	0.123	0.1
Polyaromatic Hydrocarbons (PAHs)																					
Acenaphthylene	22.4	12	12	60	21.6	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Acenaphthene	19.5	13.6	13	62.5	25.2	27.6	138	223	8	8	8	8	23.2	8	8	13.4	96.7	8	8	8	8
Anthracene	70.3	33.4	23.1	192	150	32.6	225	269	16	16	16	16	30.4	16	16	20.2	79.7	16	16	16	16
Benz(a)anthracene	471	73.8	21.9	758	2110	113	913	1070	14	14	14	14	112	21.1	18.5	59.9	72.8	26.1	56.1	71.9	27.2
Benzo(a)pyrene	421	63.1	15	506	1390	91.5	880	1200	15	15	15	15	106	15	15	33.8	45.2	21.3	56.5	67.3	28.2
Benzo(b)fluoranthene	614	120	27.8	878	2740	183	1240	970	31.1	15	15	15	155	31.8	22.7	95.7	101	37.7	101	111	51.9
Benzo(k)fluoranthene	222	36.2	14	342	1040	63.2	420	438	14	14	14	14	47.3	14	14	30.3	34.6	14	34.4	34.4	14
Benzo(g,h,i)perylene	360	61.8	24	419	988	84.1	619	719	24	24	24	24	73.6	24	24	34	41.8	24	44.1	53.8	24
Chrysene	458	87.4	24	788	2000	146	944	1000	22.7	10	10	10	124	35.2	27.9	85.6	97.7	28.1	56.2	75.4	36.3
Dibenzo(a,h)anthracene	81.7	0.023	0.023	0.115	222	0.023	116	156	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	326	53.5	0.018	450	794	74.1	566	611	0.018	0.018	0.018	0.018	65.7	0.018	0.018	39.4	44.3	0.018	51.7	55.4	0.018
Fluoranthene	616	141	58.5	2130	1200	264	1570	2160	33.2	0.017	0.017	0.017	201	36.6	36.5	146	255	39.8	91.8	120	57.2
Fluorene	22.5	14.8	16.3	50	13.4	12.9	79.8	126	10	10	10	10	14.5	10	10	10	96.3	10	10	10	10
Naphthalene	63.6	33.4	10.7	87.7	66.6	22	97.4	143	9	9	9	9	23.2	13.6	32	39.7	119	15.5	9	11	9
Phenanthrene	238	89.4	57.5	858	394	217	832	1210	15	15	15	15	135	58.2	67.7	128	423	45.8	58.1	64.8	35.3
Pyrene	0.874	0.152	0.0592	2.24	4.65	0.261	1.7	2.01	0.015	0.015	0.015	0.015	0.178	0.0283	0.0278	0.131	0.18	0.0335	0.0797	0.0943	0.0445
PAH, Total Detected USEPA 16	4.88	0.973	0.312	9.71	17.8	1.59	10.3	12.3	0.118	0.118	0.118	0.118	1.29	0.225	0.233	0.858	1.69	0.248	0.63	0.759	0.281
Naphthalene-d8 % recovery**	93.1	89.7	98.7	92.2	102	99.1	88.2	89.7	84.2	91.2	99.6	83.8	87.7	89.3	99.7	86.2	84.1	100	92.1	92.2	87.6
Acenaphthene-d10 % recovery**	102	101	100	77.2	93.4	95.5	95	92.2	81	91.2	91.9	80.5	90.4	91.4	84.3	88.6	88.1	89.3	89.8	42.4	86.7
Phenanthrene-d10 % recovery**	121	111	101	97.1	99.2	97.8	98.2	97.2	84.4	99.2	92.2	86.9	94.6	95.1	80.4	94.3	91.8	87.4	91.3	97.7	86.1
Chrysene-d12 % recovery**	99.7	101	97.1	77.4	95.3	101	90.2	86.8	84.9	105	96.3	88.7	92.4	80.4	92.5	78.3	73.4	103	96.9	93.6	79.1
Perylene-d12 % recovery**	95.7	103	100	79.6	94.7	96.5	85.1	89.8	83.6	91.8	100	89.2	87.6	76.3	92	79.3	71.1	104	95.1	88.3	81.9
Total Aliphatics >C12-C44	168	179	73.7	215	202	139	549	284	3.18	1.99	15.5	4.52	23.8	30.6	8.1	108	91.5	23.2	22	10.9	2.99
Total Aromatics >EC12-EC44	9.87	99.6	48	131	182	52.5	91	98.8	73.2	3.6	188	6.47	16	23.4	0.1	79.7	53.9	12.9	22.1	5.66	29.6
Total Aliphatics & Aromatics >C5-C44	178	281	122	346	384	191	641	383	76.4	5.59	203	11	39.9	54.1	8.1	188	146	36.1	44.2	16.6	32.6
Metals - (Solid)																					
Iron	66900	21500	19200	54600	103000	33500	91300	84900	27200	28700	16100	28100	34900	32100	21000	53300	22400	78100	30100	28600	23100
Manganese	6750	4660	2000	14100	18200	3540	8530	11600	299	293	230	837	739	1560	1260	7520	2750	773	7980	6120	228
Metals - (Liquid)																					
Calcium	-	24700	-	144000	-	107000	-	170000	-	-	-	135000	-	114000	-	67000	-	117000	-	121000	-
Magnesium	-	6420	-	17200	-	29600	-	24700	-	-	-	40500	-	27600	-	22400	-	11200	-	18100	-
Phenols																					
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0318	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.0174	0.01	0.01	0.0106	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.022	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.0424	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																					
Soluble Sulphate 2:1 extract as SO4 BRE																					
pH																					
Sulphate, Total																					
Sulphur, Total																					
Sulphate, Total potentia																					
Sulphate, acid soluble (total)																					
Cyanide, Total																					
Exchangeable Ammonia as N																					
Asbestos																					
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	21/06/2018	-	21/06/2018	-	21/06/2018	-	18/06/2018	-	-	-	10/08/2018	-	10/08/2018	-	10/08/2018	-	10/08/2018	-	10/08/2018	-
Analysed By	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	James Richards	-	Marcin Magdziarek	-	-	-	Renata Bozhkov	-	Renata Bozhkov	-	Renata Bozhkov	-	Renata Bozhkov	-	Renata Bozhkov	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)																					
Analysts Comments																					
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Detected	-	Detected	-	Not Detected	-	Trace	-	Not Detected	-
Amosite (Brown) Asbestos	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Comments	-	0	-	loose fibres in soi	-	0	-	0	-	-	-	Loose fibres in soil	-	Soil containing ACM debris.	-	0	-	Loose fibres in soil	-	0	-
Volatile Organic Compounds (VOCs)																					
Dibromofluoromethane**	110	123	109	115	104	114	109	138	110	111	104	99.5	97.3	98.6	99.7	99.2	102	94.4	92.7	96.4	107
Toluene-d8**	96.8	96.9	99.8	96.3	94.4	100	97.6	98.7	92.1	98.7	97.3	98.7	99.3	97.8	102	93.7	102	95.9	94.2	97.1	97.1
4-Bromofluorobenzene**	96.5	90.5	94.5	91.5	77.9	95.2	96.2	103	93.8	95.7	95.4	86.1	90.7	88.2	91.1	77.2	110	83.2	81	88	89
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.266	0.13	0.13	0.13	0.13	0.13	0.362	0.53	0.302	0.247
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics																					
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

Determinand	40AS12V	40AS18V	40AS27V	RLS2TP1	RLS2TP10	RLS2TP10	RLS2TP10	RLS2TP11	RLS2TP12	RLS2TP13
	1.801.80	2.302.30	0.800.80	0.200.20	1.001.00	2.002.00	3.003.00	0.500.50	0.500.50	0.200.20
	14/06/2018	14/06/2018	06/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	14/06/2018	14/06/2018	14/06/2018
Carbon										
Soil Organic Matter (SOM)	8.93	3.65	16.8	2.5	3	3.15	5.72	2.59	1.18	17.4
Metals (Solids)										
Arsenic	21	12.3	18	6.02	6.65	5.64	24.2	8.16	12.4	16.4
Cadmium	0.735	0.509	0.641	0.688	1.18	0.579	0.783	0.356	0.76	0.271
Chromium	35.7	26.3	6.89	77.1	116	64.4	206	36	4.03	4.89
Copper	27.7	21.3	49.3	22.1	25.5	16.5	128	15.2	9.35	20.6
Lead	51.5	36.3	57.4	68.3	89.6	51.1	110	24.2	20.2	20.6
Mercury	0.14	0.14	0.14	0.14	1.4	0.14	1.11	0.14	0.14	0.14
Nickel	30.4	29	53.1	12.2	13.7	10.1	19.1	15.8	14	20.4
Selenium	1.4	1.02	1.23	3.65	10	2.19	2.57	1.81	2.22	1
Vanadium	58.3	45.3	37.5	108	123	51.5	98.4	67.6	26.6	17.9
Zinc	159	154	83.7	187	344	207	388	84.4	67.5	42.7
TPH Criteria Working Group (TPH CWG)										
Benzene										
Toluene										
Ethylbenzene										
sum of detected mpo xylene by GC										
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.223	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.0627	2.66	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.0684	0.0414	0.0526	26	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.0616	0.132	0.0638	12.9	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	3.76	0.1	2.47	20.8	6.86	8.07	0.1	0.1	0.1	1.18
Aliphatics >C16-C21	0.559	0.1	2.49	53.8	30.4	22.3	1.92	0.1	0.1	3.45
Aliphatics >C21-C35	8.63	3.34	5.73	195	186	170	29.4	13.9	9.73	8.65
Aliphatics >C35-C44	0.1	0.1	0.877	78.5	61.3	42.6	7.75	5.87	2.01	1.88
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.0456	0.04	0.04	17.4	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.041	0.0885	0.0426	8.57	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	1.43	0.1	1.31	5.16	1.2	3.4	2.23	0.1	0.1	0.47
Aromatics >EC16-EC21	1.95	1.28	2.45	19.8	12.2	11.3	14.9	2.04	0.1	0.841
Aromatics >EC21-EC35	43	17.8	0.1	106	96.1	97.5	79	20.4	5.83	5.86
Aromatics >EC35-EC44	7.39	3.21	0.1	71.5	49.2	24.2	31.8	11.9	1.24	1.8
Aromatics >EC40-EC44	2.29	0.1	0.1	29.2	20.6	8.33	12.2	5.16	0.1	0.1
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	12	12	12	15.4	24	12	87.4	12	12	12
Acenaphthene	8	8	8	31.7	31.2	33.8	208	8	8	8
Anthracene	16	16	16	57.5	78.7	55.9	734	23.7	16	16
Benz(a)anthracene	33.3	21.2	14	328	387	233	2030	88.5	14	20.7
Benzo(a)pyrene	34	21.3	15	322	377	191	1800	87.9	15	15
Benzo(b)fluoranthene	80.6	45.6	15	626	629	336	3030	134	18.8	39
Benzo(k)fluoranthene	29.9	14	14	246	221	111	1230	46.1	14	14
Benzo(g,h,i)perylene	45.9	24	24	307	320	154	1310	69.5	24	24
Chrysene	51.7	28.5	10	420	485	258	2470	92.5	16.4	38.6
Dibenzo(a,h)anthracene	0.023	0.023	0.023	46.1	64	34.2	327	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	335	277	163	1350	65.2	0.018	0.018
Fluoranthene	59.5	41.1	0.017	448	727	380	3770	145	23.7	51.4
Fluorene	10	10	10	31.5	30.8	38.6	255	10	10	21.6
Naphthalene	9	9	13.5	59	60.1	61.8	181	41.5	13.4	124
Phenanthrene	26.6	23.3	39.9	232	402	265	2520	104	29.4	115
Pyrene	0.0502	0.0329	0.015	0.576	0.766	0.356	2.92	0.112	0.0213	0.0393
PAH, Total Detected USEPA 16	0.412	0.214	0.118	4.08	4.86	2.67	24.2	1.01	0.123	0.45
Naphthalene-d8 % recovery**	105	100	86.8	93.4	97.7	100	87.8	97.3	95.5	99.6
Acenaphthene-d10 % recovery**	90	88.5	88.8	95.5	100	90.3	84.5	90.2	92	85.5
Phenanthrene-d10 % recovery**	83.6	92.8	83.2	96.3	99.3	92	90.8	91.3	93.2	74.6
Chrysene-d12 % recovery**	101	94.8	71.1	102	106	102	88.3	85.4	87.3	78.7
Perylene-d12 % recovery**	104	93.7	65.8	102	101	102	93.4	86.5	87.2	84.4
Total Aliphatics >C12-C44	12.9	3.34	11.6	348	284	243	39	19.7	11.7	15.2
Total Aromatics >EC12-EC44	53.8	22.3	3.77	202	159	136	128	34.4	7.07	8.97
Total Aliphatics & Aromatics >C5-C44	66.7	25.6	15.5	551	443	448	167	54.1	18.8	24.1
Metals - (Solid)										
Iron	24700	28000	39500	63000	53000	22600	45300	24500	55200	23800
Manganese	262	735	685	5860	7310	3130	5600	2630	2690	625
Metals - (Liquid)										
Calcium	141000	-	-	161000	-	54800	-	128000	-	139000
Magnesium	11500	-	-	15800	-	11200	-	4870	-	26100
Phenols										
Phenol	0.01	0.01	0.01	0.011	0.01	0.0118	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.0236	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE										
pH										
Sulphate, Total										
Sulphur, Total										
Sulphate, Total potentia										
Sulphate, acid soluble (total)										
Cyanide, Total										
Exchangeable Ammonia as N										
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-
Date of Analysis	09/08/2018	-	-	21/06/2018	-	18/06/2018	-	18/06/2018	-	19/06/2018
Analysed By	Renata Bozhkov	-	-	Barbara Urbanek-Walsh	-	Paul Poynton	-	Christian Hallam	-	Christian Hallam
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)										
Analysts Comments										
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	Trace	-	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected
Amosite (Brown) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Tremolite	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Actinolite	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Comments	Loose fibres in soil.	-	-	Fibre bundles in soil.	-	0	-	0	-	0
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	99	96.3	103	104	109	111	107	105	99.2	103
Toluene-d8**	98	97.6	95	99.9	96.9	94.9	97.2	97.8	96.7	97.5
4-Bromofluorobenzene**	87.9	91.1	92.4	95	93	92.7	98	97.9	92.2	97.2
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.211	0.245	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-

Determinand	RLS2TP13	RLS2TP14	RLS2TP14	RLS2TP14	RLS2TP15	RLS2TP15	RLS2TP15	RLS2TP2	RLS2TP2	RLS2TP3
	0.500.50	0.800.80	1.501.50	2.002.00	0.500.50	1.001.00	1.501.50	0.300.30	0.700.70	0.500.50
	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	12/06/2018	12/06/2018	12/06/2018
Carbon										
Soil Organic Matter (SOM)	4.22	24.8	2.07	3.1	5.79	2.83	1.17	4.14	1.62	2.34
Metals (Solids)										
Arsenic	7.12	8.03	4.84	6	8.47	7.29	6.16	11.2	11.2	12.6
Cadmium	0.513	0.553	0.676	0.998	0.867	0.611	0.18	0.246	1.47	0.283
Chromium	326	47.1	31.9	249	89.1	52.6	29.5	12	203	14
Copper	36	39.2	14	22	25.9	18.3	14.3	16.7	25.4	19.5
Lead	47.3	48.8	49	67.9	104	49.1	12.8	19.5	52.4	15.9
Mercury	2.69	0.14	0.14	1.4	0.14	0.14	0.14	0.14	1.4	0.14
Nickel	11.6	20.4	10.9	13.9	16.2	13.5	17	21.6	25.8	24.4
Selenium	6.33	2.07	4.1	10	3.44	2.01	1.19	1.83	13.8	1
Vanadium	248	82.5	54.8	256	152	71.4	121	35.1	532	24.1
Zinc	146	109	109	145	353	267	40.2	54.7	156	53.2
TPH Criteria Working Group (TPH CWG)										
Benzene										
Toluene										
Ethylbenzene										
sum of detected mpo xylene by GC										
Aliphatics >C5-C6	0.04	0.04	0.0408	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.0864	0.04	0.04	0.04	0.04	0.0496	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.158	0.04	0.04	0.04	0.04	0.131	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.456	0.04	0.04	0.04	0.04	0.133	0.04	0.04
Aliphatics >C12-C16	3.15	3.48	23.9	3.22	4.39	4.89	0.1	0.1	1.07	2.32
Aliphatics >C16-C21	13.5	20	34.6	18.5	16.4	22.6	0.1	2.38	4.07	17.3
Aliphatics >C21-C35	96.6	124	36.3	120	71.9	84.9	8.45	39.4	24.5	34.3
Aliphatics >C35-C44	27.8	28.5	5.5	23.9	12.9	18.9	0.1	7.86	7.67	5.6
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.142	0.04	0.04	0.04	0.04	0.0897	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.304	0.04	0.04	0.04	0.04	0.0885	0.04	0.04
Aromatics >EC12-EC16	2.15	3.64	0.1	1.5	1.43	1.62	0.1	1.57	0.1	0.213
Aromatics >EC16-EC21	11.9	26.4	3.05	8.77	6.73	9.96	0.977	2.66	5.98	6.72
Aromatics >EC21-EC35	79.3	122	1.18	51.9	28.9	42.7	4.64	12.9	23.1	22.5
Aromatics >EC35-EC44	39.3	33.7	0.217	21.9	8.17	16.7	1.61	2.52	9.6	4.48
Aromatics >EC40-EC44	14.3	11.9	0.1	8.29	2.66	6.43	0.1	0.1	3.62	1.56
Polyaromatic Hydrocarbons (PAHs)										
Acenaphthylene	12	15.9	12	24	12	12	12	12	12	12
Acenaphthene	155	1170	15.3	40.4	33.2	57.8	8	8	8	8
Anthracene	220	1440	23.4	160	64.6	97.5	16	16	220	16
Benz(a)anthracene	1450	5960	68.4	812	222	528	14	51.1	1520	14
Benzo(a)pyrene	2070	7860	77.1	630	211	617	15	18.6	743	15
Benzo(b)fluoranthene	2030	7540	114	1050	370	876	15	60.8	1800	21.6
Benzo(k)fluoranthene	866	3900	40.7	339	134	306	14	14	554	14
Benzo(g,h,i)perylene	1830	5720	64.8	481	193	508	24	24	611	24
Chrysene	1500	5020	69.1	817	234	554	11.3	92.3	1590	16.5
Dibenzo(a,h)anthracene	318	1120	0.023	99.7	46.4	98.3	0.023	0.023	148	0.023
Indeno(1,2,3-cd)pyrene	1500	5230	54.9	372	190	491	0.018	0.018	697	0.018
Fluoranthene	2000	9370	155	1360	502	1030	0.017	38	3280	33.3
Fluorene	74.9	555	10	0.02	16.9	17.1	10	19	10	10
Naphthalene	170	474	98.3	72.3	68.3	34.8	14.7	29	49.4	20.9
Phenanthrene	925	5100	119	749	299	398	36.8	72.9	1310	39.2
Pyrene	2.13	9.79	0.148	1.24	0.469	1.07	0.015	0.035	3.38	0.0277
PAH, Total Detected USEPA 16	17.2	70.3	1.05	8.22	3.05	6.68	0.118	0.417	15.9	0.159
Naphthalene-d8 % recovery**	97.9	98.2	87.1	102	86.3	86.2	91.8	98.4	91	91.7
Acenaphthene-d10 % recovery**	90.1	90.2	85.8	84.7	78.1	74.5	88.1	85.4	94.3	90.5
Phenanthrene-d10 % recovery**	91.1	94.4	98	84.7	94.9	93.6	90.9	88.7	98	94.3
Chrysene-d12 % recovery**	107	108	81.3	99.4	75.5	81.6	91.9	88.5	96.9	90.9
Perylene-d12 % recovery**	112	113	84.5	102	73.6	82.9	86.1	86.4	91.6	92.1
Total Aliphatics >C12-C44	141	176	100	166	106	131	8.45	49.6	37.4	59.4
Total Aromatics >EC12-EC44	133	186	4.45	84.1	45.2	71	7.23	19.7	38.7	33.9
Total Aliphatics & Aromatics >C5-C44	274	362	106	250	151	202	15.7	69.8	76.1	93.4
Metals - (Solid)										
Iron	77800	46700	22600	88600	44100	32300	20500	22700	133000	19800
Manganese	28600	3910	3770	16100	4450	4180	1300	1180	29900	393
Metals - (Liquid)										
Calcium	-	142000	-	163000	-	146000	-	152000	-	189000
Magnesium	-	22500	-	23000	-	27600	-	28400	-	19000
Phenols										
Phenol	0.01	0.01	0.01	0.0109	0.0228	0.151	0.01	0.01	0.01	0.01
Cresols	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.0565	0.015	0.015	0.015	0.0232	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.0565	0.035	0.035	0.035	0.174	0.035	0.035	0.035	0.035
Inorganics										
Soluble Sulphate 2:1 extract as SO4 BRE										
pH										
Sulphate, Total										
Sulphur, Total										
Sulphate, Total potentia										
Sulphate, acid soluble (total)										
Cyanide, Total										
Exchangeable Ammonia as N										
Asbestos										
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	19/06/2018	-	18/06/2018	-	19/06/2018	-	19/06/2018	-	19/06/2018
Analysed By	-	Christian Hallam	-	Paul Poynton	-	Christian Hallam	-	Christian Hallam	-	Christian Hallam
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)										
Analysts Comments										
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Tremolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Actinolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Comments	-	0	-	0	-	0	-	0	-	Soil containing material typical of Asbestos Bitumen
Volatile Organic Compounds (VOCs)										
Dibromofluoromethane**	106	106	111	101	108	102	103	99.2	105	100
Toluene-d8**	95.9	97.3	95.9	95.6	94.3	95.3	93.4	91.1	95.6	92.4
4-Bromofluorobenzene**	92.8	95.8	88	85.6	93.4	93	75.7	70.2	94.1	88.7
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.01	0.1	0.1	0.01	0.01	0.1	0.1
Benzene	0.09	0.09	0.09	0.009	0.09	0.09	0.009	0.009	0.09	0.09
Toluene	0.07	0.07	0.07	0.007	0.07	0.07	0.007	0.007	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.004	0.04	0.04	0.004	0.004	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.01	0.1	0.1	0.01	0.01	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.01	0.1	0.1	0.01	0.01	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.013	0.13	0.13	0.013	0.013	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.04	0.4	0.4	0.04	0.04	0.4	0.4
Subcontracted: Inorganics										
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances
Carbon												
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00
Metals (Solids)												
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49
TPH Criteria Working Group (TPH CWG)												
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	10500	309.38	1200.00	91.65	45.81
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.024	9800	252.94	881.60	35.35	59.07
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00
Metals - (Solid)												
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00		
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00		
Metals - (Liquid)												
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00		
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00		
Phenols												
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.004	2	0.30	0.99	0.00	38.55
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00	
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55
Sulphate, acid soluble (total)	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00
Asbestos												
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Date of Analysis	TM048	No units		430	0	0					0.00	
Analysed By	TM048	No units		430	0	0					0.00	
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00	
Analysts Comments	TM304	No units		83	0	0					0.00	
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.001	0	0.00	0.00	0.00	
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00	
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00	
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00	
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00	
Fibrous Tremolite	TM048	No units		430	0	0					0.00	
Fibrous Actinolite	TM048	No units		430	0	0					0.00	
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00	
Comments	TM048	No units		430	0	0			0.00	0.00	0.00	
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00	
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00	
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00	
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00	
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00	
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00	
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00	
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00	
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00	
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00	
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00	
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00	
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00	
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00	
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00	
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00	
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00	

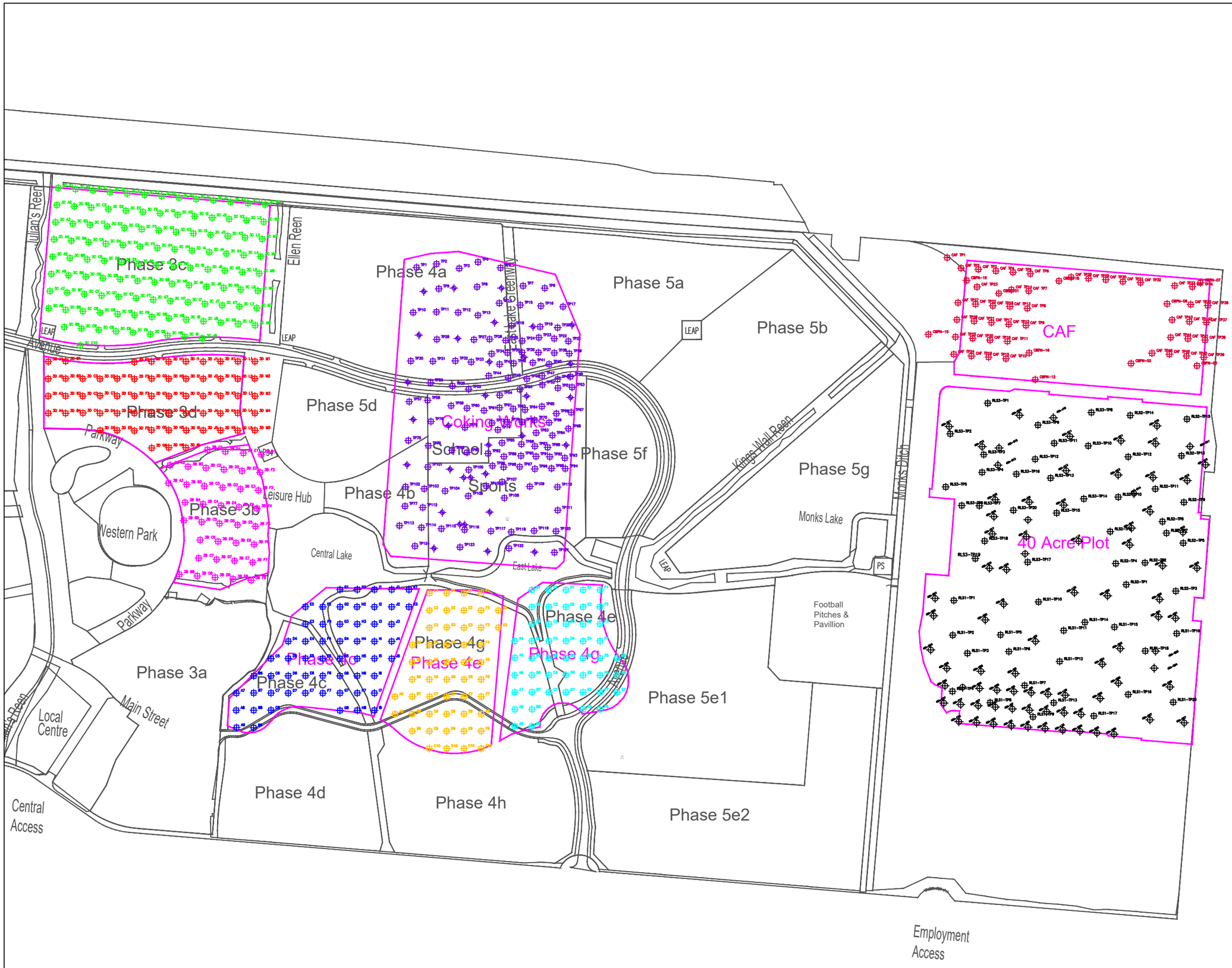
Determinand	RLS2TP4	RLS2TP5	RLS2TP5	RLS2TP6	RLS2TP6	RLS2TP6	RLS2TP7	RLS2TP7	RLS2TP7	RLS2TP8	RLS2TP8	RLS2TP8	RLS2TP9	RLS2TP9
	0.200.20	0.300.30	0.800.80	1.001.00	2.002.00	3.003.00	0.800.80	2.002.00	3.103.10	1.001.00	2.202.20	2.802.80	0.500.50	1.001.00
	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018
Carbon														
Soil Organic Matter (SOM)	3.65	2.22	3.72	5.26	1.95	1.37	5.86	3.74	5.03	2.83	5.38	1.32	1.83	55.5
Metals (Solids)														
Arsenic	8.97	11.6	9.25	8.81	10.3	5.53	9.87	7.28	135	9.19	11.3	7.62	9.23	7.63
Cadmium	0.493	0.515	1.02	1.45	1.05	0.753	1.16	0.798	0.884	1.26	0.41	1.14	0.492	0.236
Chromium	0.9	96.7	73.9	148	121	134	318	25	98.1	81.7	18.1	200	19.1	16.3
Copper	14.7	20.3	29.1	21	24.7	19.8	33.1	22.8	126	26.9	23.6	27.2	28.1	18
Lead	16.6	24.9	65.9	49.6	61.6	69.2	118	71	81.2	145	131	64.7	17.8	7.5
Mercury	0.14	0.14	1.4	1.4	1.4	0.14	0.14	0.14	0.14	0.14	0.14	0.14	1.4	0.14
Nickel	17.7	17.8	24.9	22.2	18.3	14.2	30	17.6	169	20.3	28.2	90.4	26.6	21.3
Selenium	1.19	4.76	10	10	10	4.58	4.14	2.11	40.2	3.82	1.68	4.98	10	3.22
Vanadium	13.1	175	111	157	136	144	128	39.1	139	117	37.6	269	42.7	22.3
Zinc	58	72.7	290	164	134	206	332	169	217	302	79.1	331	67.5	64.6
TPH Criteria Working Group (TPH CWG)														
Benzene														
Toluene														
Ethylbenzene														
sum of detected mpo xylene by GC														
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.244	0.04	0.04	0.04	0.04	0.0433	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.265	0.187	0.237	0.107	0.0439	0.0888	0.0762	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.0414	1.52	1.83	1.44	0.04	0.135	0.291	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	3.58	5.33	2.18	0.04	0.379	0.611	0.04	0.04	0.04
Aliphatics >C12-C16	2.01	0.1	5.57	4.97	9.93	4.08	147	35.8	4.42	12.7	9.17	6.54	0.1	1.62
Aliphatics >C16-C21	2.8	3.62	27	20.9	32.4	20.8	270	21.2	20.9	34	9.12	31.4	1.72	4.95
Aliphatics >C21-C35	10.8	12.7	166	110	217	87.1	424	59.5	136	146	37.5	207	20.1	231
Aliphatics >C35-C44	1.79	0.1	35.3	24	51	12.2	75.7	6.75	36.2	51.3	10.9	49.6	2.32	3.39
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	1.03	1.31	1.01	0.045	0.105	0.213	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	2.39	3.55	1.45	0.04	0.252	0.406	0.04	0.04	0.04
Aromatics >EC12-EC16	1.1	1.08	1.96	1.77	3.23	2.11	64.1	5.08	1.68	2.99	2.39	2.4	0.778	0.1
Aromatics >EC16-EC21	4.39	4.34	14.6	10	19.5	9.95	116	14.8	7.38	12.9	7.05	18.2	3.51	4.52
Aromatics >EC21-EC35	10.7	7.91	77.5	60	130	45.7	159	45.3	51	70.3	31.5	117	15.6	280
Aromatics >EC35-EC44	3.24	2.35	30.3	25.6	72.3	20.6	50.5	9.22	29.5	50.6	15.2	53.8	8.42	24.8
Aromatics >EC40-EC44	1.13	0.901	12.3	9.92	29.6	7.78	20	3.31	12.1	22.8	6.26	20.1	3.55	8.32
Polyaromatic Hydrocarbons (PAHs)														
Acenaphthylene	12	12	14.1	14	12	24	140	12	12	12	12	15	12	60
Acenaphthene	8	9.11	36.6	25.6	38.5	31.9	220	22.2	19.4	10.7	8	20.5	8	40
Anthracene	18.6	35.8	82.9	104	106	183	385	28.6	44.9	25	16	69.9	16	80
Benz(a)anthracene	60.5	67.4	295	368	543	578	545	77.3	175	185	24.9	1150	155	70
Benzo(a)pyrene	64.1	19.4	279	396	433	475	437	57.2	162	191	21.5	1090	93.5	75
Benzo(b)fluoranthene	122	47.5	550	609	725	781	667	124	264	315	56.8	1810	182	75
Benzo(k)fluoranthene	39.9	14	151	228	282	307	252	36.2	101	113	18	711	73.8	70
Benzo(g,h,i)perylene	53.6	24	245	322	382	385	319	44	130	172	24	983	72.9	120
Chrysene	84.2	143	360	442	590	563	626	93.1	211	238	30.9	1250	172	50
Dibenzo(a,h)anthracene	0.023	0.023	41.9	61.6	82.7	92.3	78	0.023	30	34.6	0.023	177	0.023	0.115
Indeno(1,2,3-cd)pyrene	60.6	21	275	313	488	342	304	54.1	125	141	25.8	866	67.2	90
Fluoranthene	103	163	461	607	1030	1200	1300	148	330	275	64	854	136	0.085
Fluorene	19	13.5	25.1	19	20.1	58.7	601	35.2	13.2	10	10	11.8	10	50
Naphthalene	43.4	39.1	107	57.6	34	48.2	234	44.2	28.2	27.2	22.8	60	28.2	45
Phenanthrene	101	183	424	370	597	1090	1720	139	198	124	57.2	288	116	75
Pyrene	0.0948	0.168	0.47	0.584	0.905	1.16	1.03	0.128	0.342	0.329	0.0522	2.36	0.335	0.075
PAH, Total Detected USEPA 16	0.864	0.909	3.82	4.52	6.26	7.29	8.86	1.03	2.17	2.18	0.374	11.7	1.43	0.59
Naphthalene-d8 % recovery**	91.4	96.4	89.4	91.5	90.1	93.5	88.2	92.8	91.6	91.7	93.2	92	91	86.1
Acenaphthene-d10 % recovery**	90.5	94.8	92.3	91.9	86.8	90.3	99.2	95.3	88.4	95.4	96.2	90.3	91.4	81.3
Phenanthrene-d10 % recovery**	89.1	91	93	88.5	92.5	95.2	98.1	96.9	91.4	98.4	98.5	97.9	91.1	81.9
Chrysene-d12 % recovery**	87	83.8	102	92.7	90	104	98.7	94.7	95	103	97.1	106	95.8	86.7
Perylene-d12 % recovery**	90	80.3	102	97.7	93.7	99.8	93.9	89.8	89.9	100	93.2	107	90.4	79.6
Total Aliphatics >C12-C44	17.4	16.3	234	160	311	124	917	123	197	244	66.7	295	24.2	241
Total Aromatics >EC12-EC44	19.4	15.7	124	97.4	225	78.3	390	74.3	89.6	137	56.1	192	28.3	309
Total Aliphatics & Aromatics >C5-C44	36.8	32	358	258	536	211	1320	204	287	382	124	487	52.4	550
Metals - (Solid)														
Iron	38300	40600	66300	110000	73900	59900	74400	19000	78400	56900	27900	86300	52200	14300
Manganese	846	4370	5560	9910	7360	9430	8890	2180	140000	6350	1050	11200	2110	325
Metals - (Liquid)														
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols														
Phenol	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	0.01	0.045	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics														
Soluble Sulphate 2:1 extract as SO4 BRE														
pH														
Sulphate, Total														
Sulphur, Total														
Sulphate, Total potentia														
Sulphate, acid soluble (total)														
Cyanide, Total														
Exchangeable Ammonia as N														
Asbestos														
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysed By	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)														
Analysts Comments														
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amosite (Brown) Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crocidolite (Blue) Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Anthophyllite	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Tremolite	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fibrous Actinolite	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Asbestos Fibre	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comments	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Volatile Organic Compounds (VOCs)														
Dibromofluoromethane**	105	107	107	104	103	104	104	108	106	109	108	104	110	107
Toluene-d8**	97.6	89	99.5	93.2	95.8	92.1	95.6	97.2	95.1	97.9	98.1	96.5	96.6	96.7
4-Bromofluorobenzene**	98.1	72.5	98.4	87.4	95.9	88.8	97.2	96	89.2	97.8	97	98.2	89.2	97.8
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Benzene	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Toluene	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
o-Xylene	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Naphthalene	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Subcontracted: Inorganics														
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Determinand	RLS2TP10V	RLS2TP11V	RLS2TP12V	RLS2TP13V	RLS2TP14V	RLS2TP15V	RLS2TP1V	RLS2TP2V	RLS2TP3V	RLS2TP4V	RLS2TP5V	RLS2TP6V
	4.004.00	0.800.80	0.700.70	0.650.65	2.252.25	2.302.30	0.400.40	1.201.20	1.101.10	0.450.45	1.301.30	5.305.30
	12/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018
Carbon												
Soil Organic Matter (SOM)	6.72	15.9	7.14	26.5	5.86	1.54	5.83	4.26	4.38	3.97	6.12	1.61
Metals (Solids)												
Arsenic	16.3	9.36	11.8	11.3	15.5	5.34	5.2	9.65	9.94	11.2	11.2	11.6
Cadmium	0.379	0.269	0.415	0.607	0.438	0.104	0.177	0.289	0.186	0.304	0.346	0.161
Chromium	40	32	33.6	30.7	39.2	24	31.2	30.1	22.5	38.9	25.9	33.2
Copper	34.1	21.8	26.8	37	26.2	10.4	17.3	21.2	10.9	25.5	14.1	12.9
Lead	134	19.3	33.4	21.9	35.3	19.5	20.5	21.7	24.7	26.8	20.1	33.9
Mercury	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Nickel	36.2	29	31.6	36.6	34.1	27.8	29.7	35.7	32.9	42.3	33.1	41.4
Selenium	1.66	1.66	1.41	2.86	1.29	1	1.1	1	1	1.68	1	1
Vanadium	61.2	48.6	53	47.5	64.7	40.9	47.5	49.1	44.6	61.2	41.2	59.7
Zinc	143	81.3	96.6	79.9	122	74.6	76.6	86.2	96.7	104	111	117
TPH Criteria Working Group (TPH CWG)												
Benzene												
Toluene												
Ethylbenzene												
sum of detected mpo xylene by GC												
Aliphatics >C5-C6	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C6-C8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C8-C10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C10-C12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aliphatics >C12-C16	0.1	0.1	0.1	3.46	0.102	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Aliphatics >C16-C21	0.1	0.1	0.1	7.54	2.51	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Aliphatics >C21-C35	1.98	15.5	3.88	37.9	5.23	0.1	1.23	0.865	6.64	1.15	2.58	0.1
Aliphatics >C35-C44	0.1	0.1	0.1	1.37	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Aromatics >EC5-EC7	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC10-EC12	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC12-EC16	0.1	0.1	0.1	2.23	0.1	0.1	0.1	0.1	0.1	0.304	0.1	0.1
Aromatics >EC16-EC21	0.1	2.17	0.1	5.97	0.589	0.1	3.05	0.182	0.1	0.115	0.1	0.1
Aromatics >EC21-EC35	7.54	111	21.6	159	17.8	7.46	34.7	5.34	26.5	5.82	7.44	3.8
Aromatics >EC35-EC44	0.891	6.33	2.31	27.1	1.88	0.1	4.44	0.139	2.12	1.59	3.41	0.1
Aromatics >EC40-EC44	0.1	0.1	0.1	9.72	0.1	0.1	0.1	0.1	0.1	0.349	1.34	0.1
Polyaromatic Hydrocarbons (PAHs)												
Acenaphthylene	12	12	12	12	12	12	12	12	12	12	12	12
Acenaphthene	8	8	8	8	8	8	8	8	8	8	8	8
Anthracene	16	16	16	16	16	16	16	16	16	16	16	16
Benz(a)anthracene	14	14	14	14	14	14	14	14	14	14	14	14
Benzo(a)pyrene	15	15	15	15	15	15	15	15	15	15	15	15
Benzo(b)fluoranthene	15	15	15	15	35.1	15	15	15	15	15	15	15
Benzo(k)fluoranthene	14	14	14	14	14	14	14	14	14	14	14	14
Benzo(g,h,i)perylene	24	24	24	24	104	24	24	24	24	24	24	24
Chrysene	10	10	20.7	10	20.3	10	10	10	10	10	10	10
Dibenzo(a,h)anthracene	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Indeno(1,2,3-cd)pyrene	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Fluoranthene	0.017	0.017	30.4	0.017	32.4	0.017	0.017	0.017	0.017	0.017	0.017	0.017
Fluorene	10	10	10	10	10	10	10	10	10	10	10	10
Naphthalene	9	9	9	9	9	9	9	9	9	9	9	9
Phenanthrene	15	15	15	15	15	15	15	15	15	15	15	15
Pyrene	0.015	0.015	0.015	0.015	0.0275	0.015	0.015	0.015	0.015	0.015	0.015	0.015
PAH, Total Detected USEPA 16	0.118	0.118	0.118	0.118	0.219	0.118	0.118	0.118	0.118	0.118	0.118	0.118
Naphthalene-d8 % recovery**	85.9	96.6	96.6	96.6	89.8	82.2	75.9	88	95.3	90.5	88.7	83
Acenaphthene-d10 % recovery**	90.5	93.2	91.9	89.6	89.3	81.3	76.5	93	94.7	87.3	86	79.5
Phenanthrene-d10 % recovery**	101	95	95	92.5	88.1	85.7	85.1	95.6	97.7	89.2	89.6	85
Chrysene-d12 % recovery**	97.9	89	89.7	103	79.8	85.2	83.3	99.9	95.1	90.1	88.7	92.4
Perylene-d12 % recovery**	98.9	88.9	87.2	98.4	83.3	85.6	89.7	97.8	95.1	90.8	88.6	87.9
Total Aliphatics >C12-C44	1.98	15.5	3.88	50.2	7.85	0.1	1.23	0.865	6.64	1.15	2.58	0.1
Total Aromatics >EC12-EC44	8.44	120	23.9	194	20.2	7.46	42.2	5.67	28.7	7.83	10.8	3.8
Total Aliphatics & Aromatics >C5-C44	10.4	135	27.8	244	28.1	7.46	43.4	6.53	35.3	8.98	13.4	3.8
Metals - (Solid)												
Iron	30300	21800	22500	20400	22300	23900	24200	31100	28700	28200	23900	30800
Manganese	414	164	341	185	240	388	161	326	615	542	405	411
Metals - (Liquid)												
Calcium	-	-	193000	-	-	156000	-	175000	-	217000	-	-
Magnesium	-	-	18000	-	-	16200	-	26500	-	8890	-	-
Phenols												
Phenol	0.01	0.0155	0.01	0.01	0.0222	0.01	0.01	0.01	0.0115	0.0109	0.01	0.01
Cresols	0.01	0.0155	0.01	0.01	0.0555	0.01	0.01	0.0111	0.046	0.01	0.01	0.01
Xylenols	0.015	0.015	0.015	0.015	0.0555	0.015	0.015	0.015	0.023	0.015	0.015	0.015
Phenols, Total Detected monohydric	0.035	0.035	0.035	0.035	0.133	0.035	0.035	0.035	0.0805	0.035	0.035	0.035
Inorganics												
Soluble Sulphate 2:1 extract as SO4 BRE												
pH												
Sulphate, Total												
Sulphur, Total												
Sulphate, Total potentia												
Sulphate, acid soluble (total)												
Cyanide, Total												
Exchangeable Ammonia as N												
Asbestos												
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	-	-	03/08/2018	-	-	17/07/2018	-	17/07/2018	-	16/07/2018	-	-
Analysed By	-	-	Lucy Caroe	-	-	Lucy Caroe	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	-
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)												
Analysts Comments												
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Amosite (Brown) Asbestos	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Crocidolite (Blue) Asbestos	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Anthophyllite	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Tremolite	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Fibrous Actinolite	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Non-Asbestos Fibre	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Comments	-	-	0	-	-	0	-	0	-	0	-	-
Volatile Organic Compounds (VOCs)												
Dibromofluoromethane**	114	104	102	103	102	96.3	93.5	95.3	100	98.8	97.7	99.1
Toluene-d8**	97.9	96.9	96.3	97.4	96.6	98	95.1	93.5	97.3	97.2	96.9	99.5
4-Bromofluorobenzene**	88.7	96.3	91.8	89.8	99	97.8	93.8	88.3	101	102	89.7	107
Methyl Tertiary Butyl Ethe	0.1	0.1	0.1	0.1	2	0.1	0.1	0.2	2	0.1	0.01	0.1
Benzene	0.09	0.09	0.09	0.09	1.8	0.09	0.09	0.18	1.8	0.09	0.009	0.09
Toluene	0.07	0.07	0.07	0.07	1.4	0.07	0.07	0.14	1.4	0.07	0.007	0.07
Ethylbenzene	0.04	0.04	0.04	0.04	0.8	0.04	0.04	0.08	0.8	0.04	0.004	0.04
p/m-Xylene	0.1	0.1	0.1	0.1	2	0.1	0.1	0.2	2	0.1	0.01	0.1
o-Xylene	0.1	0.1	0.1	0.1	2	0.1	0.1	0.2	2	0.1	0.01	0.1
Naphthalene	0.13	0.13	0.13	0.13	24.3	0.286	0.76	37.1	22.5	0.786	0.013	0.13
Sum of BTEX	0.4	0.4	0.4	0.4	8	0.4	0.4	0.8	8	0.4	0.04	0.4
Subcontracted: Inorganics												
Gross Calorific Value in Dry Matter Q(V/gr/d	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-	-	-	-

Glan Lyn Commercial Soils Data

Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > WQS	Min	Max	Average	Upper 95th Percentile	WQS	Percentage of exceedances	RLS2TP7V 3.803.80 12/06/2018	RLS2TP8V 3.203.20 12/06/2018	RLS2TP9V 1.601.60 12/06/2018	CAFTP10 0.000.50 16/05/2017	CAFTP10 0.002.40 16/05/2017	CAFTP15 0.000.50 16/05/2017	CAFTP15 0.002.40 16/05/2017	CAFTP16 0.000.60 16/05/2017	CAFTP16 0.001.20 16/05/2017	CAFTP16 0.002.00 16/05/2017	CAFTP19 0.000.60 16/05/2017	CAFTP19 0.002.90 16/05/2017	CAFTP20 0.000.70 16/05/2017	CAFTP20 0.002.90 16/05/2017	CAFTP24 0.001.00 16/05/2017	CAFTP24 0.002.50 16/05/2017	CAFTP25 0.000.70 16/05/2017
Carbon																													
Soil Organic Matter (SOM)	TM132	%	0.35	430	429	0	0.35	81	7	27		0.00	30.7	8.29	1.31	5.97	1.19	8.31	9.57	0.778	5.97	5.64	4.86	8.43	0.915	2.14	1.31	2.09	2.97
Metals (Solids)																													
Arsenic	TM181	mg/kg	<0.6	430	430	329	0.60	276	11.88	22.47	6.74	76.51	27.5	15.9	6	11.5	5.68	14.4	6.45	8.72	15.3	34.4	6.53	12.2	8.83	4.26	11.9	6	8.76
Cadmium	TM181	mg/kg	<0.02	430	430	341	0.02	9	0.69	2.00	0.19	79.30	0.439	0.567	0.2	0.22	0.02	0.412	0.151	0.02	0.327	0.41	0.127	2.61	0.128	0.616	0.0447	0.2	0.02
Chromium	TM181	mg/kg	<0.9	430	430	293	0.90	876	72.70	291.55	25.08	68.14	28.5	37	33.1	38	7.78	11	12.8	0.9	45.4	35.9	31.7	61.3	28.1	420	58.4	114	39.5
Copper	TM181	mg/kg	<1.4	430	430	430	1.40	318	26.84	54.31	1.20	100.00	35.6	30.3	14	14.3	1.4	20.3	3.82	22.4	32.7	77.1	20.3	14	25	3.88	12.8	17.6	24.8
Lead	TM181	mg/kg	<0.7	430	430	186	0.70	787	60.52	155.65	41.85	43.26	19.2	43.5	7	27	0.7	23.6	16.6	3.2	28.8	116	25.9	93.7	18.4	16.6	32	13.1	22.6
Mercury	TM181	mg/kg	<0.14	430	430	84	0.14	14	0.41	1.40	0.35	19.53	0.14	0.14	1.4	0.14	0.14	0.401	0.14	0.52	0.14	1.87	0.748	0.14	0.14	0.14	0.14	1.4	0.712
Nickel	TM181	mg/kg	<0.2	430	430	112	0.76	169	22.79	41.96	30.61	26.05	39.2	35	4.67	37.3	0.763	35.2	6.38	3.93	33.7	54.8	30.3	47	39.6	7.53	40.7	6.54	35.5
Selenium	TM181	mg/kg	<1	430	430	257	1.00	40	4.12	10.00	1.87	59.77	3.19	1.37	10	1	8.31	1	6.43	1.65	1.54	1	1	10	1	12.3	1.12	10	1
Vanadium	TM181	mg/kg	<0.2	430	430	430	6.56	1790	120.90	387.05	4.27	100.00	54.4	62.9	47.2	51.2	21.9	26.4	38.3	16.6	57.7	50.7	60.4	204	35.8	1790	93.9	501	61.7
Zinc	TM181	mg/kg	<1.9	430	430	58	9.10	3690	248.37	746.80	365.79	13.49	42.1	156	19	102	12.6	128	73.4	19.4	117	331	124	369	71	50.9	115	39.7	126
TPH Criteria Working Group (TPH CWG)																													
Benzene	TM089	mg/kg	<0.01	15	15	15	0.04	0	0.04	0.04	0.01	100.00			0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Toluene	TM089	mg/kg	<0.002	15	15	0	0.01	0	0.01	0.01	0.32	0.00			0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008	0.008
Ethylbenzene	TM089	mg/kg	<0.003	15	15	0	0.01	0	0.01	0.01	0.21	0.00			0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012
sum of detected mpo xylene by GC	TM089	µg/kg	9	15	15	0	0.01	0	0.01	0.01	0.19	0.00			0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Aliphatics >C5-C6	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	311.47	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0403	0.04
Aliphatics >C6-C8	TM089	mg/kg	<0.01	430	430	0	0.01	4	0.06	0.08	1134.98	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.0421	0.0442	0.04	0.0662	0.04	0.04	0.04	0.04	0.104	0.04
Aliphatics >C8-C10	TM089	mg/kg	<0.01	430	430	0	0.01	26	0.22	0.31	7844.34	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.251	0.0527	0.0758	0.04	0.211	0.263	0.04	0.04	0.04	0.084	0.04
Aliphatics >C10-C12	TM089	mg/kg	<0.01	430	430	0	0.01	29	0.47	0.78	60406.47	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.75	0.123	0.0901	0.04	0.488	0.787	0.04	0.04	0.04	0.0759	0.04
Aliphatics >C12-C16	TM173	mg/kg	<0.1	430	430	0	0.10	1330	14.32	23.54	1198346.52	0.00	1.13	0.1	3.08	0.228	0.1	0.1	3.49	4.76	0.1	0.1	1.65	1.97	0.109	0.1	0.1	3.76	0.1
Aliphatics >C16-C21	TM173	mg/kg	<0.1	430	430	0	0.10	1100	23.70	61.02	150639254.34	0.00	1.24	0.1	10.3	0.154	5.96	1.59	11.8	11.3	0.1	3.77	3.36	8.7	0.1	0.85	0.1	17.8	0.1
Aliphatics >C21-C35	TM173	mg/kg	<0.1	430	430	0	0.10	3580	103.56	261.55	150639254.34	0.00	74.1	0.1	15.7	0.1	77.8	14.9	208	42.9	5.59	33.6	8.12	38.9	0.1	6.96	2.67	90.6	3.7
Aliphatics >C35-C44	TM173	mg/kg	<0.1	430	430	0	0.10	1380	36.31	117.60	150639254.34	0.00	0.1	0.1	3.89	0.1	40.7	0.1	99	14.9	0.1	6.64	0.1	7.39	0.1	0.485	0.1	15.4	0.1
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	430	430	0	0.01	1	0.04	0.04	19.81	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	430	430	0	0.01	0	0.04	0.04	451.11	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	430	430	0	0.01	17	0.18	0.23	380.12	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.173	0.0433	0.0569	0.04	0.14	0.181	0.04	0.04	0.04	0.0575	0.04
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	430	430	0	0.01	19	0.32	0.52	600.15	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.5	0.0819	0.06	0.04	0.325	0.524	0.04	0.04	0.04	0.0506	0.04
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	430	430	0	0.10	507	5.41	9.13	1196.62	0.00	0.1	0.1	1.31	0.1	0.1	4.62	4.67	1.48	1.51	1.95	2.28	2.67	0.1	0.333	0.1	3.22	0.1
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	430	430	0	0.10	1360	14.63	33.03	3783.48	0.00	4.31	2.01	4.33	0.1	0.777	5.17	27.9	4.2	0.803	5.74	2.38	6.91	0.1	6.95	3.33	24.6	0.1
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	430	430	0	0.10	4070	84.84	242.55	30052.88	0.00	284	19.3	0.1	0.685	43.6	34.4	180	21.1	18.6	38.1	28.3	24.1	0.1	24.8	6.59	191	10.1
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	1250	38.06	119.20	30052.88	0.00	25.2	2.37	0.1	0.1	56.1	15.2	153	12.3	2.89	19	2.42	11.5	0.1	6.34	0.84	59.1	1.98
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	532	15.77	50.63	30052.88	0.00	7.71	0.1	0.1	0.1	24.9	5.49	62.6	4.65	0.1	7.13	0.1	4.02	0.1	1.37	0.1	20.6	0.1
Polyaromatic Hydrocarbons (PAHs)																													
Acenaphthylene	TM218	µg/kg	<0.012	430	430	62	12.00	1620	29.96	69.04	44.45	14.42	12	12	12	12	12	12	24	12	12	78.5	12	12	12	16.7	12	12	12
Acenaphthene	TM218	µg/kg	<0.008	430	430	47	8.00	6190	78.66	157.20	79.05	10.93	8	8	12.2	8	8	32.9	294	27.9	8	59.5	8	17.7	8	31.7	8	87	8
Anthracene	TM218	µg/kg	<0.016	430	430	94	16.00	3990	102.94	277.25	90.76	21.86	16	16	16	16	16	45.6	129	16	16	185	16	84.1	16	86	16	143	16
Benz(a)anthracene	TM218	µg/kg	<0.014	430	430	11	0.03	15900	334.30	1176.50	1613.93	2.56	14	32.4	25.2	32.9	59.3	129	371	48.1	14	653	28.4	186	14	595	14	1440	26.7
Benzo(a)pyrene	TM218	µg/kg	<0.015	430	430	197	15.00	16000	309.38	1200.00	91.65	45.81	15	25.4	30.2	23	63.2	101	449	26.2	33.5	773	15	139	15	711	15	1740	25
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	430	430	429	3.00	27000	476.01	1737.00	9.09	99.77	15	44.2	50.3	27.6	115	173	778	78.4	48.5	1030	28	214	15	1080	15	2380	34.3
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	430	430	429	0.03	8650	173.16	631.00	13.44	99.77	14	14	14	14	39.2	73.3	242	25.4	22.7	340	14	79.5	14	338	14	822	14
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	430	429	254	<0.02 4	9800	252.94	881.60	35.35	59.07	24	24	33.5	24	102	107	573	50.6	24	625	24	119	24	589	24	1220	24
Chrysene	TM218	µg/kg	<0.01	430	430	12	0.02	19400	379.58	1196.00	1651.53	2.79	10	38.3	15.6	23.9	49.2	148	304	48.9	39.5	595	24	178	10	667	10	1400	23.2
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	430	430	1	0.02	3260	50.95	195.75	2227.85	0.23	0.023	0.023	0.023	0.023	0.023	0.023	123	0.023	0.023	155	0.023	26.4	0.023	118	0.023	219	0.023
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	430	430	208	0.02	10100	224.69	848.40	67.35	48.37	0.018	0.018	23.2	0.018	76.5	87.2	403	38.1	0.018	527	0.018	79.9	0.018	418	0.018	879	0.018
Fluoranthene	TM218	µg/kg	<0.017	430	430	345	0.02	17900	545.11	1932.00	17.67	80.23	0.017	68.3	41.3	35.5	82.2	294	611	84.2	70.8	1020	57.6	294	29.3	925	0.017	2250	32.4
Fluorene	TM218	µg/kg	<0.01	430	430	52	0.02	9160	88.86	143.10	72.09	12.09	26.1	10	10	10	10	48	129	12.2	10	71.3	16.8	23.6	10	21.2	10	41.4	10
Naphthalene	TM218	µg/kg	<0.009	430	430	114	0.02	38100	205.87	304.40	72.28	26.51	9	67.4	15.8	43.6	27.9	64.5	253	41.9	18.8	237	9	58.9	9	26.7	9	32.4	9
Phenanthrene	TM218	µg/kg	<0.015	430	430	269	3.00	11600	385.24	1150.50	72.09	62.56	15	107	41.5	105	54.3	246	433	83.1	59.6	572	63.9	398	48.1	383	15	674	15
Pyrene	TM218	µg/kg	15	347	347	0	0.02	18	0.57	2.16	203.18	0.00	0.015	0.0556															
PAH, Total Detected USEPA 16	TM218	µg/kg	<0.118	430	430	0	0.12	169	4.19	14.87		0.00	0.118	0.439	0.33	0.321	0.741	1.75	5.61	0.634	0.347	7.7	0.262	2.18	0.118	6.84	0.118	15.5	0.168
Naphthalene-d8 % recovery**	TM218	%		430	430	0	32.20	120	92.43	105.00		0.00	97.6	88.1	97.9	104	97.5	114	103	113	104	118	107	105	110	103	98.8	112	120
Acenaphthene-d10 % recovery**	TM218	%		430	430	0	31.10	127	91.42	104.00		0.00	97.7	87.4	98.2	100	96	111	99.8	110	102	114	103	101	106	98.7	95.7	109	114
Phenanthrene-d10 % recovery**	TM218	%		430	430	0	29.50	121	93.65	107.00		0.00	102	93	96.4	95.3	95.7	106	98	107	101	111	101	95.5	104	95.9	93.3	107	108
Chrysene-d12 % recovery**	TM218	%		430	430	0	25.30	116	87.43	104.00		0.00	90.4	95.6	91.2	96.2	86.4	95.1	101	90.8	94	116	88.7	95.7	104	101	86.5	96	108
Perylene-d12 % recovery**	TM218	%		430	430	0	16.60	125	85.61	104.00		0.00	87.6	90.5	89.9	101	80.4	95.9	108	87.7	90.2	125	88.7	98.3	110	108	76.9	96.1	113
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1	430	430	0	0.10	6880	177.80	494.00		0.00	76.5	0.1	33	0.381	124	16.5	323	73.8	5.59	44	13.1	57	0.109	8.29	2.67	128	3.7
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1	430	430	0	0.10	7180	142.91	393.85		0.00	314	23.7	5.64	0.685	100	59.4	366	39.1	23.8	64.7	35.4	45.2	0.1	38.4	10.8	278	12.1
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100	347	347	0	0.10	14100	309.32	789.40		0.00	390	23.7															
Metals - (Solid)																													
Iron	TM224	mg/kg	<1000	430	415	0	<100	443000	56862.51	161800.00			21300	27100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	TM224	mg/kg	<0.13	430	415	0	<0.13	140000	5731.50	20510.00			255	277	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals - (Liquid)																													
Calcium	TM224	mg/kg	<21	429	176	0	<21	284000	########	249000.00			153000	110000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	TM224	mg/kg	<8	429	176	0	<8	106000	19369.43	40700.00			13700	22800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenols																													
Phenol	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	1	0.01	0.01	0.00	100.00	0.01	0.249	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cresols	TM062 (S)	mg/kg	<0.01	430	430	430	0.01	0	0.01	0.01	0.00	100.00	0.0108	0.01	0.01	0.0128	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Xylenols	TM062 (S)	mg/kg	<0.015	430	430	430	0.02	0	0.02	0.02	0.00	100.00	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035	430	430	430	0.04	1	0.04	0.04	0.00	100.00	0.035	0.249	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035
Inorganics																													
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004	83	32	32	<0.00 4	2	0.30	0.99	0.00	38.55			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	TM133	pH Units	<1	83	68	68	<1	12	9.50	11.50	0.00	81.93			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Total	TM221	mg/kg	<48	83	0	0	<48	<48			0.00				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur, Total	TM132	%	<0.02	83	32	32	<0.02	1	0.30	0.44	0.00	38.55			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, Total potentia	TM132	%	<0.06	83	32	32	<0.06	4	0.89	1.32	0.00	38.55			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate, acid soluble (total	TM221	%	<0.02	83	32	32	<0.02	2	0.42	1.03	0.00	38.55			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide, Total	TM153	mg/kg	<1	83	83	83	1.00	197	5.06	21.78	0.00	100.00			1	1	1	1	1	1	1	1	1	1	1	1.08	1	1	1
Exchangeable Ammonia as N	TM024	mg/kg	<12	83	83	83	12.00	458	78.02	359.80	0.00	100.00			12	322	13.9	263	12	12	458	12	228	12	92.8	12	152	12	364
Asbestos																													
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	430	22	22	<0.00 1	0	0.00	0.00	0.00				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	TM048	No units		430	0	0					0.00		18/07/2018	18/07/2018	-	-	23/05/17	-	23/05/17	-	-	-	-	23/05/17	-	23/05/17	-	-	-
Analysed By	TM048	No units		430	0	0					0.00		James Richards	Lucy Caroe	-	-	Lauren Sargeant	-	Lauren Sargeant	-	-	-	-	Lauren Sargeant	-	Lauren Sargeant	-	-	-
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	430	22	22	<0.00 1	0	0.00	0.00	0.00				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	TM304	No units		83	0	0					0.00				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	TM304	No units		83	0	0					0.00				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	TM304	%	<0.001	430	22	22	<0.00 1	0	0.00	0.00	0.00				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	Detected	-	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	-	-
Amosite (Brown) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	-	-
Crocidolite (Blue) Asbestos	TM048	No units		430	0	0					0.00		Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	-	-
Fibrous Anthophyllite	TM048	No units		430	0	0					0.00		Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	-	-
Fibrous Tremolite	TM048	No units		430	0	0					0.00		Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	-	-
Fibrous Actinolite	TM048	No units		430	0	0					0.00		Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	-	-
Non-Asbestos Fibre	TM048	No units		430	0	0					0.00		Not Detected	Not Detected	-	-	Not Detected	-	Detected	-	-	-	-	Not Detected	-	Not Detected	-	-	-
Comments	TM048	No units		430	0	0			0.00	0.00	0.00		0	Loose fibres in soi	-	-	0	-	0	-	-	-	-	0	-	0	-	-	-
Volatile Organic Compounds (VOCs)																													
Dibromofluoromethane**	TM116	%		430	415	415		138	106.99	116.00	0.00		96.4	98.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene-d8**	TM116	%		430	415	415		106	96.96	99.90	0.00		93.6	95.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Bromofluorobenzene**	TM116	%		430	415	415		114	92.03	104.00	0.00		84.6	90.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tertiary Butyl Ethe	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.11	0.10	0.00		0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	TM116	mg/kg	<0.09	430	415	415	<0.09	2	0.10	0.09	0.00		0.09	0.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	TM116	mg/kg	<0.07	430	415	415	<0.07	1	0.08	0.07	0.00		0.07	0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	TM116	mg/kg	<0.04	430	415	415	<0.04	1	0.05	0.04	0.00		0.04	0.04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
p/m-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00		0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	TM116	mg/kg	<0.1	430	415	415	<0.1	2	0.12	0.10	0.00		0.1	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	TM116	mg/kg	<0.13	430	415	415	<0.13	37	0.44	0.38	0.00		0.355	0.764	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sum of BTEX	TM116	mg/kg	<0.4	430	415	415	<0.4	8	0.46	0.40	0.00		0.4	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subcontracted: Inorganics																													
Gross Calorific Value in Dry Matter Q(V/gr/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.86	3.65	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	3	0.66	1.87	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d	SUB	MJ/kg	<0.5	430	40	40	<0.5	6	0.82	3.21	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar	SUB	MJ/kg	<0.5	430	40	40	<0.5	1	0.54	0.75	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	SUB	%	<0.5	430	40	40	<0.5	3	1.35	3.19	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	SUB	%	<0.5	430	40	40	<0.5	58	16.93	49.33	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	SUB	%	<0.5	430	40	40	<0.5	60	17.95	50.91	0.00		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix F: Sampling Location Plans



GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY:

PREVIOUSLY SAMPLED PHASE BOUNDARIES

CURRENT SITE PHASING PLAN

CAF TP32 TP LOCATION

NOTES:

PHASES HAVE BEEN TESTED ON A 25x25M GRID

PHASES 4c, 4e AND 4g BOUNDARIES HAVE SUBSEQUENTLY BEEN CHANGED IN LATER SITE PHASING PLANS, THE ORIGINAL BOUNDARIES AS SAMPLED ARE SHOWN IN PINK

Rev	Date	Amendments	By	Chk
A	01/05/2022	TPs Added	SR	CW

Client

St Modwen Developments

Project

P18-669 Llanwern Reclamation

Drawing Title

CWRA Assessment
Soil Samples Location Plan

INFORMATION

	Drawn	Checked	Date
NTS	SR	CW	19.04.22

Drawing No. Rev.

18669-RLL-22-XX-DR-O-0254

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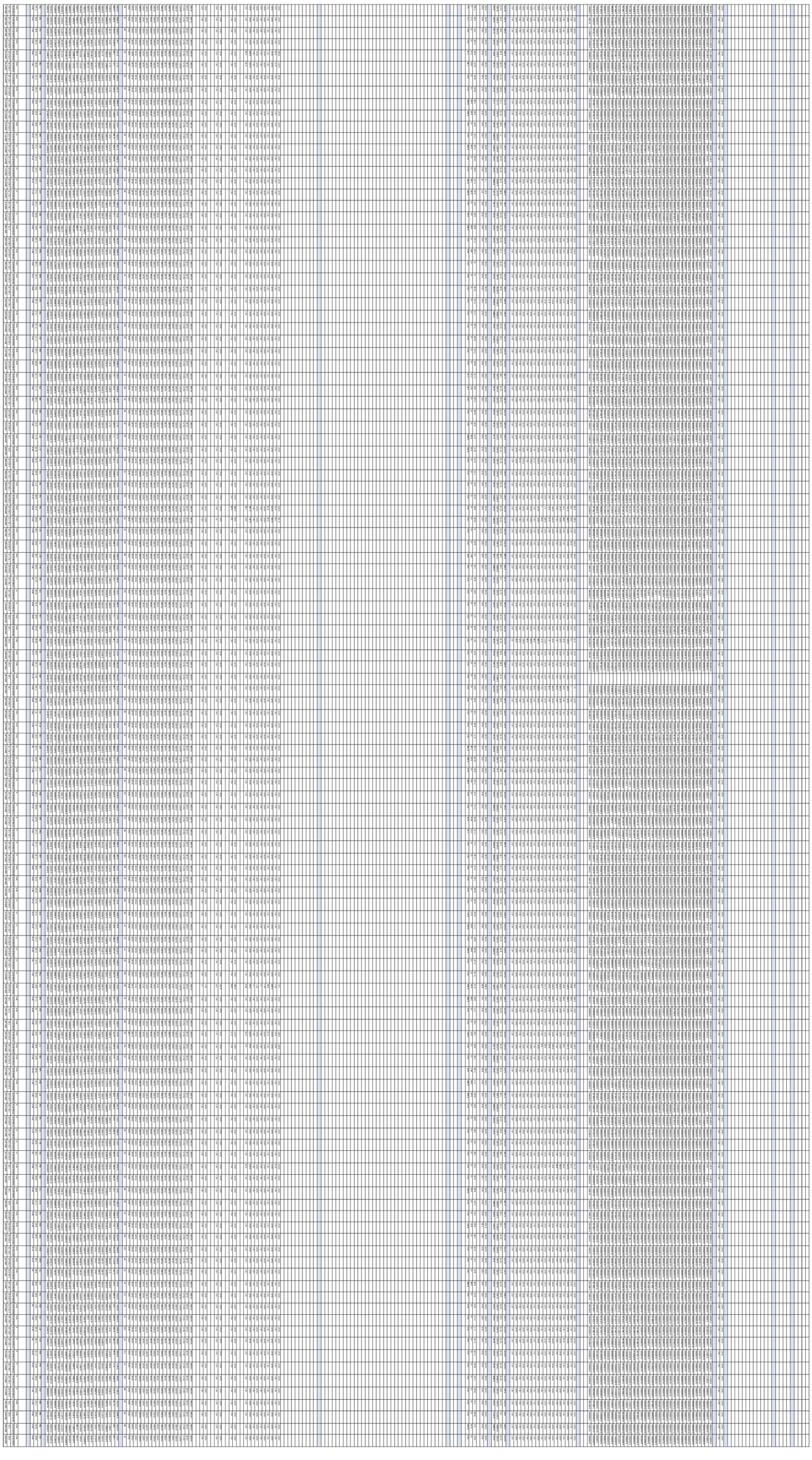
Appendix G: Soil Leachate Analysis

Glan Llyn Leachate Data

Determinand	Method	Units	LOD	No. of samples	No. of Samples >LOD	No. of Samples > EQS	Min	Max	EQS
Waste Acceptance Criteria (WAC)									
CEN 10:1 - Temperature	PM115	°C		1121	1119	0		25.70000	n/a
CEN 10:1 - pH	PM115	pH Units		1121	1119	0		12.75000	n/a
CEN 10:1 - Conductivity @ 20 deg.C	PM115	µS/cm		1121	1119	0		########	n/a
Filtered (Dissolved) Metals									
CEN 10:1 - Arsenic (diss.filt)	TM152	mg/l	<0.0005	1121	931	1	<0.0005	0.07700	0.05
CEN 10:1 - Cadmium (diss.filt)	TM152	mg/l	<0.00008	1121	16	1	<0.00008	0.00028	0.00025
CEN 10:1 - Chromium (diss.filt)	TM152	mg/l	<0.001	1121	601	601	<0.001	0.07960	0.00047
CEN 10:1 - Copper (diss.filt)	TM152	mg/l	<0.0003	1121	960	843	<0.0003	0.14300	0.001
CEN 10:1 - Lead (diss.filt)	TM152	mg/l	<0.0002	1121	474	164	<0.0002	0.49000	0.0012
CEN 10:1 - Mercury (diss.filt)	TM183	mg/l	<0.00001	1121	230	0	<0.00001	0.00047	0.07
CEN 10:1 - Nickel (diss.filt)	TM152	mg/l	<0.0004	1121	744	26	<0.0004	0.00777	0.004
CEN 10:1 - Selenium (diss.filt)	TM152	mg/l	<0.0005	1121	857	41	<0.0005	0.06640	0.01
CEN 10:1 - Vanadium (diss.filt)	TM152	mg/l	<0.001	1121	1034	711	<0.001	1.01000	0.02
CEN 10:1 - Zinc (diss.filt)	TM152	mg/l	<0.001	1121	742	98	<0.001	2.09000	0.0109
CEN 10:1 - Mercury (diss.filt)	TM183	mg/kg	<0.0001	1121	230	0	<0.0001	0.00471	n/a
CEN 10:1 - Arsenic (diss.filt)	TM152	mg/kg	<0.005	1121	931	0	<0.005	0.77000	n/a
CEN 10:1 - Cadmium (diss.filt)	TM152	mg/kg	<0.0008	1121	16	0	<0.0008	0.00276	n/a
CEN 10:1 - Chromium (diss.filt)	TM152	mg/kg	<0.01	1121	601	0	<0.01	0.79600	n/a
CEN 10:1 - Copper (diss.filt)	TM152	mg/kg	<0.003	1121	960	0	<0.003	1.43000	n/a
CEN 10:1 - Lead (diss.filt)	TM152	mg/kg	<0.002	1121	474	0	<0.002	4.90000	n/a
CEN 10:1 - Nickel (diss.filt)	TM152	mg/kg	<0.004	1121	744	0	<0.004	0.07770	n/a
CEN 10:1 - Selenium (diss.filt)	TM152	mg/kg	<0.005	1121	857	0	<0.005	0.66400	n/a
CEN 10:1 - Vanadium (diss.filt)	TM152	mg/kg	<0.01	1121	1034	0	<0.01	10.10000	n/a
CEN 10:1 - Zinc (diss.filt)	TM152	mg/kg	<0.01	1121	742	0	<0.01	20.90000	n/a
TPH Criteria Working Group (TPH CWG)									
CEN 10:1 - GRO Surrogate % recovery**	TM245	%		1121	1118	0		129.00000	n/a
CEN 10:1 - GRO >C5-C12	TM245	mg/l	<0.05	1121	57	0	<0.05	312.00000	n/a
CEN 10:1 - GRO >C5-C12	TM245	mg/kg	<0.5	1121	57	0	<0.5	96.20000	n/a
CEN 10:1 - Methyl tertiary butyl ether (MTBE)	TM245	mg/l	<0.03	1121	17	0	<0.03	0.12000	n/a
CEN 10:1 - Methyl tertiary butyl ether (MTBE)	TM245	mg/kg	<0.003	1121	17	0	<0.003	0.01200	n/a
CEN 10:1 - Benzene	TM245	mg/l	<0.07	1121	15	15	<0.07	5.21000	0.01
CEN 10:1 - Benzene	TM245	mg/kg	<0.007	1121	15	0	<0.007	0.52100	n/a
CEN 10:1 - Toluene	TM245	mg/l	<0.04	1121	22	7	<0.04	4.90000	0.074
CEN 10:1 - Toluene	TM245	mg/kg	<0.004	1121	22	0	<0.004	0.49000	n/a
CEN 10:1 - Ethylbenzene	TM245	mg/l	<0.05	1121	4	4	<0.05	0.39000	0.02
CEN 10:1 - Ethylbenzene	TM245	mg/kg	<0.005	1121	4	0	<0.005	0.03900	n/a
CEN 10:1 - m,p-Xylene	TM245	mg/l	<0.08	1121	11	0	<0.08	3.15000	n/a
CEN 10:1 - m,p-Xylene	TM245	mg/kg	<0.008	1121	11	0	<0.008	0.31500	n/a
CEN 10:1 - o-Xylene	TM245	mg/l	<0.03	1121	13	0	<0.03	1.02000	n/a
CEN 10:1 - o-Xylene	TM245	mg/kg	<0.003	1121	13	0	<0.003	0.10200	n/a
CEN 10:1 - Sum of detected Xylenes	TM245	mg/kg	<0.011	1121	12	7	<0.011	4.08000	0.03
CEN 10:1 - Sum of detected Xylenes	TM245	mg/l	<0.11	1121	12	0	<0.11	1.31000	n/a
CEN 10:1 - Sum of detected BTEX	TM245	mg/l	<0.28	1121	11	0	<0.28	14.30000	n/a
CEN 10:1 - Sum of detected BTEX	TM245	mg/kg	<0.028	1121	11	0	<0.028	1.43000	n/a
CEN 10:1 - Aliphatics >C12-C16 (diss.filt)	TM174	mg/l	<0.01	590	0	0	<0.01	<0.01	n/a
CEN 10:1 - Aliphatics >C12-C16 (diss.filt)	TM174	mg/kg	<0.1	590	0	0	<0.1	<0.1	n/a
CEN 10:1 - Aliphatics >C5-C6	TM245	mg/l	<0.01	1121	2	0	<0.01	0.33000	n/a
CEN 10:1 - Aliphatics >C5-C6	TM245	mg/kg	<0.1	1121	2	0	<0.1	0.03300	n/a
CEN 10:1 - Aliphatics >C16-C21 (diss.filt)	TM174	mg/l	<0.1	590	2	0	<0.1	0.20000	n/a
CEN 10:1 - Aliphatics >C16-C21 (diss.filt)	TM174	mg/kg	<0.01	590	2	0	<0.01	0.02000	n/a
CEN 10:1 - Aliphatics >C6-C8	TM245	mg/l	<0.1	1121	22	0	<0.1	1.37000	n/a
CEN 10:1 - Aliphatics >C6-C8	TM245	mg/kg	<0.01	1121	22	0	<0.01	0.13700	n/a
CEN 10:1 - Aliphatics >C21-C35 (diss.filt)	TM174	mg/l	<0.1	590	0	0	<0.1	<0.1	n/a
CEN 10:1 - Aliphatics >C21-C35 (diss.filt)	TM174	mg/kg	<0.01	590	0	0	<0.01	<0.01	n/a
CEN 10:1 - Aliphatics >C8-C10	TM245	mg/l	<0.1	1121	36	0	<0.1	8.63000	n/a
CEN 10:1 - Aliphatics >C8-C10	TM245	mg/kg	<0.01	1121	36	0	<0.01	0.86300	n/a
CEN 10:1 - Total Aliphatics >C12-C35 (diss.filt)	TM174	mg/l	<0.1	590	2	0	<0.1	0.27000	n/a
CEN 10:1 - Total Aliphatics >C12-C35 (diss.filt)	TM174	mg/kg	<0.01	590	2	0	<0.01	0.02700	n/a
CEN 10:1 - Aliphatics >C10-C12	TM245	mg/l	<0.1	1121	68	0	<0.1	182.00000	n/a
CEN 10:1 - Aliphatics >C10-C12	TM245	mg/kg	<0.01	1121	68	0	<0.01	18.20000	n/a
CEN 10:1 - Aromatics >EC5-EC7	TM245	mg/l	<0.01	1121	10	0	<0.01	5.21000	n/a
CEN 10:1 - Aromatics >EC5-EC7	TM245	mg/kg	<0.1	1121	10	0	<0.1	0.52100	n/a
CEN 10:1 - Aromatics >EC7-EC8	TM245	mg/l	<0.1	1121	5	0	<0.1	4.90000	n/a
CEN 10:1 - Aromatics >EC7-EC8	TM245	mg/kg	<0.01	1121	5	0	<0.01	0.49000	n/a
CEN 10:1 - Aromatics >EC8-EC10	TM245	mg/l	<0.1	1121	31	0	<0.1	7.00000	n/a
CEN 10:1 - Aromatics >EC8-EC10	TM245	mg/kg	<0.01	1121	31	0	<0.01	0.70000	n/a
CEN 10:1 - Aromatics >EC10-EC12	TM245	mg/l	<0.1	1121	60	0	<0.1	121.00000	n/a
CEN 10:1 - Aromatics >EC10-EC12	TM245	mg/kg	<0.01	1121	60	0	<0.01	12.10000	n/a
CEN 10:1 - Aromatics >EC12-EC16 (diss.filt)	TM174	mg/l	<0.1	590	4	0	<0.1	8.68000	n/a
CEN 10:1 - Aromatics >EC12-EC16 (diss.filt)	TM174	mg/kg	<0.01	590	4	0	<0.01	0.86800	n/a
CEN 10:1 - Aromatics >EC16-EC21 (diss.filt)	TM174	mg/l	<0.01	590	5	0	<0.01	78.80000	n/a
CEN 10:1 - Aromatics >EC16-EC21 (diss.filt)	TM174	mg/kg	<0.1	590	5	0	<0.1	7.88000	n/a
CEN 10:1 - Aromatics >EC21-EC35 (diss.filt)	TM174	mg/l	<0.1	590	1	0	<0.1	5.61000	n/a
CEN 10:1 - Aromatics >EC21-EC35 (diss.filt)	TM174	mg/kg	<0.01	590	1	0	<0.01	0.56100	n/a
CEN 10:1 - Total Aromatics >EC12-EC35 (diss.filt)	TM174	mg/l	<0.01	590	6	0	<0.01	93.10000	n/a
CEN 10:1 - Total Aromatics >EC12-EC35 (diss.filt)	TM174	mg/kg	<0.1	590	6	0	<0.1	9.31000	n/a
CEN 10:1 - Total Aliphatics & Aromatics >C5-35 (diss.filt)	TM174	mg/l	<0.01	590	12	0	<0.01	93.10000	n/a
CEN 10:1 - Total Aliphatics & Aromatics >C5-35 (diss.filt)	TM174	mg/kg	<0.1	590	12	0	<0.1	98.60000	n/a
Polyaromatic Hydrocarbons (PAHs)									
CEN 10:1 - Naphthalene (diss.filt)	TM178	mg/l	<0.0001	590	99	0	<0.0001	########	n/a
CEN 10:1 - Naphthalene (diss.filt)	TM178	mg/kg	<0.00001	590	99	0	<0.00001	194.00000	n/a
CEN 10:1 - Acenaphthene (diss.filt)	TM178	mg/l	<0.000005	590	77	0	<0.000005	0.79100	n/a
CEN 10:1 - Acenaphthene (diss.filt)	TM178	mg/kg	<0.00005	590	77	0	<0.00005	2.21000	n/a
CEN 10:1 - Acenaphthylene (diss.filt)	TM178	mg/l	<0.000005	590	59	0	<0.000005	0.90100	n/a
CEN 10:1 - Acenaphthylene (diss.filt)	TM178	mg/kg	<0.00005	590	59	0	<0.00005	9.01000	n/a
CEN 10:1 - Fluoranthene (diss.filt)	TM178	mg/l	<0.00005	590	114	0	<0.00005	8.70000	n/a
CEN 10:1 - Fluoranthene (diss.filt)	TM178	mg/kg	<0.000005	590	114	0	<0.000005	0.87000	n/a
CEN 10:1 - Anthracene (diss.filt)	TM178	mg/l	<0.00005	590	88	0	<0.00005	111.00000	n/a
CEN 10:1 - Anthracene (diss.filt)	TM178	mg/kg	<0.000005	590	88	0	<0.000005	11.10000	n/a
CEN 10:1 - Phenanthrene (diss.filt)	TM178	mg/l	<0.00005	590	115	0	<0.00005	7.58000	n/a
CEN 10:1 - Phenanthrene (diss.filt)	TM178	mg/kg	<0.000005	590	115	0	<0.000005	0.75800	n/a
CEN 10:1 - Fluorene (diss.filt)	TM178	mg/l	<0.00005	590	81	0	<0.00005	3.56000	n/a
CEN 10:1 - Fluorene (diss.filt)	TM178	mg/kg	<0.000005	590	81	0	<0.000005	0.35600	n/a
CEN 10:1 - Chrysene (diss.filt)	TM178	mg/l	<0.00005	590	56	0	<0.00005	28.30000	n/a
CEN 10:1 - Chrysene (diss.filt)	TM178	mg/kg	<0.000005	590	56	0	<0.000005	2.83000	n/a
CEN 10:1 - Pyrene (diss.filt)	TM178	mg/l	<0.00005	590	112	0	<0.00005	9.23000	n/a
CEN 10:1 - Pyrene (diss.filt)	TM178	mg/kg	<0.000005	590	112	0	<0.000005	0.92300	n/a
CEN 10:1 - Benzo(a)anthracene (diss.filt)	TM178	mg/l	<0.00005	590	55	0	<0.00005	21.20000	n/a
CEN 10:1 - Benzo(a)anthracene (diss.filt)	TM178	mg/kg	<0.000005	590	55	0	<0.000005	2.12000	n/a
CEN 10:1 - Benzo(b)fluoranthene (diss.filt)	TM178	mg/l	<0.000005	590	54	0	<0.000005	2.11000	n/a
CEN 10:1 - Benzo(b)fluoranthene (diss.filt)	TM178	mg/kg	<0.00005	590	54	0	<0.00005	21.10000	n/a
CEN 10:1 - Benzo(k)fluoranthene (diss.filt)	TM178	mg/l	<0.00005	590	42	0	<0.00005	30.30000	n/a
CEN 10:1 - Benzo(k)fluoranthene (diss.filt)	TM178	mg/kg	<0.000005	590	42	0	<0.000005	3.03000	n/a
CEN 10:1 - Benzo(a)pyrene (diss.filt)	TM178	mg/l	<0.00002	590	56	0	<0.00002	21.10000	n/a
CEN 10:1 - Benzo(a)pyrene (diss.filt)	TM178	mg/kg	<0.000002	590	56	0	<0.000002	2.11000	n/a
CEN 10:1 - Dibenzo(a,h)anthracene (diss.filt)	TM178	mg/l	<0.00005	590	23	0	<0.00005	22.20000	n/a
CEN 10:1 - Dibenzo(a,h)anthracene (diss.filt)	TM178	mg/kg	<0.000005	590	23	0	<0.000005	2.22000	n/a
CEN 10:1 - Benzo(g,h,i)perylene (diss.filt)	TM178	mg/l	<0.00005	590	32	0	<0.00005	32.80000	n/a
CEN 10:1 - Benzo(g,h,i)perylene (diss.filt)	TM178	mg/kg	<0.000005	590	32	0	<0.000005	3.28000	n/a
CEN 10:1 - Indeno(1,2,3-cd)pyrene (diss.filt)	TM178	mg/l	<0.000005	590	35	0	<0.000005	2.49000	n/a
CEN 10:1 - Indeno(1,2,3-cd)pyrene (diss.filt)	TM178	mg/kg	<0.00005	590	35	0	<0.00005	24.90000	n/a
CEN 10:1 - PAH Sum of EPA 16 detected (Diss filt)	TM178	mg/l	<0.00082	590	99	0	<0.00082	########	n/a
CEN 10:1 - PAH Sum of EPA 16 detected (Diss filt)	TM178	mg/kg	<0.000082	590	99	0	<0.000082	219.00000	n/a
Volatile Organic Compounds (VOCs)									
CEN 10:1 - Aromatics >EC16-EC35 (diss.filt)	TM174	mg/l	<0.01	590	5	0	<0.01	84.40000	n/a
CEN 10:1 - Aromatics >EC16-EC35 (diss.filt)	TM174	mg/kg	<0.1	590	5	0	<0.1	8.44000	n/a
Inorganics									
CEN 10:1 - Ammoniacal Nitrogen as N			<2	145	0	0	<2	<2	
CEN 10:1 - Ammoniacal Nitrogen as N			<0.2	1121	328	0	<0.2	76.90000	
CEN 10:1 - Ammoniacal Nitrogen as N			<2	1121	328	0	<2	590.00000	
CEN 10:1 - pH			<1	1121	1016	0	<1	12.83000	
CEN 10:1 - pH (diss.filt)			<1	1121	103	0	<1	12.75000	
CEN 10:1 - Cyanide, Total			<0.5	1121	78	0	<0.5	70.00000	
CEN 10:1 - Cyanide, Total			<0.05	1121	78	0	<0.05	7.00000	
Filtered (Total) Metals									
CEN 10:1 - Manganese (diss.filt)			<0.01	1121	321	0	<0.01	21.60000	
CEN 10:1 - Manganese (diss.filt)			<0.001	936	249	0	<0.001	2.16000	
CEN 10:1 - Iron (Dis.Filt)			<0.019	936	337	0	<0.019	681.00000	
CEN 10:1 - Iron (Dis.Filt)			<0.19	936	337	0	<0.19	68.10000	
TPH Criteria Working Group (TPH CWG) (aq)									
CEN 10:1 - Aliphatics >C12-C16 (aq)			<0.1	1121	5	0	<0.1	0.30000	
CEN 10:1 - Aliphatics >C12-C16 (aq)			<0.01	1121	6	0	<0.01	0.81000	
CEN 10:1 - Aliphatics >C16-C21 (aq)			<0.01	1121	12	0	<0.01	1.01000	
CEN 10:1 - Aliphatics >C16-C21 (aq)			<0.1	1121	12	0	<0.1	0.81000	
CEN 10:1 - Aliphatics >C21-C35 (aq)			<0.1	1121	11	0	<0.1	0.88000	
CEN 10:1 - Aliphatics >C21-C35 (aq)			<0.01	1121	22	0	<0.01	2.48000	
CEN 10:1 - Total Aliphatics >C12-C35 (aq)			<0.1	1121	26	0	<0.1	1.97000	
CEN 10:1 - Total Aliphatics >C12-C35 (aq)			<0.01	1121	27	0	<0.01	2.00000	
CEN 10:1 - Aromatics >EC12-EC16 (aq)			<0.1	1121	64	0	<0.1	28.10000	
CEN 10:1 - Aromatics >EC12-EC16 (aq)			<0.01	1121	58	0	<0.01	2.81000	
CEN 10:1 - Aromatics >EC16-EC21 (aq)			<0.01	1121	66	0	<0.01	15.20000	
CEN 10:1 - Aromatics >EC16-EC21 (aq)			<0.1	1121	72	0	<0.1	4.14000	
CEN 10:1 - Aromatics >EC21-EC35 (aq)			<0.1	1121	40	0	<0.1	1.33000	
CEN 10:1 - Aromatics >EC21-EC35 (aq)			<0.01	1121	47	0	<0.01	11.50000	
CEN 10:1 - Total Aromatics >EC12-EC35 (aq)			<0.01	1121	94	0	<0.01	42.30000	
CEN 10:1 - Total Aromatics >EC12-EC35 (aq)			<0.1	1070	74	0	<0.1	4.23000	
CEN 10:1 - Total Aliphatics & Aromatics >C5-35 (aq)			<0.01	1070	167	0	<0.01	354.00000	
CEN 10:1 - Total Aliphatics & Aromatics >C5-35 (aq)			<0.1	1070	167	0	<0.1	40.70000	
TPH Criteria Working Group (TPH CWG) (aq)				269	0	0			
CEN 10:1 - Total EPH (C8-C40) (aq)			<1	145	0	0	<1	<1	
CEN 10:1 - Total EPH (C8-C40) (aq)			<0.1	145	0	0	<0.1	<0.1	
CEN 10:1 - Naphthalene (aq)			<0.0001	1121	792	0	<0.0001	118.00000	
CEN 10:1 - Naphthalene (aq)			<0.00001	1121	792	0	<0.00001	11.90000	
CEN 10:1 - Acenaphthene (aq)			<0.00005	1121	583	0	<0.00005	0.81500	
CEN 10:1 - Acenaphthene (aq)			<0.000005	1121	583	0	<0.000005	0.08150	
CEN 10:1 - Acenaphthylene (aq)			<0.00005	1121	450	0	<0.00005	9.37000	
CEN 10:1 - Acenaphthylene (aq)			<0.000005	1121	450	0	<0.000005	0.93700	
CEN 10:1 - Fluoranthene (aq)			<0.00005	1121	898	0	<0.00005	0.37300	
CEN 10:1 - Fluoranthene (aq)			<0.000005	1121	898	0	<0.000005	0.03730	
CEN 10:1 - Anthracene (aq)			<0.00005	1121	664	0	<0.00005	0.23600	
CEN 10:1 - Anthracene (aq)			<0.000005	1121	664	0	<0.000005	0.02360	
CEN 10:1 - Phenanthrene (aq)			<0.00005	1121	882	0	<0.00005	2.35000	
CEN 10:1 - Phenanthrene (aq)			<0.000005	1121	882	0	<0.000005	0.23500	
CEN 10:1 - Fluorene (aq)			<0.00005	1121	592	0	<0.00005	1.99000	
CEN 10:1 - Fluorene (aq)			<0.000005	1121	592	0	<0.000005	0.19900	
CEN 10:1 - Chrysene (aq)			<0.00005	1121	493	0	<0.00005	0.10500	
CEN 10:1 - Chrysene (aq)			<0.000005	1121	493	0	<0.000005	0.01050	
CEN 10:1 - Pyrene (aq)			<0.00005	1121	887	0	<0.00005	0.20600	
CEN 10:1 - Pyrene (aq)			<0.000005	1121	887	0	<0.000005	0.02060	
CEN 10:1 - Benzo(a)anthracene (aq)			<0.00005	1121	483	0	<0.00005	0.09460	
CEN 10:1 - Benzo(a)anthracene (aq)			<0.000005	1121	483	0	<0.000005	0.00946	
CEN 10:1 - Benzo(b)fluoranthene (aq)			<0.00005	1121	485	0	<0.00005	0.15100	
CEN 10:1 - Benzo(b)fluoranthene (aq)			<0.000005	1121	485	0	<0.000005	0.01510	
CEN 10:1 - Benzo(k)fluoranthene (aq)			<0.00005	1121	392	0	<0.00005	0.11800	
CEN 10:1 - Benzo(k)fluoranthene (aq)			<0.000005	1121	392	0	<0.000005	0.01180	
CEN 10:1 - Benzo(a)pyrene (aq)			<0.00002	1121	471	0	<0.00002	0.10400	
CEN 10:1 - Benzo(a)pyrene (aq)			<0.000002	1121	471	0	<0.000002	0.01040	
CEN 10:1 - Dibenzo(a,h)anthracene (aq)			<0.00005	1121	186	0	<0.00005	0.09230	
CEN 10:1 - Dibenzo(a,h)anthracene (aq)			<0.000005	1121	186	0	<0.000005	0.00923	
CEN 10:1 - Benzo(g,h,i)perylene (aq)			<0.00005	1121	284	0	<0.00005	0.09280	
CEN 10:1 - Benzo(g,h,i)perylene (aq)			<0.000005	1121	284	0	<0.000005	0.03000	
CEN 10:1 - Indeno(1,2,3-cd)pyrene (aq)			<0.00005	1121	306	0	<0.00005	0.11100	
CEN 10:1 - Indeno(1,2,3-cd)pyrene (aq)			<0.000005	1121	306	0	<0.000005	0.01110	
CEN 10:1 - PAH, Total Detected USEPA 16 (aq)			<0.00082	1121	760	0	<0.00082	133.00000	
CEN 10:1 - PAH, Total Detected USEPA 16 (aq)			<0.000082	1121	760	0	<0.000082	13.30000	
EPH CWG (Speciated)				1121	0	0			
CEN 10:1 - Aliphatics >C16-C35 Aqueous			<0.1	1121	15	0	<0.1	1.84000	
CEN 10:1 - Aliphatics >C16-C35 Aqueous			<0.01	1121	15	0	<0.01	0.18400	
Volatile Organic Compounds (VOCs)				145	0	0			
CEN 10:1 - Benzene			<0.01	145	23	0	<0.01	0.21100	
CEN 10:1 - Benzene			<0.001	145	23	0	<0.001	0.02110	
CEN 10:1 - Toluene			<0.001	145	14	0	<0.001	0.00983	
CEN 10:1 - Toluene			<0.01	145	14	0	<0.01	0.09830	
CEN 10:1 - Ethylbenzene			<0.01	145	0	0	<0.01	<0.01	
CEN 10:1 - Ethylbenzene			<0.001	145	0	0	<0.001	<0.001	
CEN 10:1 - m,p-Xylene			<0.01	145	6	0	<0.01	0.10300	
CEN 10:1 - m,p-Xylene			<0.001	145	6	0	<0.001	0.01030	
CEN 10:1 - o-Xylene			<0.01	145	2	0	<0.01	0.03470	
CEN 10:1 - o-Xylene			<0.001	145	2	0	<0.001	0.00347	
CEN 10:1 - Sum of detected Xylenes			<0.02	145	3	0	<0.02	0.13800	
CEN 10:1 - Sum of detected Xylenes			<0.002	145	3	0	<0.002	0.01380	
Addition Inorganic									
CEN 10:1 - Ammoniacal Nitrogen as N (low level)	TM099	mg/kg	<0.1	531	20	0	<0.1	78.70000	
CEN 10:1 - Ammoniacal Nitrogen as N (low level)	TM099	mg/l	<0.01	531	20	0	<0.01	7.87000	
CEN 10:1 - Cyanide, Free	TM227	mg/kg	<0.5	976	0	0	<0.5	<0.5	
CEN 10:1 - Cyanide, Free	TM227	mg/l	<0.05	976	0	0	<0.05	<0.05	
Phenols				445	0	0			
CEN 10:1 - Phenol	TM259	mg/kg	<0.02	445	0	0	<0.02	<0.02	
CEN 10:1 - Phenol	TM259	mg/l	<0.002	445	0	0	<0.002	<0.002	

Glan Llyn Leachate Data

Sample	Depth	Date				
40A-TP-03	1.00-1.00	23/05/2018	8.6	21.4	9.41	150
40A-TP-03	2.20-2.20	23/05/2018	8.6	21.3	10.98	307
40A-TP-04	0.50-0.50	23/05/2018	8.6	21.2	10.03	225
40A-TP-04	1.00-1.00	23/05/2018	8.6	21.3	10.22	148
40A-TP-04	1.50-1.50	23/05/2018	8.6	21	8.54	206
40A-TP-05	0.50-0.50	23/05/2018	8.6	21.2	8.73	143
40A-TP-06	0.50-0.50	23/05/2018	8.6	21.3	8.4	77.9
40A-TP-06	0.90-0.90	23/05/2018	8.6	21.3	7.69	118
40A-TP-07	1.00-1.00	23/05/2018	4.8	20.4	9.12	133
40A-TP-07	1.50-1.50	23/05/2018	4.8	20.8	8.48	138
40A-TP-07	2.00-2.00	23/05/2018	4.8	20.5	9.82	104
40A-TP-08	0.50-0.50	23/05/2018	4.8	21	11.08	489
40A-TP-08	1.00-1.00	23/05/2018	4.8	21.3	9.8	181
40A-TP-08	1.70-1.70	23/05/2018	4.8	20.6	10.36	195
40A-TP-09	1.00-1.00	23/05/2018	4.8	20.4	9.96	151
40A-TP-09	1.40-1.40	23/05/2018	4.8	21.1	10.63	258
40A-TP-09	1.60-1.60	24/05/2018	4.8	21.2	11.25	667
40A-TP-10	0.30-0.30	24/05/2018	4.8	20.3	8.62	284
40A-TP-11	0.50-0.50	24/05/2018	4.8	20.4	9.06	130
40A-TP-11	1.00-1.00	24/05/2018	4.8	20.3	8.79	264
40A-TP-11	1.50-1.50	24/05/2018	4.8	21.9	8.87	256
40A-TP-12	0.50-0.50	24/05/2018	4.8	20.4	8.97	153
40A-TP-12	0.80-0.80	24/05/2018	4.8	22.6	9.83	184
40A-TP-14	0.50-0.50	24/05/2018	4.8	22.4	9.3	154
40A-TP-14	1.00-1.00	24/05/2018	4.8	20.9	9.61	123
40A-TP-14	1.70-1.70	24/05/2018	4.8	20.9	9.45	196
40A-TP-14	2.50-2.50	24/05/2018	4.8	20.6	8.8	141
40A-TP-15	0.50-0.50	24/05/2018	4.8	21	11.22	595
40A-TP-15	0.70-0.70	24/05/2018	4.8	21.1	11.1	534
40A-TP-15	1.00-1.00	24/05/2018	4.8	22.1	9.64	129
40A-TP-15	1.20-1.20	24/05/2018	4.8	22	10.63	297
40A-TP-01-V	3.60-3.60	23/05/2018	8.6	21.3	7.76	133
40A-TP-02-V	4.00-4.00	23/05/2018	8.6	21.4	8.03	644
40A-TP-03-V	2.60-2.60	23/05/2018	8.6	21.2	8.27	121
40A-TP-04-V	2.10-2.10	23/05/2018	8.6	20.6	8.06	97.6
40A-TP-05-V	0.80-0.80	23/05/2018	8.6	-	-	-
40A-TP-06-V	1.20-1.20	23/05/2018	8.6	20.9	8.03	88.5
40A-D11	0.50-0.50	28/06/2018	15.4	23.5	9.45	129
40A-D11	2.60-2.60	28/06/2018	15.4	24.5	8.95	130
40A-D12	0.50-0.50	19/06/2018	16.4	22.9	9.88	163
40A-D12	1.00-1.00	19/06/2018	16.4	23	9.77	165
40A-D15	0.80-0.80	19/06/2018	16.4	25.2	10.86	414
40A-D15	1.30-1.30	19/06/2018	16.4	25.5	11.09	616
40A-D15	2.00-2.00	19/06/2018	16.4	24.9	11.31	721
40A-D21	0.50-0.50	05/06/2018	9.4	20.5	9.8	90.3
40A-D21	1.00-1.00	05/06/2018	9.4	20.6	10.24	168
40A-D21	2.00-2.00	05/06/2018	9.4	21	10.57	260
40A-D21	3.00-3.00	05/06/2018	9.4	20.2	8.39	257
40A-D22	0.40-0.40	05/06/2018	9.4	20.3	9.06	94.9
40A-D22	0.90-0.90	05/06/2018	9.4	20.8	10.78	240
40A-D22	2.00-2.00	05/06/2018	9.4	20.3	8.36	11.7
40A-D22	2.50-2.50	05/06/2018	9.4	20.3	9.01	96.4
40A-D24	0.50-0.50	05/06/2018	9.4	19.9	8.12	194
40A-D24	1.00-1.00	05/06/2018	9.4	20.1	8.32	282
40A-D24	2.00-2.00	05/06/2018	9.4	19.9	8.87	328
40A-E16	0.40-0.40	20/06/2018	13.2	25.1	9.44	131
40A-E16	1.00-1.00	20/06/2018	13.2	25	9.26	176
40A-E16	1.50-1.50	20/06/2018	13.2	25	8.62	288
40A-E16	2.00-2.00	20/06/2018	13.2	24.8	8.7	165
40A-E25	0.50-0.50	05/06/2018	9.4	20.1	10.93	350
40A-E25	1.00-1.00	05/06/2018	9.4	20.8	10.06	218
40A-E25	1.40-1.40	05/06/2018	9.4	21.1	7.64	164
40A-E25	2.00-2.00	05/06/2018	9.4	20.9	9.11	131
40A-E26	0.50-	30/05/2018	16.4	21	11.12	569
40A-E26	1.50-	30/05/2018	16.4	21.1	10.76	1160
40A-E27	0.50-	30/05/2018	16.4	21.4	11.05	455
40A-E27	1.00-	30/05/2018	16.4	20.7	11.26	560
40A-E27	1.50-	30/05/2018	16.4	20.5	10.83	344
40A-F10	0.40-0.40	19/06/2018	16.4	22.6	10.86	434
40A-F10	0.80-0.80	19/06/2018	16.4	25.7	10.19	292
40A-F10	1.20-1.20	19/06/2018	16.4	25.7	10.25	248
40A-F10	1.40-1.40	19/06/2018	16.4	22.7	11.46	974
40A-F12	0.50-0.50	28/06/2018	15.4	23.6	10.68	362
40A-F12	1.00-1.00	28/06/2018	15.4	24.4	10.07	193
40A-F12	2.30-2.30	28/06/2018	15.4	24.3	10.72	427
40A-F13	0.80-0.80	19/06/2018	16.4	23.1	9.3	240
40A-F14	0.30-0.30	19/06/2018	16.4	22.8	11.03	468
40A-F14	0.70-0.70	19/06/2018	16.4	24.7	11.17	625
40A-F14	1.20-1.20	19/06/2018	16.4	24.8	9.55	180
40A-F16	0.60-0.60	20/06/2018	13.2	25.3	9.52	104
40A-F16	1.60-1.60	20/06/2018	13.2	25.4	9.27	124
40A-F16	2.00-2.00	20/06/2018	13.2	25.1	8.8	89.2
40A-F19	1.00-1.00	03/07/2018	13.4	21.8	7.72	146
40A-F19	2.00-2.00	03/07/2018	13.4	21.6	7.85	141
40A-F26	0.70-	30/05/2018	16.4	20.5	10.15	793
40A-F26	1.30-	30/05/2018	16.4	20.9	10.86	378
40A-FG18	1.00-1.00	03/07/2018	13.4	22.3	7.42	114
40A-FG18	2.00-2.00	03/07/2018	13.4	21.6	7.52	71.6
40A-G12	1.00-1.00	28/06/2018	15.4	23.6	11.25	797
40A-G15	0.70-0.70	28/06/2018	15.4	23.5	9.17	112
40A-G15	1.70-1.70	28/06/2018	15.4	23.9	8.64	259
40A-G16	0.50-0.50	28/06/2018	15.4	22.7	8.22	185
40A-G16	2.00-2.00	28/06/2018	15.4	22.6	8.3	148
40A-G17	0.50-0.50	28/06/2018	15.4	24.7	8.73	83.2
40A-G17	3.30-3.30	28/06/2018	15.4	23.6	7.92	72.7
40A-G19	0.50-0.50	03/07/2018	13.4	21.5	8.09	311
40A-G19	1.50-1.50	03/07/2018	13.4	21.3	8.9	134
40A-G19	2.00-2.00	03/07/2018	13.4	22.3	7.04	260
40A-G22	0.40-0.40	05/06/2018	9.4	20.9	10.79	308
40A-G22	1.00-1.00	05/06/2018	9.4	20.2	9.71	89.6
40A-G22	2.00-2.00	05/06/2018	9.4	19.8	9.37	96.4
40A-G22	3.00-3.00	05/06/2018	9.4	20.1	8.68	162
40A-G25	0.50-0.50	05/06/2018	13.4	20	9.58	182
40A-G25	1.20-1.20	05/06/2018	13.4	21	7.09	117
40A-G25	2.00-2.00	05/06/2018	13.4	21.2	10.9	339
40A-G25	3.00-3.00	05/06/2018	13.4	20.9	9.25	189
40A-G26	0.50-	30/05/2018	16.4	21	11.84	2100
40A-G27	0.40-	30/05/2018	16.4	20.7	10.58	235
40A-G27	1.00-	30/05/2018	16.4	21.2	10.88	465
40A-G27	2.50-	30/05/2018	16.4	10.9	10.27	125
40A-H10	0.40-0.40	22/06/2018	17	22	10.68	273
40A-H10	1.00-1.00	22/06/2018	17	21.8	11.17	519
40A-H10	2.00-2.00	22/06/2018	17	21.4	7.45	248
40A-H14	0.50-0.50	28/06/2018	15.4	23.9	11.5	1020
40A-H14	1.00-1.00	28/06/2018	15.4	24	10.07	247
40A-H16	0.50-0.50	03/07/2018	13.4	22.6	7.45	141
40A-H19	0.50-0.50	03/07/2018	13.4	21.6	8.42	1970
40A-H19	1.00-1.00	03/07/2018	13.4	22.5	8.89	1820
40A-H19	1.60-1.60	03/07/2018	13.4	22.5	9.58	823
40A-H21	1.00-1.00	07/06/2018	13.4	20.3	7.14	372



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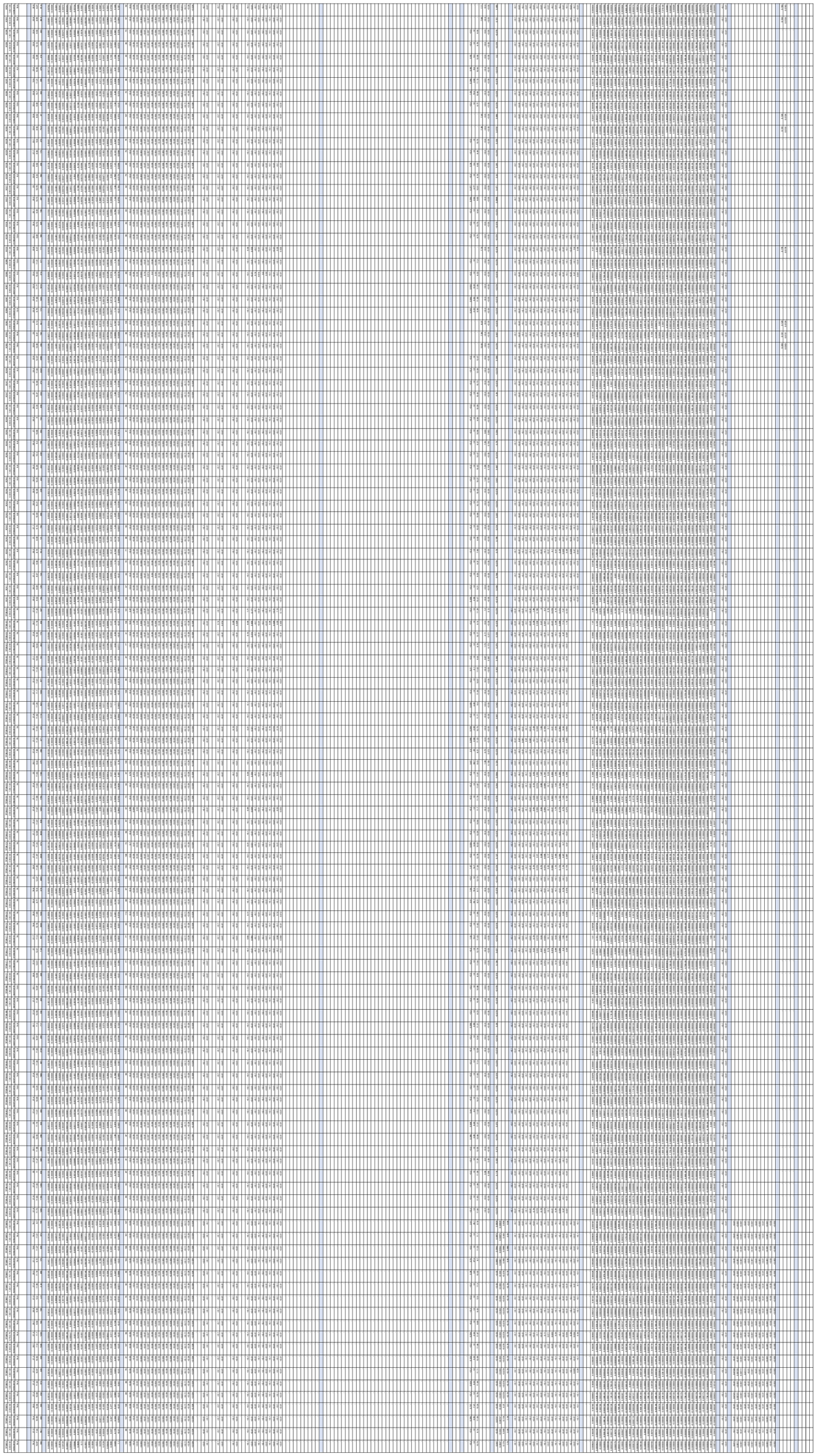
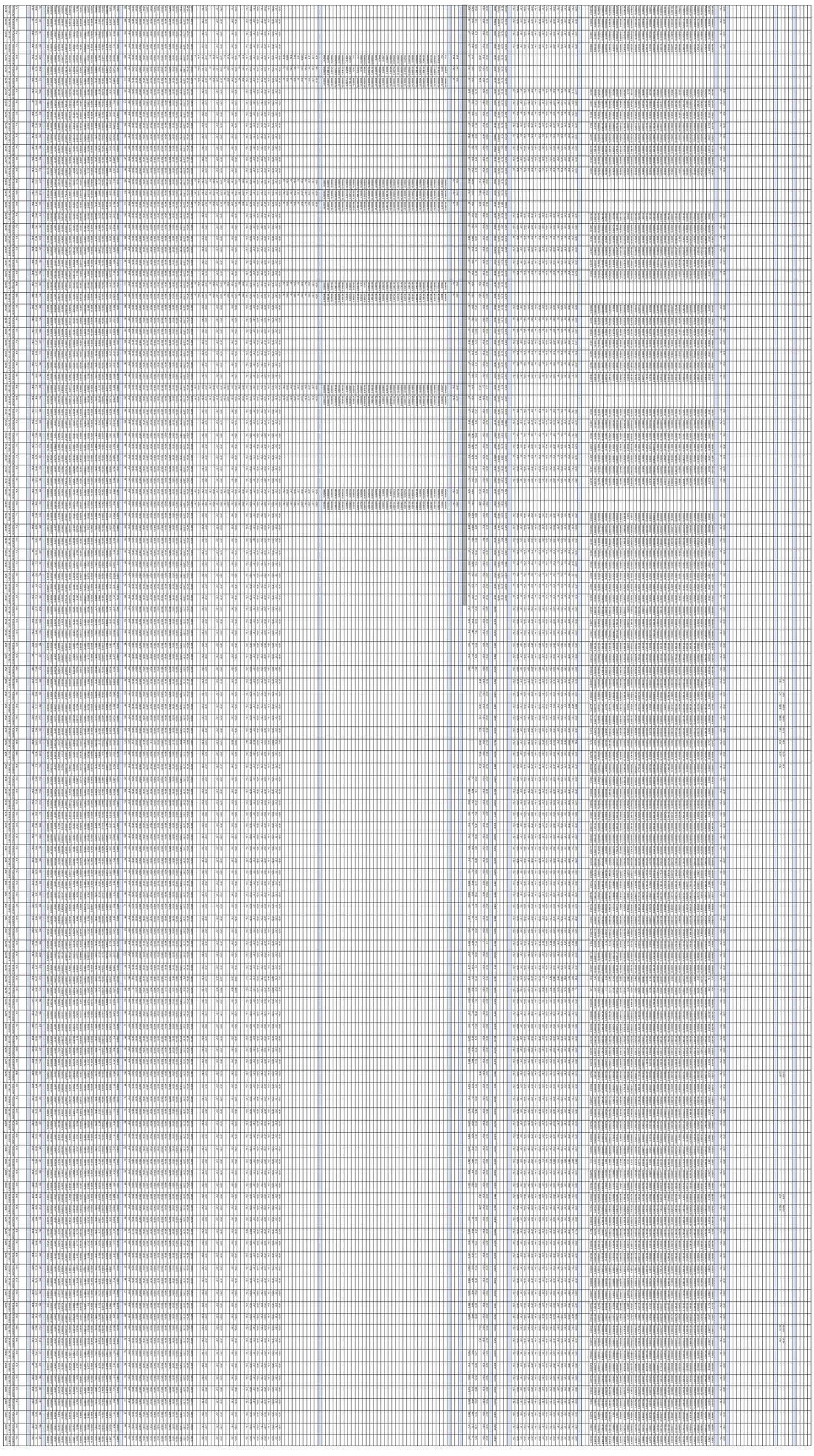
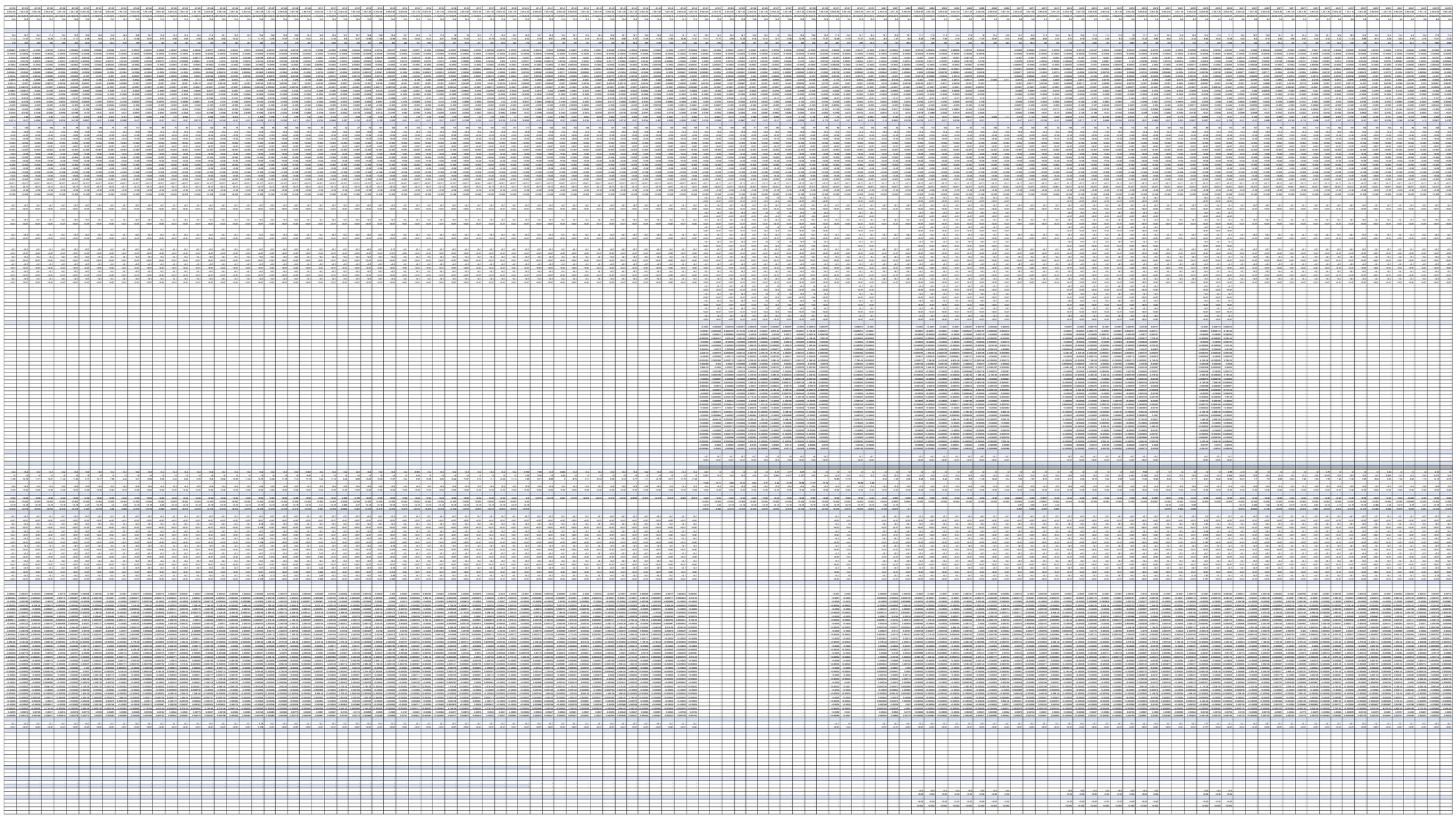
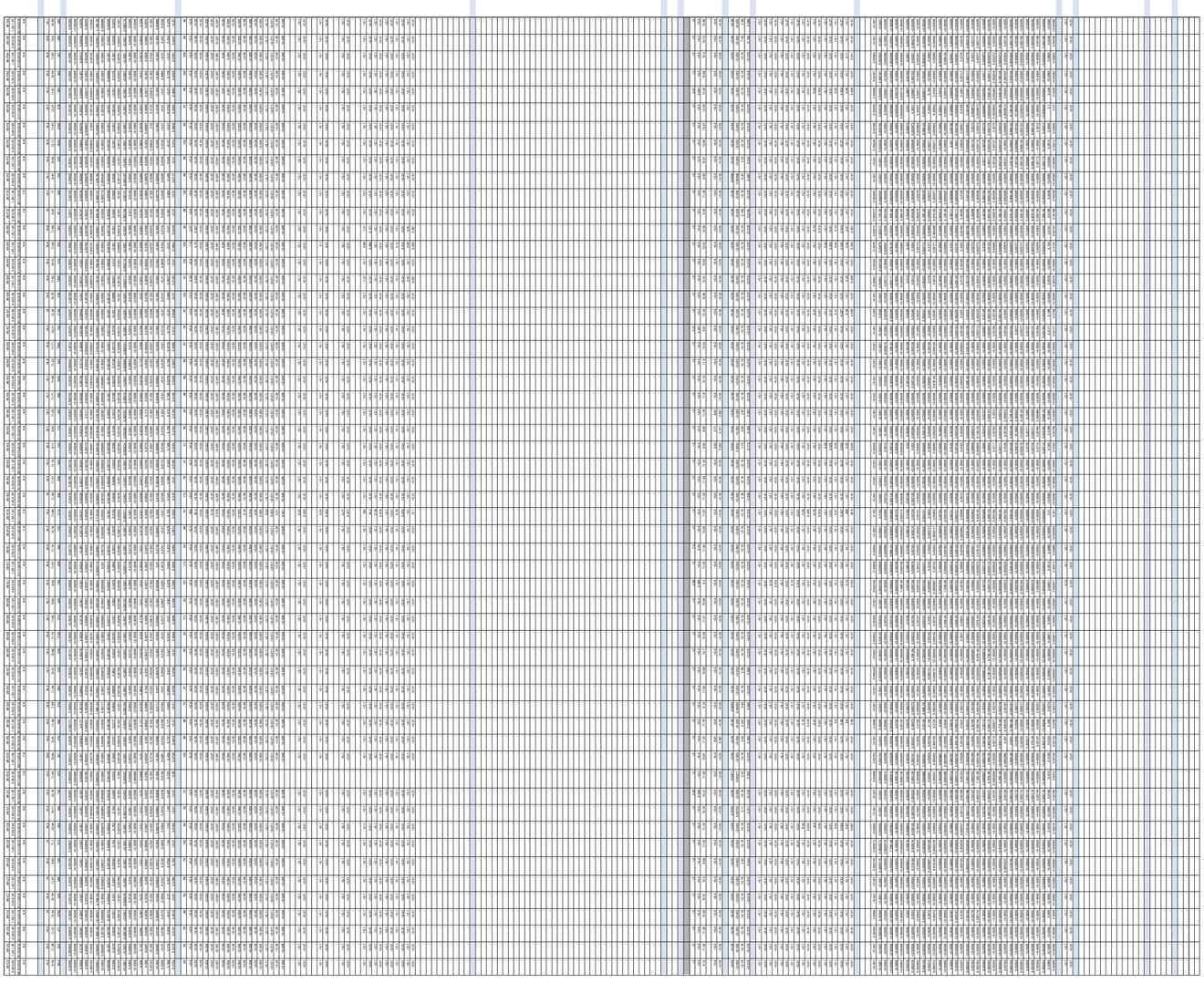


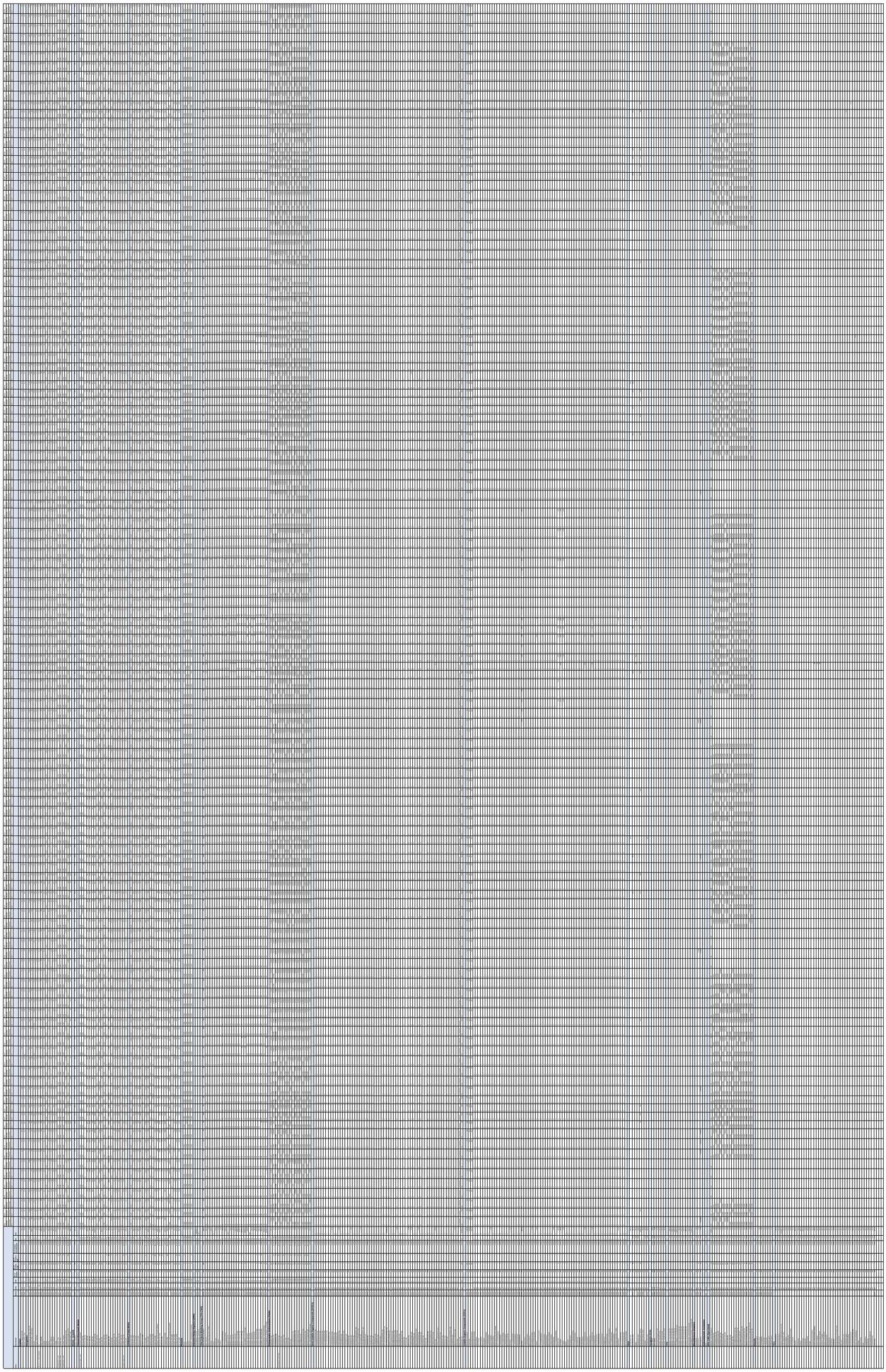






Appendix H: Surface Waters Analysis

Glan Llyn Surface Water Data



Glan Llyn Surface Water Data

Notes	Determinand	Method	Units	LOD	No. of Samples	No. of Samples > LOD	No. of Samples > EQS	% of samples exceeding EQS	Min	Max	Sample results (DS-S3, DS-S4, DS/NW+DS, DUP-A, KW-C, KW-CN, KW-N, LV, MD-N …)
	Carbon										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Inorganics										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Metals - (Liquid)										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Filtered (Dissolved) Metals										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Unfiltered (Total) Metals										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Phenols										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Gasoline Range Organics (GRO)										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	TPH Criteria Working Group (TPH CWG)										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Polyaromatic Hydrocarbons (PAHs)										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Semi-Volatile Organic Compounds (SVOCs)										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Volatile Organic Compounds (VOCs)										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	TICS										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Inorganics Extra										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	TPH										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Miscellaneous Organics										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Subcontracted: Inorganics										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	EPH CWG (Speciated)										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Glycols										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	TICs										
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Glan Llyn Surface Water Data

Notes	Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > EQS	% of samples exceeding EQS	Min	Max
	Carbon									
	Carbon, Organic (diss.filt)	TM090	mg/l	<3	998	977	0	0.00%	<3	53.40
	Organic Carbon, Total	TM090	mg/l	<3	998	972	0	0.00%	<3	57.80
	Inorganics									
	Conductivity @ 20 deg.C (diss.filt)	TM120	mS/cm	<0.014	998	995	0	0.00%	<0.014	2.43
	Dissolved solids, Total (meter)	TM123	mg/l	<5	998	995	0	0.00%	<5	2080.00
	Fluoride	TM104	mg/l	<0.5	998	787	0	0.00%	<0.5	1.80
	Oxygen, dissolved	TM046	mg/l	<0.3	998	995	0	0.00%	<0.3	13.60
High pH in c. half of samples	pH	TM256	pH Units	<1	998	992	0	0.00%	<1	11.70
	Redox potential	TM110	mV		998	994	0	0.00%		246.00
	Sulphate	TM184	mg/l	<2	998	995	0	0.00%	<2	1220.00
	Sulphide	TM101	mg/l	<0.01	998	95	0	0.00%	<0.01	0.07
	Chloride	TM184	mg/l	<2	998	995	0	0.00%	<2	259.00
	BOD, unfiltered	TM045	mg/l	<1	998	623	0	0.00%	<1	26.60
	COD, unfiltered	TM107	mg/l	<7	998	982	0	0.00%	<7	304.00
	Turbidity	TM195	ntu	<0.1	998	960	0	0.00%	<0.1	1370.00
Cyanide EQS < LOD	Cyanide, Total	TM227	mg/l	<0.05	998	118	118	11.82%	<0.05	0.28
Cyanide EQS < LOD	Cyanide, Free	TM227	mg/l	<0.05	998	34	34	3.41%	<0.05	0.17
Cyanide EQS < LOD	Cyanide, Complex	TM227	mg/l	<0.05	998	86	86	8.62%	<0.05	0.28
	Phosphate (ortho) as PO4	TM184	mg/l	<0.05	998	244	0	0.00%	<0.05	4.91
	Ammoniacal Nitrogen as NH4	TM099	mg/l	<0.3	998	635	628	62.93%	<0.3	18.60
	Suspended solids, Total	TM022	mg/l	<2	998	950	0	0.00%	<2	690.00
	Metals - (Liquid)									
	Sulphur Dissolved	TM228	mg/l	<1	998	995	0	0.00%	<1	411.00
	Filtered (Dissolved) Metals									
Chromium EQS > LOD	Chromium, Hexavalent	TM241	mg/l	<0.03	998	1	1	0.10%	<0.03	0.03
	Mercury (diss.filt)	TM183	µg/l	<0.01	998	115	0	0.00%	<0.01	0.05
	Antimony (diss.filt)	TM152	µg/l	<0.16	998	222	0	0.00%	<0.16	4.35
	Calcium (diss.filt)	TM228	mg/l	<0.012	998	983	0	0.00%	<0.012	371.00
	Arsenic (diss.filt)	TM152	µg/l	<0.12	998	984	0	0.00%	<0.12	28.50
	Barium (diss.filt)	TM152	µg/l	<0.03	998	983	0	0.00%	<0.03	304.00
	Magnesium (diss.filt)	TM228	mg/l	<0.036	998	899	0	0.00%	<0.036	12300.00
	Beryllium (diss.filt)	TM152	µg/l	<0.07	998	2	0	0.00%	<0.07	0.21
	Iron (diss.filt)	TM228	mg/l	<0.019	998	596	5	0.50%	<0.019	2.17
	Boron (diss.filt)	TM152	µg/l	<9.4	998	983	4	0.40%	<9.4	2070.00
	Cadmium (diss.filt)	TM152	µg/l	<0.1	998	9	1	0.10%	<0.1	0.29
	Chromium (diss.filt)	TM152	µg/l	<0.22	998	197	34	3.41%	<0.22	10.70
	Copper (diss.filt)	TM152	µg/l	<0.85	998	848	704	70.54%	<0.85	15.30
	Lead (diss.filt)	TM152	µg/l	<0.02	998	269	31	3.11%	<0.02	12.70
	Manganese (diss.filt)	TM152	µg/l	<0.04	998	983	0	0.00%	<0.04	76.30
	Nickel (diss.filt)	TM152	µg/l	<0.15	998	935	51	5.11%	<0.15	9.06
	Phosphorus (diss.filt)	TM152	µg/l	<6.3	998	866	0	0.00%	<6.3	1630.00
	Selenium (diss.filt)	TM152	µg/l	<0.39	998	750	2	0.20%	<0.39	16.50
Vanadium EQS>LOD	Vanadium (diss.filt)	TM152	µg/l	<0.24	998	943	255	25.55%	<0.24	95.60
	Zinc (diss.filt)	TM152	µg/l	<0.41	998	816	31	3.11%	<0.41	522.00
	Unfiltered (Total) Metals									
	Mercury (tot.unfilt)	TM183	µg/l	<0.02	998	144	13	1.30%	<0.02	0.51
	Calcium (tot.unfilt)	TM228	mg/l	<0.057	998	975	0	0.00%	<0.057	336.00
	Arsenic (tot.unfilt)	TM191	µg/l	<2	998	858	1	0.10%	<2	53.70
	Barium (tot.unfilt)	TM191	µg/l	<0.5	998	994	0	0.00%	<0.5	585.00
	Magnesium (tot.unfilt)	TM228	mg/l	<0.05	998	994	0	0.00%	<0.05	71.20
	Beryllium (tot.unfilt)	TM191	µg/l	<1	998	2	0	0.00%	<1	2.17
	Iron (tot.unfilt)	TM228	mg/l	<0.024	998	964	217	21.74%	<0.024	42.30
	Boron (tot.unfilt)	TM191	µg/l	<135	998	979	4	0.40%	<135	2030.00
	Cadmium (tot.unfilt)	TM191	µg/l	<0.5	998	4	4	0.40%	<0.5	1.79
	Chromium (tot.unfilt)	TM191	µg/l	<3	998	140	82	8.22%	<3	72.80
	Copper (tot.unfilt)	TM191	µg/l	<4	998	859	859	86.07%	<4	42.20
	Hardness, Total as CaCO3 unfiltered	TM228	mg/l	<0.35	998	967	0	0.00%	<0.35	1160.00
	Manganese (tot.unfilt)	TM191	µg/l	<0.5	998	994	393	39.38%	<0.5	12000.00
	Nickel (tot.unfilt)	TM191	µg/l	<0.5	998	943	140	14.03%	<0.5	27.40
	Phosphorus (tot.unfilt)	TM191	µg/l	<20	998	981	0	0.00%	<20	2740.00
	Lead (tot.unfilt)	TM191	µg/l	<0.5	998	730	659	66.03%	<0.5	246.00
	Lead (tot.unfilt) Calculated bioavailable		µg/l		988	720	0	0.00%	0.00	0.25
	Antimony (tot.unfilt)	TM191	µg/l	<4	998	4	0	0.00%	<4	4.84
	Selenium (tot.unfilt)	TM191	µg/l	<1	998	827	3	0.30%	<1	13.70
	Vanadium (tot.unfilt)	TM191	µg/l	<8	998	852	316	31.66%	<8	141.00
	Zinc (tot.unfilt)	TM191	µg/l	<3	998	861	463	46.39%	<3	780.00
	Phenols									
	Phenol	TM259	mg/l	<0.002	998	21	21	2.10%	<0.002	0.04
	Cresols	TM259	mg/l	<0.006	998	12	0	0.00%	<0.006	0.02
	Xylenols	TM259	mg/l	<0.008	998	21	0	0.00%	<0.008	0.03
	Phenols, Total Detected monohydric	TM259	mg/l	<0.016	998	21	21	2.10%	<0.016	0.04
	Gasoline Range Organics (GRO)									
	Total Aliphatics >C5-C12	TM245	µg/l	<10	988	2	0	0.00%	<10	3660000.00
	Total Aromatics >EC5-EC12	TM245	µg/l	<10	988	0	2	0.20%	<10	<10
	TPH Criteria Working Group (TPH CWG)									
	GRO Surrogate % recovery**	TM245	%		998	960	0	0.00%		130.00
	GRO >C5-C12	TM245	µg/l	<50	998	8	0	0.00%	<50	726.00
	Methyl tertiary butyl ether (MTBE)	TM245	µg/l	<3	998	1	0	0.00%	<3	4.00
	Benzene	TM245	µg/l	<7	998	6	6	0.60%	<7	429.00
	Toluene	TM245	µg/l	<4	998	0	0	0.00%	<4	<4
	Ethylbenzene	TM245	µg/l	<5	998	6	1	0.10%	<5	30.00
	m,p-Xylene	TM245	µg/l	<8	998	2	0	0.00%	<8	9.00
	o-Xylene	TM245	µg/l	<3	998	4	0	0.00%	<3	9.00
	Sum of detected Xylenes	TM245	µg/l	<11	998	2	0	0.00%	<11	18.00
	Sum of detected BTEX	TM245	µg/l	<28	998	6	0	0.00%	<28	459.00
	Aliphatics >C5-C6	TM245	µg/l	<10	998	0	0	0.00%	<10	<10
	Aliphatics >C6-C8	TM245	µg/l	<10	998	4	3	0.30%	<10	19.00
	Aliphatics >C8-C10	TM245	µg/l	<10	998	5	5	0.50%	<10	21.00
	Aliphatics >C10-C12	TM245	µg/l	<10	998	8	8	0.80%	<10	134.00
	Aliphatics >C12-C16 (aq)	TM174	µg/l	<10	998	2	2	0.20%	<10	2080.00
	Aliphatics >C16-C21 (aq)	TM174	µg/l	<10	998	13	13	1.30%	<10	8140.00
	Aliphatics >C21-C35 (aq)	TM174	µg/l	<10	998	24	24	2.40%	<10	49700.00
	Total Aliphatics >C12-C35 (aq)	TM174	µg/l	<10	998	29	0	0.00%	<10	59900.00
	Aromatics >EC5-EC7	TM245	µg/l	<10	998	6	6	0.60%	<10	429.00
	Aromatics >EC7-EC8	TM245	µg/l	<10	998	0	0	0.00%	<10	<10
	Aromatics >EC8-EC10	TM245	µg/l	<10	998	9	8	0.80%	<10	56.00
	Aromatics >EC10-EC12	TM245	µg/l	<10	998	8	8	0.80%	<10	89.00
	Aromatics >EC12-EC16 (aq)	TM174	µg/l	<10	998	11	10	1.00%	<10	107.00
	Aromatics >EC16-EC21 (aq)	TM174	µg/l	<10	998	12	12	1.20%	<10	183.00
	Aromatics >EC21-EC35 (aq)	TM174	µg/l	<10	998	46	43	4.31%	<10	919.00
	Total Aromatics >EC12-EC35 (aq)	TM174	µg/l	<10	998	53	0	0.00%	<10	1200.00
	Total Aliphatics & Aromatics >C5-35 (aq)	TM174	µg/l	<10	998	107	0	0.00%	<10	61100.00
	Polyaromatic Hydrocarbons (PAHs)									
	Naphthalene (aq)	TM178	µg/l	<0.1	998	803	3	0.30%	<0.1	87.00
	Acenaphthene (aq)	TM178	µg/l	<0.015	998	716	115	11.52%	<0.015	0.78
	Acenaphthylene (aq)	TM178	µg/l	<0.011	998	580	23	2.30%	<0.011	0.73
Fluoranthene LOD>WQS	Fluoranthene (aq)	TM178	µg/l	<0.017	998	909	904	90.58%	<0.017	5.95
	Anthracene (aq)	TM178	µg/l	<0.015	998	686	27	2.71%	<0.015	1.05
	Phenanthrene (aq)	TM178	µg/l	<0.022	998	887	190	19.04%	<0.022	3.60
	Fluorene (aq)	TM178	µg/l	<0.014	998	731	48	4.81%	<0.014	0.54
	Chrysene (aq)	TM178	µg/l	<0.013	998	599	67	6.71%	<0.013	2.85
	Pyrene (aq)	TM178	µg/l	<0.015	998	907	180	18.04%	<0.015	4.31
	Benzo(a)anthracene (aq)	TM178	µg/l	<0.017	998	547	57	5.71%	<0.017	2.98
	Benzo(b)fluoranthene (aq)	TM178	µg/l	<0.023	998	778	778	77.96%	<0.023	5.09
	Benzo(k)fluoranthene (aq)	TM178	µg/l	<0.027	998	655	655	65.63%	<0.027	1.68
	Benzo(a)pyrene (aq)	TM178	µg/l	<0.009	998	794	794	79.56%	<0.009	3.03
	Dibenzo(a,h)anthracene (aq)	TM178	µg/l	<0.016	998	292	3	0.30%	<0.016	0.56
	Benzo(g,h,i)perylene (aq)	TM178	µg/l	<0.016	998	550	550	55.11%	<0.016	2.89
	Indeno(1,2,3-cd)pyrene (aq)	TM178	µg/l	<0.014	998	603	603	60.42%	<0.014	2.20
	PAH, Total Detected USEPA 16 (aq)	TM178	µg/l	<0.344	998	825	0	0.00%	<0.344	87.20
	Semi-Volatile Organic Compounds (SVOCs)									
	1,2,4-Trichlorobenzene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2-Dichlorobenzene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	1,3-Dichlorobenzene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	1,4-Dichlorobenzene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2,4,5-Trichlorophenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2,4,6-Trichlorophenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2,4-Dichlorophenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2,4-Dimethylphenol (aq)	TM176	µg/l	<1	998	1	0	0.00%	<1	1.73
	2,4-Dinitrotoluene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2,6-Dinitrotoluene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2-Chloronaphthalene (aq)	TM176	µg/l	<1	998	1	0	0.00%	<1	3.14
	2-Chlorophenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2-Methylnaphthalene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2-Methylphenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2-Nitroaniline (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	2-Nitrophenol (aq)	TM176	µg/l	<1	998	2	0	0.00%	<1	2.61
	3-Nitroaniline (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	4-Bromophenylphenylether (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	4-Chloro-3-methylphenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	4-Chloroaniline (aq)	TM176	µg/l	<1	998	1	0	0.00%	<1	1.30
	4-Chlorophenylphenylether (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	4-Methylphenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	4-Nitroaniline (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	4-Nitrophenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Azobenzene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Acenaphthylene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	Acenaphthene (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Anthracene (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	bis(2-Chloroethyl)ether (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	bis(2-Chloroethoxy)methane (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	bis(2-Ethylhexyl) phthalate (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Butylbenzyl phthalate (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Benzo(a)anthracene (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Benzo(b)fluoranthene (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Benzo(k)fluoranthene (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Benzo(a)pyrene (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Benzo(g,h,i)perylene (aq)	TM176	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Carbazole (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Chrysene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	Dibenzofuran (aq)	TM176	µg/l	<1	998	2	0	0.00%	<1	1.05
	n-Dibutyl phthalate (aq)	TM176	µg/l	<1	998	4	0	0.00%	<1	8.00
	Diethyl phthalate (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Dibenzo(a,h)anthracene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	Dimethyl phthalate (aq)	TM176	µg/l	<1	998	1	0	0.00%	<1	6.55
	n-Dioctyl phthalate (aq)	TM176	µg/l	<5	998	0	0	0.00%	<5	<5
	Fluoranthene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	Fluorene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	Hexachlorobenzene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Hexachlorobutadiene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Pentachlorophenol (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Phenol (aq)	TM176	µg/l	<1	998	3	1	0.10%	<1	21.90
	n-Nitroso-n-dipropylamine (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Hexachloroethane (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Nitrobenzene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Naphthalene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	Isophorone (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Hexachlorocyclopentadiene (aq)	TM176	µg/l	<1	998	0	0	0.00%	<1	<1
	Phenanthrene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	Indeno(1,2,3-cd)pyrene (aq)	TM176	µg/l	<1	998	2	2	0.20%	<1	2.11
	Pyrene (aq)	TM176	µg/l	<1	988	0	0	0.00%	<1	<1
	SVOC TIC (aq)	TM176	-		998	0	0	0.00%		
	Total SVOC TIC	TM176	µg/l	<10	998	155	0	0.00%	<10	107000.00
	Volatile Organic Compounds (VOCs)									
	Dibromofluoromethane**	TM208	%		998	960	0	0.00%		128.00
	Toluene-d8**	TM208	%		998	960	0	0.00%		110.00
	4-Bromofluorobenzene**	TM208	%		998	960	0	0.00%		110.00
	Dichlorodifluoromethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Chloromethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Vinyl chloride	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Bromomethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Chloroethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Trichlorofluoromethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,1-Dichloroethene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Carbon disulphide	TM208	µg/l	<1	998	1	0	0.00%	<1	1.08
	Dichloromethane	TM208	µg/l	<3	998	0	0	0.00%	<3	<3
	Methyl tertiary butyl ether (MTBE)	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	trans-1,2-Dichloroethene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,1-Dichloroethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	cis-1,2-Dichloroethene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	2,2-Dichloropropane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Bromochloromethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Chloroform	TM208	µg/l	<1	998	8	0	0.00%	<1	2.37
	1,1,1-Trichloroethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,1-Dichloropropene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Carbontetrachloride	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2-Dichloroethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Benzene	TM208	µg/l	<1	998	14	7	0.70%	<1	465.00
	Trichloroethene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2-Dichloropropane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Dibromomethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Bromodichloromethane	TM208	µg/l	<1	998	1	0	0.00%	<1	1.34
	cis-1,3-Dichloropropene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Toluene	TM208	µg/l	<1	998	3	0	0.00%	<1	2.52
	trans-1,3-Dichloropropene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,1,2-Trichloroethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,3-Dichloropropane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Tetrachloroethene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Dibromochloromethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2-Dibromoethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Chlorobenzene	TM208	µg/l	<1	998	1	0	0.00%	<1	3.59
	1,1,1,2-Tetrachloroethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Ethylbenzene	TM208	µg/l	<1	998	10	0	0.00%	<1	21.90
	m,p-Xylene	TM208	µg/l	<1	998	9	0	0.00%	<1	10.80
	o-Xylene	TM208	µg/l	<1	998	8	0	0.00%	<1	9.04
	Styrene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Bromoform	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Isopropylbenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,1,2,2-Tetrachloroethane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2,3-Trichloropropane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Bromobenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Propylbenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	2-Chlorotoluene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,3,5-Trimethylbenzene	TM208	µg/l	<1	998	2	0	0.00%	<1	2.02
	4-Chlorotoluene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	tert-Butylbenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2,4-Trimethylbenzene	TM208	µg/l	<1	998	5	0	0.00%	<1	3.58
	sec-Butylbenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	4-iso-Propyltoluene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,3-Dichlorobenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,4-Dichlorobenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	n-Butylbenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2-Dichlorobenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2-Dibromo-3-chloropropane	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,2,4-Trichlorobenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Hexachlorobutadiene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	tert-Amyl methyl ether (TAME)	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Naphthalene	TM208	µg/l	<1	998	4	4	0.40%	<1	37.60
	1,2,3-Trichlorobenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	1,3,5-Trichlorobenzene	TM208	µg/l	<1	998	0	0	0.00%	<1	<1
	Sum of detected Xylenes	TM208	µg/l	<2	988	0	0	0.00%	<2	<2
	TICS									
	Octadecanoic acid		µg/l		988	9	0	0.00%		146.00
	Hexadecanoic acid	TM176	µg/l		988	69	0	0.00%	0.00	68.70
	Indane		µg/l		988	3	0	0.00%	0.00	32.40
	Hexadecenoic acid	TM176	µg/l		988	2	0	0.00%	0.00	50.50
	Mixed hydrocarbons (SVOC)	TM176	µg/l		988	99	0	0.00%		2250.00
	Mixed Hydrocarbons (VOC)	TM208	µg/l		988	1	0	0.00%		16.90
	Squalene		µg/l		988	1	0	0.00%	0.00	19.60
	Tetradecanoic acid	TM176	µg/l		988	3	0	0.00%	0.00	29.40
	Inorganics Extra									
	COD, filtered	TM107	mg/l		988	2	0	0.00%	0.00	25.00
	BOD, filtered	TM045	mg/l		988	2	0	0.00%	0.00	3.49
	Ammoniacal Nitrogen as NH3	TM099	mg/l		988	2	0	0.00%	0.00	0.63
	Cyanide, Total (low level)	TM279	µg/l		988	2	0	0.00%	0.00	54.40
	Cyanide, Free (low level)	TM279	µg/l		988	2	0	0.00%	0.00	10.80
	Cyanide, Complex (low level)*	TM279	µg/l		988	2	0	0.00%	0.00	43.60
	TPH									
	Aliphatics >C12-C16 (diss.filt)	TM174	µg/l		988	1	0	0.00%	0.00	299.00
	Aliphatics >C16-C21 (diss.filt)	TM174	µg/l		988	1	0	0.00%	0.00	1200.00
	Aliphatics >C21-C35 (diss.filt)	TM174	µg/l		988	1	0	0.00%	0.00	9280.00
	Total Aliphatics >C12-C35 (diss.filt)	TM174	µg/l		988	1	0	0.00%	0.00	10800.00
	Aromatics >EC12-EC16 (diss.filt)	TM174	µg/l		988	2	0	0.00%	0.00	56.00
	Aromatics >EC16-EC21 (diss.filt)	TM174	µg/l		988	1	0	0.00%	0.00	178.00
	Aromatics >EC21-EC35 (diss.filt)	TM174	µg/l		988	1	0	0.00%	0.00	679.00
	Aromatics >EC16-EC35 (diss.filt)	TM174	µg/l		988	1	0	0.00%	0.00	857.00
	Total Aromatics >EC12-EC35 (diss.filt)	TM174	µg/l		988	2	0	0.00%	0.00	913.00
	Total Aliphatics & Aromatics >C5-35 (diss.filt)	TM174	µg/l		988	2	0	0.00%	0.00	11700.00
	Miscellaneous Organics									
	Fluoranthene	TM355	µg/l		988	1	0	0.00%	0.00	0.02
	Fluoranthene	TM355	µg/l		988	33	0	0.00%	0.00	0.39
	Benzo(a)pyrene	TM355	µg/l		988	93	0	0.00%	0.00	0.05
	Subcontracted: Inorganics									
	BOD*	SUB	mg/l		988	0	0	0.00%	0.00	
	EPH CWG (Speciated)									
	Aliphatics >C16-C35 Aqueous	TM174	µg/l		988	29	0	0.00%	0.00	57800.00
	Naphthalene (diss.filt)	TM178	µg/l		988	481	0	0.00%	0.00	4.82
	Acenaphthene (diss.filt)	TM178	µg/l		988	548	0	0.00%	0.00	0.84
	Acenaphthylene (diss.filt)	TM178	µg/l		988	270	0	0.00%	0.00	0.13
	Fluoranthene (diss.filt)	TM178	µg/l		988	678	0	0.00%	0.00	0.20
	Anthracene (diss.filt)	TM178	µg/l		988	301	0	0.00%	0.00	0.05
	Phenanthrene (diss.filt)	TM178	µg/l		988	604	0	0.00%	0.00	0.30
	Fluorene (diss.filt)	TM178	µg/l		988	458	0	0.00%	0.00	0.22
	Chrysene (diss.filt)	TM178	µg/l		988	64	0	0.00%	0.00	0.04
	Pyrene (diss.filt)	TM178	µg/l		988	668	0	0.00%	0.00	0.15
	Benzo(b)fluoranthene (diss.filt)	TM178	µg/l		988	133	0	0.00%	0.00	0.10
	Benzo(k)fluoranthene (diss.filt)	TM178	µg/l		988	59	0	0.00%	0.00	0.06
	Benzo(a)pyrene (diss.filt)	TM178	µg/l		988	142	0	0.00%	0.00	0.02
	Dibenzo(a,h)anthracene (diss.filt)	TM178	µg/l		988	14	0	0.00%	0.00	0.02
	Benzo(g,h,i)perylene (diss.filt)	TM178	µg/l		988	36	0	0.00%	0.00	0.03
	Indeno(1,2,3-cd)pyrene (diss.filt)	TM178	µg/l		988	38	0	0.00%	0.00	0.03
	PAH Sum of EPA 16 detected (Diss filt)	TM178	µg/l		988	409	0	0.00%	0.00	4.99
	Benzo(a)anthracene (diss.filt)	TM178	µg/l		988	66	0	0.00%	0.00	0.04
	Glycols									
	Propylene glycol	TM194	mg/l		988	0	0	0.00%	0.00	
	Ethylene glycol	TM194	mg/l		988	0	0	0.00%	0.00	0.00
	1,3-Propanediol	TM194	mg/l		988	0	0	0.00%	0.00	0.00
	1,3-Butanediol	TM194	mg/l		988	0	0	0.00%	0.00	0.00
	1,4-Butanediol	TM194	mg/l		988	0	0	0.00%	0.00	0.00
	Diethylene glycol	TM194	mg/l		988	0	0	0.00%	0.00	0.00
	Triethylene glycol	TM194	mg/l		988	0	0	0.00%	0.00	0.00
	TICs									
	(methylethyl)Phenol		µg/l		988	1	0	0.00%	0.00	51.00
	(Hexadecatrienal)-cis		µg/l		988	1	0	0.00%	0.00	30.00
	Collection of Hydrocarbons C12-C35		µg/l		988	1	0	0.00%	0.00	107000.00
	Cyclic octaatomic sulfur		µg/l		988	1	0	0.00%	0.00	67.60
	Cyclooctadiene		µg/l		988	1	0	0.00%	0.00	12.20
	Dimethyldodecane		µg/l		988	1	0	0.00%	0.00	12.00
	Dimethyltetradecenol acetate		µg/l		988	2	0	0.00%	0.00	75.60
	Docosenamide		µg/l		988	4	0	0.00%	0.00	44.00
	Eicosane		µg/l		988	1	0	0.00%	0.00	192.00
	Ethylhexanol		µg/l		988	2	0	0.00%	0.00	40.40
	Farnesol		µg/l		988	1	0	0.00%	0.00	281.00
	Heneicosane		µg/l		988	1	0	0.00%	0.00	221.00
	Hexadecane		µg/l		988	5	0	0.00%	0.00	17.00
	Hexadecatrienal		µg/l		988	2	0	0.00%	0.00	18.40
	Hexagol		µg/l		988	1	0	0.00%	0.00	12.50
	Hexahydromethanoindenol		µg/l		988	1	0	0.00%	0.00	14.40
	Isomer of Bicycloheptene ethenyl		µg/l		988	1	0	0.00%	0.00	15.00
	Isomer of Indenol		µg/l		988	1	0	0.00%	0.00	22.00
	Isomer of Indenol dihydro		µg/l		988	1	0	0.00%	0.00	50.00
	Isomers of Hexagol		µg/l		988	1	0	0.00%	0.00	26.00
	Isomers of Hexadecane		µg/l		988	3	0	0.00%	0.00	30.10
	Methylnonadecane		µg/l		988	3	0	0.00%	0.00	15.50
	Methylparaben		µg/l		988	1	0	0.00%	0.00	65.10
	Nonadecane		µg/l		988	1	0	0.00%	0.00	13.20
	Octadecane		µg/l		988	1	0	0.00%	0.00	12.60
	Octadecatrienoic acid methyl ester		µg/l		988	1	0	0.00%	0.00	11.70
	Octadecenamide		µg/l		988	1	0	0.00%	0.00	22.10
	Oleic Acid		µg/l		988	2	0	0.00%	0.00	44.10
	Pentadecanoic acid		µg/l		988	11	0	0.00%	0.00	29.50
	Pentaethylene glycol		µg/l		988	1	0	0.00%	0.00	15.90
	Phenol(methylethyl)		µg/l		988	1	0	0.00%	0.00	11.10
	Phenol(methylethyl)-bis		µg/l		988	2	0	0.00%	0.00	17.50
	Phenol(methylethylidene)bis-		µg/l		988	1	0	0.00%	0.00	29.00
	Phenol, -bis(-methylethyl)-		µg/l		988	1	0	0.00%	0.00	57.60
	Phthalate		µg/l		988	1	0	0.00%	0.00	92.00
	Sitosterol-beta		µg/l		988	2	0	0.00%	0.00	10.70
	Sulfur		µg/l		988	1	0	0.00%	0.00	14.50
	Tetradecadiene		µg/l		988	2	0	0.00%	0.00	44.70
	Tetradecane		µg/l		988	1	0	0.00%	0.00	10.60
	Tetramethylhexadecenol		µg/l		988	1	0	0.00%	0.00	42.20
	Tricyclodecenone		µg/l		988	2	0	0.00%	0.00	14.30
	Tetracosane	TM176	µg/l		988	1	0	0.00%	0.00	237.00

Glan Llyn Surface Water Data

Notes	Determinand	Method	Units	LOD	No. of Samples	No. of Samples >LOD	No. of Samples > EQS	% of samples exceeding EQS	Min	Max
	Carbon									
	[illegible]									
	Inorganics									
	[illegible]									
	Metals - (Liquid)									
	[illegible]									
	Filtered (Dissolved) Metals									
	[illegible]									
	Unfiltered (Total) Metals									
	[illegible]									
	Phenols									
	[illegible]									
	Gasoline Range Organics (GRO)									
	[illegible]									
	TPH Criteria Working Group (TPH CWG)									
	[illegible]									
	Polyaromatic Hydrocarbons (PAHs)									
	[illegible]									
	Semi-Volatile Organic Compounds (SVOCs)									
	[illegible]									
	Volatile Organic Compounds (VOCs)									
	[illegible]									
	TICS									
	[illegible]									
	Inorganics Extra									
	[illegible]									
	TPH									
	[illegible]									
	Miscellaneous Organics									
	[illegible]									
	Subcontracted: Inorganics									
	[illegible]									
	EPH CWG (Speciated)									
	[illegible]									
	Glycols									
	[illegible]									
	TICs									
	[illegible]									

Appendix I: Chemical Input Parameters and Justifications

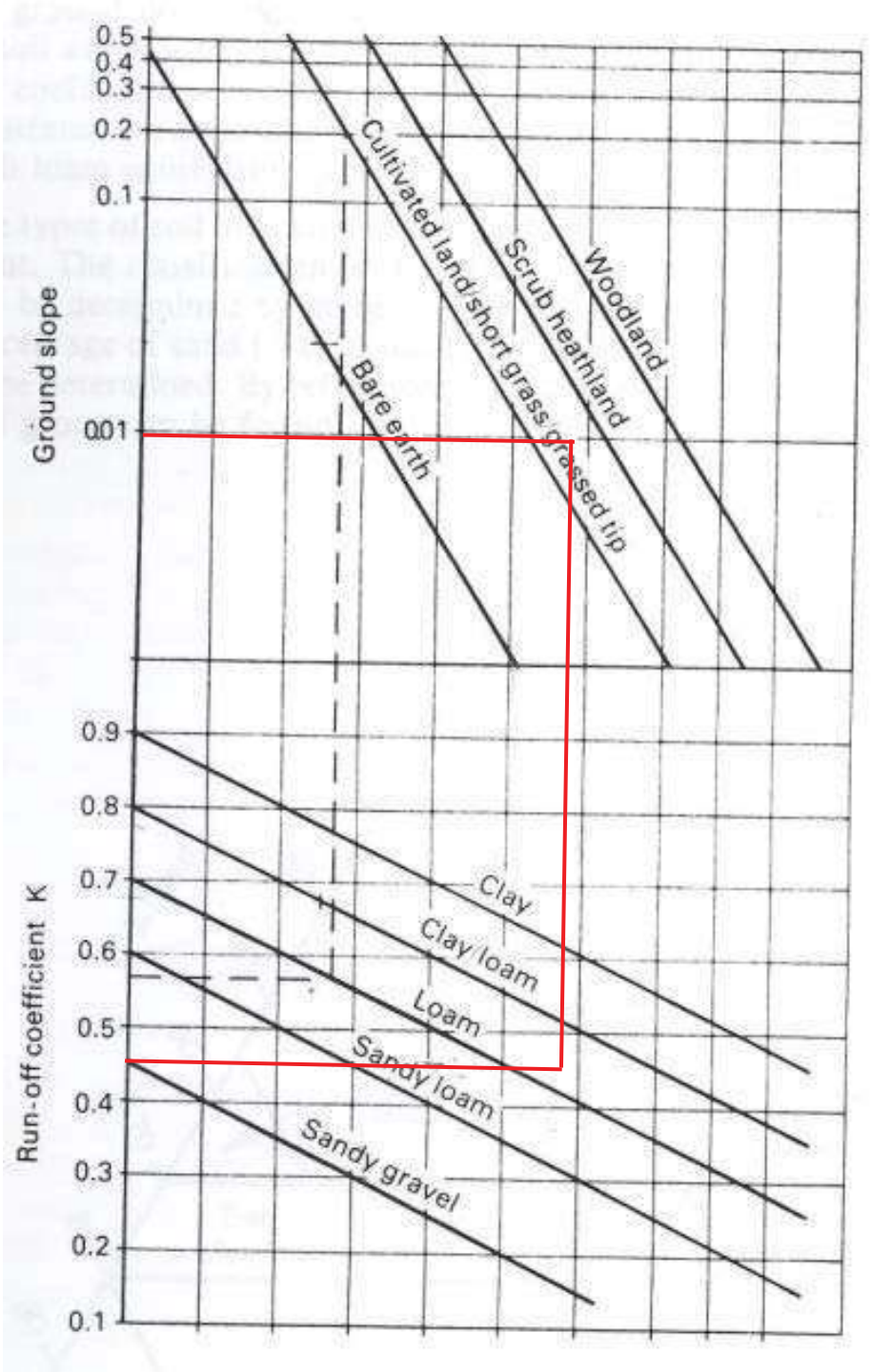
Half-Life and other Determinand-Specific Values Utilised for Specific PAHs Modelled in RT Worksheet Level 3 Groundwater Assessment

Benzo(a)pyrene	Value Utilised	Data Source/Justification
Half life	36500 days	This is a conservative estimation as aerobic conditions are considered likely to prevail in pore-waters in re-engineered Made Ground (within surface 1.00m-3.00m depth). Handbook of Environmental Degradation Rates (CRC Press - 2019 edition) indicates an aqueous biodegradation rate of between 1.45 years (aerobic conditions) and 5.8 years (anaerobic conditions).
Kd	10183	This is a site specific value derived previous by Atkins and is based on the product of the contaminant-specific organic partition coefficient (k_{oc}) and the fraction of organic carbon ($f_{oc.}$).
Contaminant Target Concentration	0.00000017mg/l (0.00017µg/l)	Water Framework Directive (DEFRA/Ministers 2015).

Benzo(b)fluoranthene	Value Utilised	Data Source/Justification
Half life	36500 days	This is a conservative estimation as aerobic conditions are considered likely to prevail in pore-waters in re-engineered Made Ground (within surface 1.00m-3.00m depth). Handbook of Environmental Degradation Rates (CRC Press - 2019 edition) indicates an aqueous biodegradation rate of between 1.67 years (aerobic conditions) and 6.68 years (anaerobic conditions).
Kd	53442	This is a site specific value derived previous by Atkins and is based on the product of the contaminant-specific organic partition coefficient (k_{oc}) and the fraction of organic carbon ($f_{oc.}$).
Contaminant Target Concentration	0.00000017mg/l (0.00017µg/l)	Water Framework Directive (DEFRA/Ministers 2015).

Naphthalene	Value Utilised	Data Source/Justification
Half life	100 days	This is a conservative estimation, as aerobic conditions are considered likely to prevail in pore-waters in re-engineered Made Ground (within surface 1.00m-3.00m depth). Handbook of Environmental Degradation Rates (CRC Press - 2019 edition) indicates an aqueous biodegradation rate of between 12 hours (aerobic conditions) and 258 days (anaerobic conditions).
Kd	36	This is a site specific value derived previous by Atkins and is based on the product of the contaminant-specific organic partition coefficient (k_{oc}) and the fraction of organic carbon ($f_{oc.}$).
Contaminant Target Concentration	0.002mg/l (2µg/l)	Water Framework Directive (DEFRA/Ministers 2015).

Runoff Coefficient Nomogram (National Coal Board, 1982)



Determinand-Specific Parameters

Determinand	Henrys Law Coefficient (H)	Ref.	Soil Organic Carbon-Water Partitioning Coefficient (koc)	Ref.	Solid/Liquid Partition Coefficient (Kd)	Ref.
Units	**(cm^3/cm^3)**		**(-)**		**l/kg**	
Inorganic Metals and Metalloids						
Arsenic	1	-	-	-	134	6
Cadmium	1	-	-	-	776	6
Chromium	1	-	-	-	5,336	6
Copper	1	-	-	-	1,199	6
Iron	1	-	-	-	810	5
Lead	1	-	-	-	34,877	6
Manganese	1	-	-	-	720	5
Mercury	1	-	-	-	5,000	6
Nickel	1	-	-	-	7,652	6
Selenium	1	-	-	-	186	6
Vanadium	1	-	-	-	213	6
Zinc	1	-	-	-	33,558	6
Other Inorganics						
Ammoniacal Nitrogen	1	-	-	-	1	5
Cyanide	1	-	-	-	5	7
Organics						
Benzene	0.182	1	27	5	0.64	koc*foc
Toluene	0.221	1	178	1	4.25	koc*foc
Ethylbenzene	0.3	1	432	1	10.31	koc*foc
Xylene*	0.22	1	260	5	6.20	koc*foc
Phenol	0.000068	1	28.8	1	0.69	koc*foc
TPH Criteria Working Group						
TPH Aliphatic >C5-C6	33	2	794	3	19	koc*foc
TPH Aliphatic >C_6-C_8	50	2	3,981	3	95	koc*foc
TPH Aliphatic >C_8-C_{10}	80	2	31,623	3	755	koc*foc
TPH Aliphatic >C_{10}-C_{12}	120	2	25,1189	3	5,996	koc*foc
TPH Aliphatic >C_{12}-C_{16}	520	2	501,1872	3	119,643	koc*foc

TPH Aliphatic >C_{16}-C_{21}	4,900	2	630,957,344	3	15,062,116	koc*foc
TPH Aliphatic >C_{21}-C_{35}	4,900	2	630,957,344	3	15,062,116	koc*foc
TPH Aliphatic >C_{35}-C_{44}	4,900	2	630,957,344	3	15,062,116	koc*foc
TPH Aromatic >C_5-C_7	0.23	2	79	5	2	koc*foc
TPH Aromatic >C_7-C_8	0.27	2	251	5	6	koc*foc
TPH Aromatic >C_8-C_{10}	0.48	2	1,585	3	38	koc*foc
TPH Aromatic >C_{10}-C_{12}	0.14	2	2,512	3	60	koc*foc
TPH Aromatic >C_{12}-C_{16}	0.05	2	5,012	3	120	koc*foc
TPH Aromatic >C_{16}-C_{21}	0.01	2	15,849	3	378	koc*foc
TPH Aromatic >C_{21}-C_{35}	0.00067	2	125,893	3	3,005	koc*foc
TPH Aromatic >C_{35}-C_{44}	0.00067	2	125,893	3	3,005	koc*foc
TPH Aromatic >C_{40}-C_{44}	0.00067	2	125,893	3	3,005	koc*foc
Polyaromatic Hydrocarbons						
Acenaphthene	0.0049	1	18,621	4	445	koc*foc
Acenaphthylene	0.0034	1	33,113	4	791	koc*foc
Anthracene	0.0016	1	38,019	4	908	koc*foc
Benzo(a)anthracene	0.00024	1	676,083	4	16,139	koc*foc
Benzo(a)pyrene	0.000019	1	426,580	4	10,183	koc*foc
Benzo(b)fluoranthene	0.0002	1	2,238,721	4	53,442	koc*foc
Benzo(k)fluoranthene	0.000034	1	3,311,311	4	79,047	koc*foc
Benzo(g,h,i)perylene	0.00003	1	8,709,636	4	207,915	koc*foc
Chrysene	0.000026	1	691,831	4	16,515	koc*foc
Di-benz(a,h)anthracene	0.0000006	1	933,254	4	22,279	koc*foc
Indeno(1,2,3-cd)pyrene	0.000066	1	16,595,869	4	396,174	koc*foc
Fluoranthene	0.00042	1	117,490	4	2,805	koc*foc
Fluorene	0.0032	1	30,200	4	721	koc*foc
Naphthalene	0.017	1	1,514	4	36	koc*foc
Phenanthrene	0.0013	1	30,200	4	721	koc*foc
Pyrene	0.00037	1	85,114	4	2,032	koc*foc

* Parameterised as total xylene

Determinand-Specific Parameter References:

1 - Environment Agency/Atkins, 2003. Review of the Fate and Transport of Selected Contaminants in the Soil Environment. Tables 2.4, 3.2 & 4.3

2 - Total Petroleum Hydrocarbon Criteria Working Group Series (TPHCWG), 1999. Human Health Risk-Based Evaluation of Petroleum Release Sites: Implementing the Working Group Approach, Volume 5, Table 1

3 - Total Petroleum Hydrocarbon Criteria Working Group Series (TPHCWG), 1997. Selection of representative TPH fractions based on fate & transport considerations, Volume 3, Table 7

4 - Geometric mean of koc values from Physical-Chemical Properties and Environmental Fate for Organic Chemicals, Mackay ET. al. 2006. 2nd Ed.

5 - ConSim Help files

6. Site specific Kd

7. Kow x 0.35 after USEPA FIRST User Manual. Kow value from EA Science Report SC040038/SR6.

Appendix J: Table 5-4 CWDQRA Reuse Criteria for 40% Infiltration

Table 5.4 CWDQRA Reuse Criteria for 40% Infiltration of Incident Rainfall into Engineered Made Ground - Comparison of Calculated CWDQRA Reuse Criteria against Maximum Soil Concentrations Determined (Soils 2017 onwards)

Determinand	Commercial Area				Residential Area			
	Re-use Criteria C_{mg} (mg/kg)	Maximum Soil Sample Value* (mg/kg)	Average Soil Sample Value* (mg/kg)	95th Percentile	Re-use Criteria (mg/kg)	Maximum Soil Sample Value (mg/kg)	Average Soil Sample Value* (mg/kg)	95th Percentile
Inorganic Metals and Metalloids								
Arsenic	11468.786	397.00	12.12	22.00	2902.688	397.00	12.12	22.00
Cadmium	330.551	31.30	0.66	2.22	83.661	31.30	0.66	2.22
Chromium	42699.080	3090.00	123.26	533.00	10806.907	3090.00	123.26	533.00
Copper	2042.252	1970.00	25.60	53.84	516.883	1970.00	25.60	53.84
Iron	1379515.806	*2390000.00*	92413.21	255000.00	349148.010	*2390000.00*	92413.21	255000.00
Lead	71246.366	4220.00	81.71	211.60	18032.071	4220.00	81.71	211.60
Manganese	150835.652	*408000.00*	8689.62	32270.00	38175.690	*408000.00*	8689.62	32270.00
Mercury	595.859	*14.00*	0.61	1.40	150.809	*14.00*	0.61	1.40
Nickel	52109.372	313.00	25.04	43.86	13188.601	313.00	25.04	43.86
Selenium	3177.881	51.70	5.62	15.60	804.305	51.70	5.62	15.60
Vanadium	7270.791	2880.00	186.56	645.25	1840.198	2880.00	186.56	645.25
Zinc	622690.141	13300.00	281.36	771.40	157599.516	13300.00	281.36	771.40
Other Inorganics								
Ammoniacal Nitrogen	699.276	*1590.00*	62.39	269.00	176.983	*1590.00*	62.39	269.00
Cyanide	9.140	*272.00*	2.53	4.58	2.313	*272.00*	2.53	4.58
Organics								
Benzene	17.220	7.03	0.15	0.20	4.358	7.03	0.15	0.20
Toluene	581.530	28.30	0.13	0.14	147.182	28.30	0.13	0.14
Ethylbenzene	363.617	1.15	0.06	0.08	92.030	1.15	0.06	0.08
Xylene	335.724	61.50	0.20	0.20	84.970	61.50	0.20	0.20
Phenol	13.816	1.51	0.02	0.03	3.497	1.51	0.02	0.03
TPH Criteria Working Group								
Aliphatics >C5-C6	330.563	0.92	0.03	0.04	83.664	0.92	0.03	0.04
Aliphatics >C6-C8	1626.370	3.90	0.04	0.08	411.626	3.90	0.04	0.08
Aliphatics >C8-C10	12860.726	74.20	0.20	0.16	3254.980	74.20	0.20	0.16
Aliphatics >C10-C12	102089.217	987.00	2.06	0.48	25838.230	987.00	2.06	0.48
Aliphatics >C12-C16	2036742.733	1330.00	7.41	19.40	515488.601	1330.00	7.41	19.40
Aliphatics >C16-C21	256407138.283	3530.00	26.15	74.28	64895263.78	3530.00	26.15	74.28
Aliphatics >C21-C35	256407138.283	3580.00	73.42	212.40	64895263.78	3580.00	73.42	212.40
Aliphatics >C35-C44	256407138.283	1380.00	23.71	81.28	64895263.78	1380.00	23.71	81.28
Aromatics >EC5-EC7	38.530	5.26	0.04	0.04	9.752	5.26	0.04	0.04
Aromatics >EC7-EC8	801.639	20.30	0.05	0.04	202.890	20.30	0.05	0.04
Aromatics >EC8-EC10	650.327	49.50	0.15	0.14	164.594	49.50	0.15	0.14
Aromatics >EC10-EC12	1027.020	658.00	1.38	0.32	259.933	658.00	1.38	0.32
Aromatics >EC12-EC16	2042.955	5280.00	11.68	20.96	517.061	5280.00	11.68	20.96
Aromatics >EC16-EC21	6446.891	9800.00	46.85	127.80	1631.673	9800.00	46.85	127.80
Aromatics >EC21-EC35	51166.143	9010.00	113.20	400.80	12949.875	9010.00	113.20	400.80
Aromatics >EC35-EC44	51166.143	1580.00	39.47	145.40	12949.875	1580.00	39.47	145.40
Aromatics >EC40-EC44	51166.143	724.00	14.62	51.92	12949.875	724.00	14.62	51.92
Polyaromatic Hydrocarbons								
Acenaphthylene	75.733	2100.00	2.35	1.96	19.168	2100.00	2.35	1.96
Acenaphthene	134.627	193.00	0.37	0.31	34.073	193.00	0.37	0.31
Anthracene	154.563	1860.00	2.78	4.00	39.119	1860.00	2.78	4.00
Benz(a)anthracene	2747.512	1150.00	3.62	8.63	695.380	1150.00	3.62	8.63
Benzo(a)pyrene	156.023	714.00	2.92	7.93	39.489	714.00	2.92	7.93
Benzo(b)fluoranthene	15.466	1110.00	4.15	11.18	3.914	1110.00	4.15	11.18
Benzo(k)fluoranthene	22.876	373.00	1.63	4.18	5.790	373.00	1.63	4.18
Benzo(g,h,i)perylene	60.170	333.00	1.98	5.62	15.229	333.00	1.98	5.62
Chrysene	2811.508	1090.00	3.31	8.46	711.578	1090.00	3.31	8.46
Dibenzo(a,h)anthracene	3792.598	177.00	0.58	1.40	959.886	177.00	0.58	1.40
Indeno(1,2,3-cd)pyrene	114.651	374.00	2.04	5.46	29.018	374.00	2.04	5.46
Fluoranthene	30.083	2940.00	8.97	20.50	7.614	2940.00	8.97	20.50
Fluorene	122.786	1890.00	2.17	1.75	31.077	1890.00	2.17	1.75
Naphthalene	124.264	4680.00	8.42	4.14	31.450	4680.00	8.42	4.14
Phenanthrene	122.786	3810.00	7.57	11.48	31.077	3810.00	7.57	11.48
Pyrene	345.946	1.95	0.01	0.02	87.557	1.95	0.01	0.02

***Recent analyses carried out from 2017(Master Results)**

Indicates maximum soil concentration exceeds calculated Re-use Criteria

Appendix K: P20 Level 3 Groundwater Excel Sheets

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions)

Details to be completed for each assessment

Site Name:	**Glan Llyn**			
Site Address:	**Llanwern**			
Completed by:	**Ross Cameron**			
Date:	**25-Jun-22**		**Version:**	**1**
Contaminant	**Ammoniacal Nitrogen**			
Target Concentration (C_T)	**0.3**	**mg/l**	**Origin of C_T:**	**Water Framework Directive (DEFRA/Ministers 2015)**

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Ammoniacal Nitrogen**		
Target concentration	C_T	**0.3**	**mg/l**	
Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient.

The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**4.04E+01**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.3	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	25-Jun-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Ammoniacal Nitrogen**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	C_T	**0.3** **mg/l**	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentr**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	25-Jun-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters

	Variable	Value	Unit	Source
Contaminant		Ammoniacal Nitrogen		from Level 1
Target Concentration	C_T	0.3	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters

	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target	**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks	**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
	#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point	**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)

Soil water partition coefficient	Kd		l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

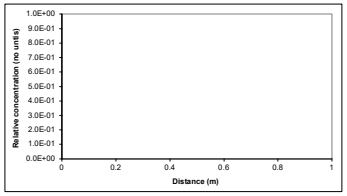
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	**1.0E+00**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

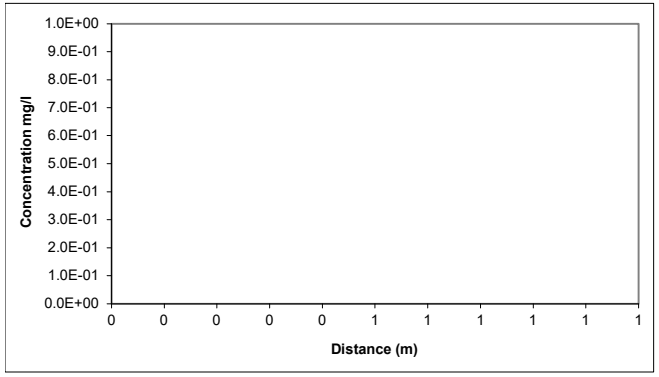
Only input required is Soil Contaminant Concentration

	Input Parameters			
	Soil contaminant concentration	C_0	0.00E+00	mg/kg
Level 1 Parameters				
	Water filled soil porosity	θ_W	5.00E-01	fraction
	Air filled soil porosity	θa	3.70E-01	fraction
	Bulk density	ρ	1.36E+00	g/cm^3
	Henry's Law constant	H	1.00E+00	dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02	l/kg
	Factor (partitioning between soil and water)		1.35E+02	dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!	
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!	

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Ammoniacal Nitrogen		from Level 1
Target Concentration	C_T	3.00E-01	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

	Variable	Value	Unit	Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	2.55E+02	mg/l	*Based on 95th percentile soil conc of 644mg/kg*
Half life for degradation of contaminant in water	$t_{1/2}$	2.19E+03	days	*Buss et al NC/02/49 2003 (EA)*
Calculated decay rate	λ	3.17E-04	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappir*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	3.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	2.13E+02	l/kg	*see options*
Longitudinal dispersivity	ax	2.13E+00	m	*see options*
Transverse dispersivity	az	2.13E-01	m	*see options*
Vertical dispersivity	ay	2.13E-02	m	*see options*

Calculated Parameters

	Variable	
Groundwater flow velocity	v	1.08E-03 m/d
Retardation factor	Rf	3.62E+03 fraction
Decay rate used	λ	8.74E-08 d^{-1}
Rate of contaminant flow due to retardation	u	2.98E-07 m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	4.53E-01 mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**5.62E+02**

Remedial Targets

Remedial Target		**1.69E+02**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**30**	**m**	
Concentration of contaminant at compliance point	**C_{ED}/C_0**	**4.53E-01**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	2.13E+02	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	2.13E+02	l/kg

Define dispersivity (click brown cell and use pull down list)

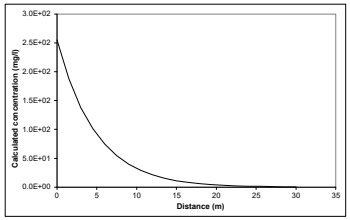
Dispersivity based on Xu & Eckstein (1995)

		Enter value	Calc value Xu & Eckstein		
Longitudinal dispersivity	**ax**	0.00E+00	3.00E+00	2.13E+00	m
Transverse dispersivity	**az**	0.00E+00	3.00E-01	2.13E-01	m
Vertical dispersivity	**ay**	0.00E+00	3.00E-02	2.13E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	2.5E+02
1.5	1.88E+02
3.0	1.38E+02
4.5	1.02E+02
6.0	7.46E+01
7.5	5.46E+01
9.0	3.99E+01
10.5	2.91E+01
12.0	2.12E+01
13.5	1.54E+01
15.0	1.12E+01
16.5	8.11E+00
18.0	5.89E+00
19.5	4.27E+00
21.0	3.10E+00
22.5	2.25E+00
24.0	1.63E+00
25.5	1.18E+00
27.0	8.60E-01
28.5	6.24E-01
30.0	4.53E-01

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant **ımoniacal Nitrogen**

Parameter	Value	Units
(carried over from input sheet)		
C_T	3.00E-01	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

	calc	calc	Calc Kd	l/kg
Calculation of partition coefficient for ionic organic chemical				
Partition coefficient used in Level 1 Assessment			1.34E+02	l/kg

Calculated Remedial Target **4.04E+01 mg/kg** **for Ammoniacal Nitrogen**

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	25/06/2022
Version:	1

Level 2 Calculation Sheet

Contaminant nmoniacal Nitrogen

Site assessed:	Glan Llyn
Date:	25/06/2022
Version:	1

Parameter	Value	Units
(carried over from input sheet)		
Mz	0.00E+00	m
L	0.00E+00	m
da	0.00E+00	m
Inf	0.00E+00	m/d
K	0.00E+00	m/d
i	0.00E+00	
		m3/d
A	0.00E+00	m2
		m3/d
Cc	0.00E+00	mg/l
C_T	3.00E-01	mg/l
Cu	0.00E+00	mg/l
w	0.00E+00	m

Calculated Dilution Factor

Calculation based on target concentration #DIV/0!

Calculation based on observed contaminant concentration #DIV/0!

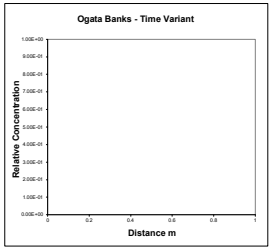
OGATA BANKS SOLUTION

Contaminant ammoniacal Nitrogen

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	3.000E-01	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

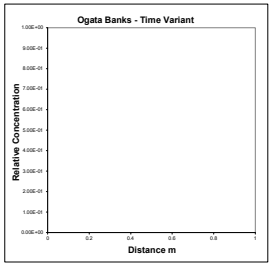
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	25/06/2022
Version:	1

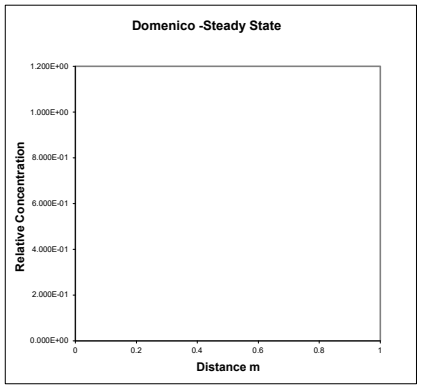
Contaminant **noniacal Nitrogen**

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	3.000E-01	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!



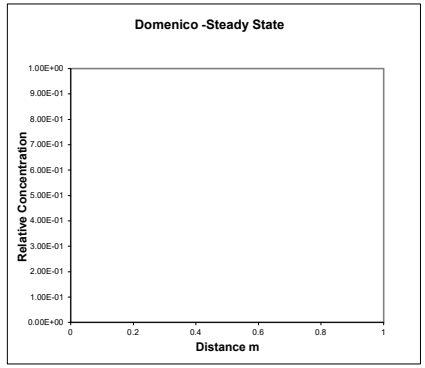
Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!



Date:	25/06/2022
Version:	1

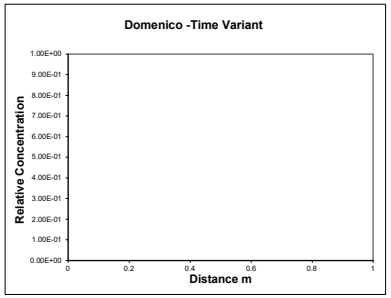
DOMENICO (TIME VARIANT)

Contaminant noniacal Nitrogen

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.3	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

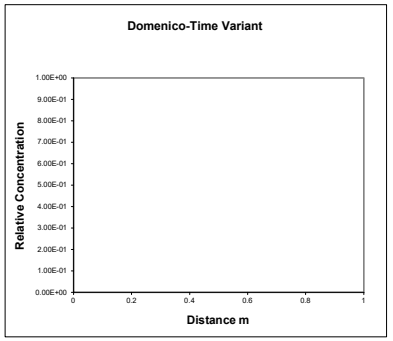
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	25/06/2022
Version:	1

OGATA BANKS SOLUTION

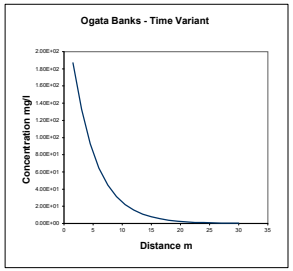
Contaminant **ımoniacal Nitrogen**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.3	mg/l
Co	2.55E+02	mg/l
λ	8.74E-08	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	2.13E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	3.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.13E+00	m
az	2.13E-01	m
ay	2.13E-02	m

Vertical dispersion option Simulate vertical dispersion in 1 direction

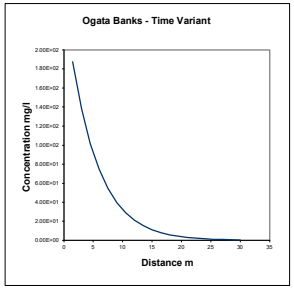
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1.5	31.8475	-3.1E-01	7.4E-01	-3.5E+46	2.000	1.0E+00	2.7E+00	3.5E+46	0.000	2.2E+02	1	-2.2E+02	-1	2.1E+00	0.997	-2.1E+00	-0.997	1.87E+02
2	3	31.8475	-6.1E-01	5.4E-01	-3.5E+46	2.000	2.0E+00	7.6E+00	3.5E+46	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9642	-1.5E+00	-0.96416	1.33E+02
3	4.5	31.8475	-9.2E-01	4.0E-01	-3.5E+46	2.000	3.0E+00	2.1E+01	3.5E+46	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9134	-1.2E+00	-0.9134	9.28E+01
4	6	31.8475	-1.2E+00	2.9E-01	-3.5E+46	2.000	4.0E+00	5.7E+01	3.5E+46	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8622	-1.0E+00	-0.8622	6.45E+01
5	7.5	31.8475	-1.5E+00	2.2E-01	-3.5E+46	2.000	5.1E+00	1.6E+02	3.5E+46	0.000	9.9E+01	1	-9.9E+01	-1	9.4E-01	0.8156	-9.4E-01	-0.81561	4.49E+01
6	9	31.8475	-1.8E+00	1.6E-01	-3.5E+46	2.000	6.1E+00	4.3E+02	3.5E+46	0.000	9.0E+01	1	-9.0E+01	-1	8.6E-01	0.7744	-8.6E-01	-0.77438	3.14E+01
7	10.5	31.8475	-2.1E+00	1.2E-01	-3.5E+46	2.000	7.1E+00	1.2E+03	3.5E+46	0.000	8.4E+01	1	-8.4E+01	-1	7.9E-01	0.7381	-7.9E-01	-0.73807	2.20E+01
8	12	31.8475	-2.5E+00	8.6E-02	-3.5E+46	2.000	8.1E+00	3.3E+03	3.5E+46	0.000	7.8E+01	1	-7.8E+01	-1	7.4E-01	0.706	-7.4E-01	-0.706	1.55E+01
9	13.5	31.8475	-2.8E+00	6.3E-02	-3.5E+46	2.000	9.1E+00	9.0E+03	3.5E+46	0.000	7.4E+01	1	-7.4E+01	-1	7.0E-01	0.6775	-7.0E-01	-0.67751	1.10E+01
10	15	31.8475	-3.1E+00	4.7E-02	-3.5E+46	2.000	1.0E+01	2.5E+04	3.5E+46	0.000	7.0E+01	1	-7.0E+01	-1	6.6E-01	0.6521	-6.6E-01	-0.65206	7.76E+00
11	16.5	31.8475	-3.4E+00	3.4E-02	-3.5E+46	2.000	1.1E+01	6.8E+04	3.5E+46	0.000	6.7E+01	1	-6.7E+01	-1	6.3E-01	0.6292	-6.3E-01	-0.62917	5.51E+00
12	18	31.8475	-3.7E+00	2.5E-02	-3.5E+46	2.000	1.2E+01	1.9E+05	3.5E+46	0.000	6.4E+01	1	-6.4E+01	-1	6.1E-01	0.6085	-6.1E-01	-0.60845	3.92E+00
13	19.5	31.8475	-4.0E+00	1.9E-02	-3.5E+46	2.000	1.3E+01	5.1E+05	3.5E+46	0.000	6.1E+01	1	-6.1E+01	-1	5.8E-01	0.5896	-5.8E-01	-0.5896	2.80E+00
14	21	31.8475	-4.3E+00	1.4E-02	-3.5E+46	2.000	1.4E+01	1.4E+06	3.5E+46	0.000	5.9E+01	1	-5.9E+01	-1	5.6E-01	0.5724	-5.6E-01	-0.57237	2.00E+00
15	22.5	31.8475	-4.6E+00	1.0E-02	-3.5E+46	2.000	1.5E+01	3.9E+06	3.5E+46	0.000	5.7E+01	1	-5.7E+01	-1	5.4E-01	0.5565	-5.4E-01	-0.55654	1.43E+00
16	24	31.8475	-4.9E+00	7.4E-03	-3.5E+46	2.000	1.6E+01	1.1E+07	3.5E+46	0.000	5.5E+01	1	-5.5E+01	-1	5.2E-01	0.5419	-5.2E-01	-0.54193	1.03E+00
17	25.5	31.8475	-5.2E+00	5.5E-03	-3.5E+46	2.000	1.7E+01	2.9E+07	3.5E+46	0.000	5.4E+01	1	-5.4E+01	-1	5.1E-01	0.5284	-5.1E-01	-0.52839	7.36E-01
18	27	31.8475	-5.5E+00	4.0E-03	-3.5E+46	2.000	1.8E+01	8.0E+07	3.5E+46	0.000	5.2E+01	1	-5.2E+01	-1	4.9E-01	0.5158	-4.9E-01	-0.51581	5.29E-01
19	28.5	31.8475	-5.8E+00	3.0E-03	-3.5E+46	2.000	1.9E+01	2.2E+08	3.5E+46	0.000	5.1E+01	1	-5.1E+01	-1	4.8E-01	0.5041	-4.8E-01	-0.50408	3.81E-01
20	30	31.8475	-6.1E+00	2.2E-03	-3.5E+46	2.000	2.0E+01	6.1E+08	3.5E+46	0.000	4.9E+01	1	-4.9E+01	-1	4.7E-01	0.4931	-4.7E-01	-0.49311	2.74E-01



Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

Calc	Value	
v	1.08E-03	m/d
Rc	3.62E+03	
u	2.98E-07	m/d

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1.5	31.8475	-3.1E-01	7.4E-01	-3.5E+46	2.000	1.0E+00	2.7E+00	3.5E+46	0.000	2.2E+02	1	-2.2E+02	-1	4.2E+00	1	-4.2E+00	-1	1.88E+02
2	3	31.8475	-6.1E-01	5.4E-01	-3.5E+46	2.000	2.0E+00	7.6E+00	3.5E+46	0.000	1.6E+02	1	-1.6E+02	-1	3.0E+00	1	-3.0E+00	-0.99997	1.38E+02
3	4.5	31.8475	-9.2E-01	4.0E-01	-3.5E+46	2.000	3.0E+00	2.1E+01	3.5E+46	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9994	-2.4E+00	-0.99939	1.02E+02
4	6	31.8475	-1.2E+00	2.9E-01	-3.5E+46	2.000	4.0E+00	5.7E+01	3.5E+46	0.000	1.1E+02	1	-1.1E+02	-1	2.1E+00	0.997	-2.1E+00	-0.997	7.46E+01
5	7.5	31.8475	-1.5E+00	2.2E-01	-3.5E+46	2.000	5.1E+00	1.6E+02	3.5E+46	0.000	9.9E+01	1	-9.9E+01	-1	1.9E+00	0.9921	-1.9E+00	-0.99206	5.46E+01
6	9	31.8475	-1.8E+00	1.6E-01	-3.5E+46	2.000	6.1E+00	4.3E+02	3.5E+46	0.000	9.0E+01	1	-9.0E+01	-1	1.7E+00	0.9846	-1.7E+00	-0.98463	3.99E+01
7	10.5	31.8475	-2.1E+00	1.2E-01	-3.5E+46	2.000	7.1E+00	1.2E+03	3.5E+46	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9751	-1.6E+00	-0.97515	2.91E+01
8	12	31.8475	-2.5E+00	8.6E-02	-3.5E+46	2.000	8.1E+00	3.3E+03	3.5E+46	0.000	7.8E+01	1	-7.8E+01	-1	1.5E+00	0.9642	-1.5E+00	-0.96416	2.12E+01
9	13.5	31.8475	-2.8E+00	6.3E-02	-3.5E+46	2.000	9.1E+00	9.0E+03	3.5E+46	0.000	7.4E+01	1	-7.4E+01	-1	1.4E+00	0.9522	-1.4E+00	-0.95215	1.54E+01
10	15	31.8475	-3.1E+00	4.7E-02	-3.5E+46	2.000	1.0E+01	2.5E+04	3.5E+46	0.000	7.0E+01	1	-7.0E+01	-1	1.3E+00	0.9395	-1.3E+00	-0.93951	1.12E+01
11	16.5	31.8475	-3.4E+00	3.4E-02	-3.5E+46	2.000	1.1E+01	6.8E+04	3.5E+46	0.000	6.7E+01	1	-6.7E+01	-1	1.3E+00	0.9265	-1.3E+00	-0.92652	8.11E+00
12	18	31.8475	-3.7E+00	2.5E-02	-3.5E+46	2.000	1.2E+01	1.9E+05	3.5E+46	0.000	6.4E+01	1	-6.4E+01	-1	1.2E+00	0.9134	-1.2E+00	-0.9134	5.89E+00
13	19.5	31.8475	-4.0E+00	1.9E-02	-3.5E+46	2.000	1.3E+01	5.1E+05	3.5E+46	0.000	6.1E+01	1	-6.1E+01	-1	1.2E+00	0.9003	-1.2E+00	-0.90032	4.27E+00
14	21	31.8475	-4.3E+00	1.4E-02	-3.5E+46	2.000	1.4E+01	1.4E+06	3.5E+46	0.000	5.9E+01	1	-5.9E+01	-1	1.1E+00	0.8874	-1.1E+00	-0.88738	3.10E+00
15	22.5	31.8475	-4.6E+00	1.0E-02	-3.5E+46	2.000	1.5E+01	3.9E+06	3.5E+46	0.000	5.7E+01	1	-5.7E+01	-1	1.1E+00	0.8747	-1.1E+00	-0.87465	2.25E+00
16	24	31.8475	-4.9E+00	7.4E-03	-3.5E+46	2.000	1.6E+01	1.1E+07	3.5E+46	0.000	5.5E+01	1	-5.5E+01	-1	1.0E+00	0.8622	-1.0E+00	-0.8622	1.63E+00
17	25.5	31.8475	-5.2E+00	5.5E-03	-3.5E+46	2.000	1.7E+01	2.9E+07	3.5E+46	0.000	5.4E+01	1	-5.4E+01	-1	1.0E+00	0.8501	-1.0E+00	-0.85006	1.18E+00
18	27	31.8475	-5.5E+00	4.0E-03	-3.5E+46	2.000	1.8E+01	8.0E+07	3.5E+46	0.000	5.2E+01	1	-5.2E+01	-1	9.9E-01	0.8382	-9.9E-01	-0.83824	8.60E-01
19	28.5	31.8475	-5.8E+00	3.0E-03	-3.5E+46	2.000	1.9E+01	2.2E+08	3.5E+46	0.000	5.1E+01	1	-5.1E+01	-1	9.6E-01	0.8268	-9.6E-01	-0.82675	6.24E-01
20	30	31.8475	-6.1E+00	2.2E-03	-3.5E+46	2.000	2.0E+01	6.1E+08	3.5E+46	0.000	4.9E+01	1	-4.9E+01	-1	9.4E-01	0.8156	-9.4E-01	-0.81561	4.53E-01



Date:	25/06/2022
Version:	1

Contaminant **noniacal Nitrogen**

DOMENICO (STEADY STATE)

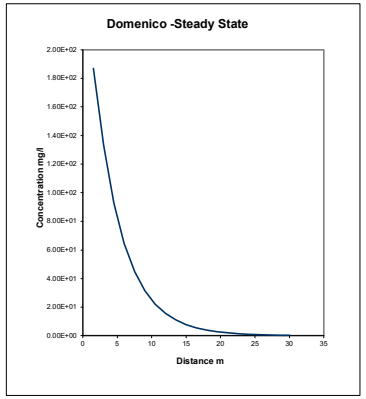
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.3	mg/l
Co	2.55E+02	mg/l
λ	8.74E-08	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	2.13E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	3.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	2.13E+00	m
az	2.13E-01	m
ay	2.13E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

Calc	Value	Units
v	1.08E-03	m/d
Rc	3.62E+03	
u	2.98E-07	m/d

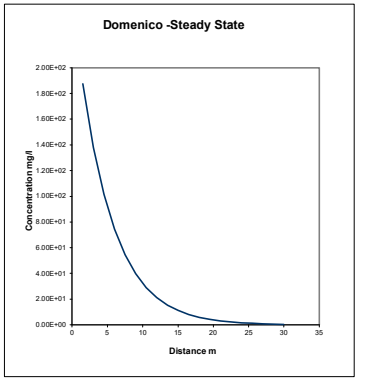
	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1.5	63.695	-3.06E-01	7.36E-01	2.21E+02	1	-2.21E+02	-1	2.10E+00	0.997	-2.10E+00	-0.997	1.87E+02
2	3	63.695	-6.13E-01	5.42E-01	1.56E+02	1	-1.56E+02	-1	1.48E+00	0.964	-1.48E+00	-0.9642	1.33E+02
3	4.5	63.695	-9.19E-01	3.99E-01	1.28E+02	1	-1.28E+02	-1	1.21E+00	0.913	-1.21E+00	-0.9134	9.28E+01
4	6	63.695	-1.23E+00	2.94E-01	1.11E+02	1	-1.11E+02	-1	1.05E+00	0.862	-1.05E+00	-0.8622	6.45E+01
5	7.5	63.695	-1.53E+00	2.16E-01	9.89E+01	1	-9.89E+01	-1	9.39E-01	0.816	-9.39E-01	-0.8156	4.49E+01
6	9	63.695	-1.84E+00	1.59E-01	9.03E+01	1	-9.03E+01	-1	8.57E-01	0.774	-8.57E-01	-0.7744	3.14E+01
7	10.5	63.695	-2.14E+00	1.17E-01	8.36E+01	1	-8.36E+01	-1	7.93E-01	0.738	-7.93E-01	-0.7381	2.20E+01
8	12	63.695	-2.45E+00	8.62E-02	7.82E+01	1	-7.82E+01	-1	7.42E-01	0.706	-7.42E-01	-0.706	1.55E+01
9	13.5	63.695	-2.76E+00	6.34E-02	7.37E+01	1	-7.37E+01	-1	7.00E-01	0.678	-7.00E-01	-0.6775	1.10E+01
10	15	63.695	-3.06E+00	4.67E-02	7.00E+01	1	-7.00E+01	-1	6.64E-01	0.652	-6.64E-01	-0.6521	7.76E+00
11	16.5	63.695	-3.37E+00	3.44E-02	6.67E+01	1	-6.67E+01	-1	6.33E-01	0.629	-6.33E-01	-0.6292	5.51E+00
12	18	63.695	-3.68E+00	2.53E-02	6.39E+01	1	-6.39E+01	-1	6.06E-01	0.608	-6.06E-01	-0.6085	3.92E+00
13	19.5	63.695	-3.98E+00	1.86E-02	6.14E+01	1	-6.14E+01	-1	5.82E-01	0.59	-5.82E-01	-0.5896	2.80E+00
14	21	63.695	-4.29E+00	1.37E-02	5.91E+01	1	-5.91E+01	-1	5.61E-01	0.572	-5.61E-01	-0.5724	2.00E+00
15	22.5	63.695	-4.60E+00	1.01E-02	5.71E+01	1	-5.71E+01	-1	5.42E-01	0.557	-5.42E-01	-0.5565	1.43E+00
16	24	63.695	-4.90E+00	7.43E-03	5.53E+01	1	-5.53E+01	-1	5.25E-01	0.542	-5.25E-01	-0.5419	1.03E+00
17	25.5	63.695	-5.21E+00	5.47E-03	5.37E+01	1	-5.37E+01	-1	5.09E-01	0.528	-5.09E-01	-0.5284	7.36E-01
18	27	63.695	-5.52E+00	4.03E-03	5.21E+01	1	-5.21E+01	-1	4.95E-01	0.516	-4.95E-01	-0.5158	5.29E-01
19	28.5	63.695	-5.82E+00	2.96E-03	5.08E+01	1	-5.08E+01	-1	4.81E-01	0.504	-4.81E-01	-0.5041	3.81E-01
20	30	63.695	-6.13E+00	2.18E-03	4.95E+01	1	-4.95E+01	-1	4.69E-01	0.493	-4.69E-01	-0.4931	2.74E-01



DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1.5	63.695	-3.06E-01	7.36E-01	2.21E+02	1	-2.21E+02	-1	4.20E+00	1	-4.20E+00	-1	1.88E+02
2	3	63.695	-6.13E-01	5.42E-01	1.56E+02	1	-1.56E+02	-1	2.97E+00	1	-2.97E+00	-1	1.38E+02
3	4.5	63.695	-9.19E-01	3.99E-01	1.28E+02	1	-1.28E+02	-1	2.42E+00	0.999	-2.42E+00	-0.9994	1.02E+02
4	6	63.695	-1.23E+00	2.94E-01	1.11E+02	1	-1.11E+02	-1	2.10E+00	0.997	-2.10E+00	-0.997	7.46E+01
5	7.5	63.695	-1.53E+00	2.16E-01	9.89E+01	1	-9.89E+01	-1	1.88E+00	0.992	-1.88E+00	-0.9921	5.46E+01
6	9	63.695	-1.84E+00	1.59E-01	9.03E+01	1	-9.03E+01	-1	1.71E+00	0.985	-1.71E+00	-0.9846	3.99E+01
7	10.5	63.695	-2.14E+00	1.17E-01	8.36E+01	1	-8.36E+01	-1	1.59E+00	0.975	-1.59E+00	-0.9751	2.91E+01
8	12	63.695	-2.45E+00	8.62E-02	7.82E+01	1	-7.82E+01	-1	1.48E+00	0.964	-1.48E+00	-0.9642	2.12E+01
9	13.5	63.695	-2.76E+00	6.34E-02	7.37E+01	1	-7.37E+01	-1	1.40E+00	0.952	-1.40E+00	-0.9522	1.54E+01
10	15	63.695	-3.06E+00	4.67E-02	7.00E+01	1	-7.00E+01	-1	1.33E+00	0.94	-1.33E+00	-0.9395	1.12E+01
11	16.5	63.695	-3.37E+00	3.44E-02	6.67E+01	1	-6.67E+01	-1	1.27E+00	0.927	-1.27E+00	-0.9265	8.11E+00
12	18	63.695	-3.68E+00	2.53E-02	6.39E+01	1	-6.39E+01	-1	1.21E+00	0.913	-1.21E+00	-0.9134	5.89E+00
13	19.5	63.695	-3.98E+00	1.86E-02	6.14E+01	1	-6.14E+01	-1	1.16E+00	0.9	-1.16E+00	-0.9003	4.27E+00
14	21	63.695	-4.29E+00	1.37E-02	5.91E+01	1	-5.91E+01	-1	1.12E+00	0.887	-1.12E+00	-0.8874	3.10E+00
15	22.5	63.695	-4.60E+00	1.01E-02	5.71E+01	1	-5.71E+01	-1	1.08E+00	0.875	-1.08E+00	-0.8747	2.25E+00
16	24	63.695	-4.90E+00	7.43E-03	5.53E+01	1	-5.53E+01	-1	1.05E+00	0.862	-1.05E+00	-0.8622	1.63E+00
17	25.5	63.695	-5.21E+00	5.47E-03	5.37E+01	1	-5.37E+01	-1	1.02E+00	0.85	-1.02E+00	-0.8501	1.18E+00
18	27	63.695	-5.52E+00	4.03E-03	5.21E+01	1	-5.21E+01	-1	9.89E-01	0.838	-9.89E-01	-0.8382	8.60E-01
19	28.5	63.695	-5.82E+00	2.96E-03	5.08E+01	1	-5.08E+01	-1	9.63E-01	0.827	-9.63E-01	-0.8268	6.24E-01
20	30	63.695	-6.13E+00	2.18E-03	4.95E+01	1	-4.95E+01	-1	9.39E-01	0.816	-9.39E-01	-0.8156	4.53E-01



Date:	25/06/2022
Version:	1

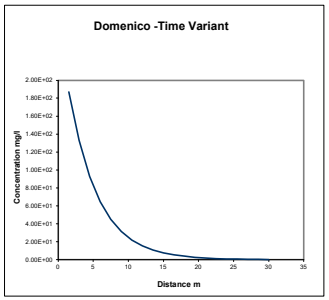
DOMENICO (TIME VARIANT)

Contaminant **ɴoniacal Nitrogen**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.3	mg/l
Co	2.55E+02	mg/l
λ	8.74E-08	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	2.13E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	3.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.13E+00	m
az	2.13E-01	m
ay	2.13E-02	m

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1.5	31.8475	-3.06E-01	7.36E-01	-3.50E+46	2	2.21E+02	1	-2.21E+02	-1	2.10E+00	0.997	-2.10E+00	-0.997	1.87E+02
2	3	31.8475	-6.13E-01	5.42E-01	-3.50E+46	2	1.56E+02	1	-1.56E+02	-1	1.48E+00	0.9642	-1.48E+00	-0.964	1.33E+02
3	4.5	31.8475	-9.19E-01	3.99E-01	-3.50E+46	2	1.28E+02	1	-1.28E+02	-1	1.21E+00	0.9134	-1.21E+00	-0.913	9.28E+01
4	6	31.8475	-1.23E+00	2.94E-01	-3.50E+46	2	1.11E+02	1	-1.11E+02	-1	1.05E+00	0.8622	-1.05E+00	-0.862	6.45E+01
5	7.5	31.8475	-1.53E+00	2.16E-01	-3.50E+46	2	9.89E+01	1	-9.89E+01	-1	9.39E-01	0.8156	-9.39E-01	-0.816	4.49E+01
6	9	31.8475	-1.84E+00	1.59E-01	-3.50E+46	2	9.03E+01	1	-9.03E+01	-1	8.57E-01	0.7744	-8.57E-01	-0.774	3.14E+01
7	10.5	31.8475	-2.14E+00	1.17E-01	-3.50E+46	2	8.36E+01	1	-8.36E+01	-1	7.93E-01	0.7381	-7.93E-01	-0.738	2.20E+01
8	12	31.8475	-2.45E+00	8.62E-02	-3.50E+46	2	7.82E+01	1	-7.82E+01	-1	7.42E-01	0.706	-7.42E-01	-0.706	1.55E+01
9	13.5	31.8475	-2.76E+00	6.34E-02	-3.50E+46	2	7.37E+01	1	-7.37E+01	-1	7.00E-01	0.6775	-7.00E-01	-0.678	1.10E+01
10	15	31.8475	-3.06E+00	4.67E-02	-3.50E+46	2	7.00E+01	1	-7.00E+01	-1	6.64E-01	0.6521	-6.64E-01	-0.652	7.76E+00
11	16.5	31.8475	-3.37E+00	3.44E-02	-3.50E+46	2	6.67E+01	1	-6.67E+01	-1	6.33E-01	0.6292	-6.33E-01	-0.629	5.51E+00
12	18	31.8475	-3.68E+00	2.53E-02	-3.50E+46	2	6.39E+01	1	-6.39E+01	-1	6.06E-01	0.6085	-6.06E-01	-0.608	3.92E+00
13	19.5	31.8475	-3.98E+00	1.86E-02	-3.50E+46	2	6.14E+01	1	-6.14E+01	-1	5.82E-01	0.5896	-5.82E-01	-0.59	2.80E+00
14	21	31.8475	-4.29E+00	1.37E-02	-3.50E+46	2	5.91E+01	1	-5.91E+01	-1	5.61E-01	0.5724	-5.61E-01	-0.572	2.00E+00
15	22.5	31.8475	-4.60E+00	1.01E-02	-3.50E+46	2	5.71E+01	1	-5.71E+01	-1	5.42E-01	0.5565	-5.42E-01	-0.557	1.43E+00
16	24	31.8475	-4.90E+00	7.43E-03	-3.50E+46	2	5.53E+01	1	-5.53E+01	-1	5.25E-01	0.5419	-5.25E-01	-0.542	1.03E+00
17	25.5	31.8475	-5.21E+00	5.47E-03	-3.50E+46	2	5.37E+01	1	-5.37E+01	-1	5.09E-01	0.5284	-5.09E-01	-0.528	7.36E-01
18	27	31.8475	-5.52E+00	4.03E-03	-3.50E+46	2	5.21E+01	1	-5.21E+01	-1	4.95E-01	0.5158	-4.95E-01	-0.516	5.29E-01
19	28.5	31.8475	-5.82E+00	2.96E-03	-3.50E+46	2	5.08E+01	1	-5.08E+01	-1	4.81E-01	0.5041	-4.81E-01	-0.504	3.81E-01
20	30	31.8475	-6.13E+00	2.18E-03	-3.50E+46	2	4.95E+01	1	-4.95E+01	-1	4.69E-01	0.4931	-4.69E-01	-0.493	2.74E-01

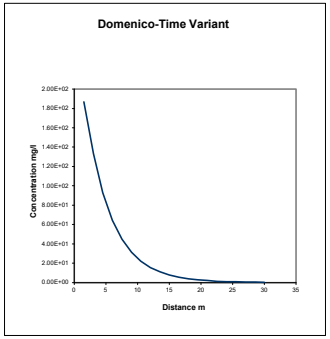


Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	3.62E+03	
u	2.98E-07	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1.5	31.8475	-3.06E-01	7.36E-01	-3.50E+46	2	2.21E+02	1	-2.21E+02	-1	4.20E+00	1	-4.20E+00	-1	1.88E+02
2	3	31.8475	-6.13E-01	5.42E-01	-3.50E+46	2	1.56E+02	1	-1.56E+02	-1	2.97E+00	1	-2.97E+00	-1	1.38E+02
3	4.5	31.8475	-9.19E-01	3.99E-01	-3.50E+46	2	1.28E+02	1	-1.28E+02	-1	2.42E+00	0.9994	-2.42E+00	-0.999	1.02E+02
4	6	31.8475	-1.23E+00	2.94E-01	-3.50E+46	2	1.11E+02	1	-1.11E+02	-1	2.10E+00	0.997	-2.10E+00	-0.997	7.46E+01
5	7.5	31.8475	-1.53E+00	2.16E-01	-3.50E+46	2	9.89E+01	1	-9.89E+01	-1	1.88E+00	0.9921	-1.88E+00	-0.992	5.46E+01
6	9	31.8475	-1.84E+00	1.59E-01	-3.50E+46	2	9.03E+01	1	-9.03E+01	-1	1.71E+00	0.9846	-1.71E+00	-0.985	3.99E+01
7	10.5	31.8475	-2.14E+00	1.17E-01	-3.50E+46	2	8.36E+01	1	-8.36E+01	-1	1.59E+00	0.9751	-1.59E+00	-0.975	2.91E+01
8	12	31.8475	-2.45E+00	8.62E-02	-3.50E+46	2	7.82E+01	1	-7.82E+01	-1	1.48E+00	0.9642	-1.48E+00	-0.964	2.12E+01
9	13.5	31.8475	-2.76E+00	6.34E-02	-3.50E+46	2	7.37E+01	1	-7.37E+01	-1	1.40E+00	0.9522	-1.40E+00	-0.952	1.54E+01
10	15	31.8475	-3.06E+00	4.67E-02	-3.50E+46	2	7.00E+01	1	-7.00E+01	-1	1.33E+00	0.9395	-1.33E+00	-0.94	1.12E+01
11	16.5	31.8475	-3.37E+00	3.44E-02	-3.50E+46	2	6.67E+01	1	-6.67E+01	-1	1.27E+00	0.9265	-1.27E+00	-0.927	8.11E+00
12	18	31.8475	-3.68E+00	2.53E-02	-3.50E+46	2	6.39E+01	1	-6.39E+01	-1	1.21E+00	0.9134	-1.21E+00	-0.913	5.89E+00
13	19.5	31.8475	-3.98E+00	1.86E-02	-3.50E+46	2	6.14E+01	1	-6.14E+01	-1	1.16E+00	0.9003	-1.16E+00	-0.9	4.27E+00
14	21	31.8475	-4.29E+00	1.37E-02	-3.50E+46	2	5.91E+01	1	-5.91E+01	-1	1.12E+00	0.8874	-1.12E+00	-0.887	3.10E+00
15	22.5	31.8475	-4.60E+00	1.01E-02	-3.50E+46	2	5.71E+01	1	-5.71E+01	-1	1.08E+00	0.8747	-1.08E+00	-0.875	2.25E+00
16	24	31.8475	-4.90E+00	7.43E-03	-3.50E+46	2	5.53E+01	1	-5.53E+01	-1	1.05E+00	0.8622	-1.05E+00	-0.862	1.63E+00
17	25.5	31.8475	-5.21E+00	5.47E-03	-3.50E+46	2	5.37E+01	1	-5.37E+01	-1	1.02E+00	0.8501	-1.02E+00	-0.85	1.18E+00
18	27	31.8475	-5.52E+00	4.03E-03	-3.50E+46	2	5.21E+01	1	-5.21E+01	-1	9.89E-01	0.8382	-9.89E-01	-0.838	8.60E-01
19	28.5	31.8475	-5.82E+00	2.96E-03	-3.50E+46	2	5.08E+01	1	-5.08E+01	-1	9.63E-01	0.8268	-9.63E-01	-0.827	6.24E-01
20	30	31.8475	-6.13E+00	2.18E-03	-3.50E+46	2	4.95E+01	1	-4.95E+01	-1	9.39E-01	0.8156	-9.39E-01	-0.816	4.53E-01



Date:	25/06/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions

Details to be completed for each assessment

Site Name:	**Glan Llyn**			
Site Address:	**Llanwern**			
Completed by:	**Ross Cameron**			
Date:	**27-Apr-22**		**Version:**	**1**
Contaminant	**Vanadium**			
Target Concentration (C_T)	**0.02**	**mg/l**	**Origin of C_T:**	**UK Standard (Statutory): Protection of Aquatic Life (Cc**

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Vanadium**	
Target concentration	C_T	**0.02**	**mg/l**

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient.
The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**2.69E+00**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.02	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Vanadium**		from Level 1
Target concentration	C_T	**0.02**	**mg/l**	from Level 1

This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentra**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Input Parameters	Variable	Value	Unit	Source
Contaminant		Vanadium		from Level 1
Target Concentration	C_T	0.02	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target		**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks		**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
		#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point		**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

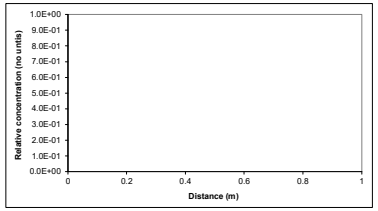
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

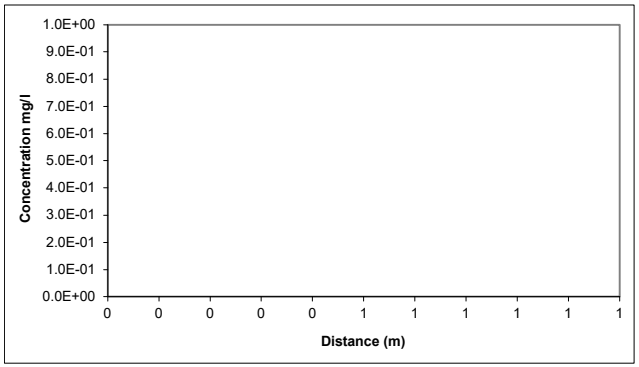
Only input required is Soil Contaminant Concentration

	Input Parameters			
	Soil contaminant concentration	C_0	0.00E+00	mg/kg
Level 1 Parameters				
	Water filled soil porosity	θ_W	5.00E-01	fraction
	Air filled soil porosity	θa	3.70E-01	fraction
	Bulk density	ρ	1.36E+00	g/cm^3
	Henry's Law constant	H	1.00E+00	dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02	l/kg
	Factor (partitioning between soil and water)		1.35E+02	dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!	
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!	

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Vanadium		from Level 1
Target Concentration	C_T	2.00E-02	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	3.01E+00	mg/l	*Based on 95th percentile soil conc of 644mg/kg*
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	*Estimation*
Calculated decay rate	λ	7.70E-101	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappi*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	2.13E+02	l/kg	*see options*
Longitudinal dispersivity	ax	1.57E+00	m	*see options*
Transverse dispersivity	az	1.57E-01	m	*see options*
Vertical dispersivity	ay	1.57E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	1.08E-03	m/d
Retardation factor	Rf	3.62E+03	fraction
Decay rate used	λ	2.13E-104	d^{-1}
Rate of contaminant flow due to retardation	u	2.98E-07	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	2.84E+00	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**1.06E+00**	

Remedial Targets

Remedial Target		**2.12E-02**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**20**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**2.84E+00**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)

Soil water partition coefficient — Kd — 2.13E+02 l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer — foc — fraction

Organic carbon partition coefficient — Koc — l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species — $K_{oc,n}$ — l/kg

Sorption coefficient for ionised species — $K_{oc,i}$ — l/kg

pH value — pH

acid dissociation constant — pKa

Fraction of organic carbon in aquifer — foc — fraction

Soil water partition coefficient — Kd — 2.13E+02 l/kg

Define dispersivity (click brown cell and use pull down list)

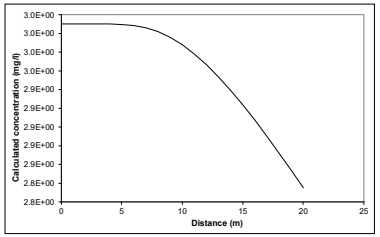
Dispersivity based on Xu & Eckstein (1995)

		Enter value	Calc value Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00 m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01 m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.
Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	3.0E+00
1.0	3.01E+00
2.0	3.01E+00
3.0	3.01E+00
4.0	3.01E+00
5.0	3.01E+00
6.0	3.01E+00
7.0	3.01E+00
8.0	3.00E+00
9.0	3.00E+00
10.0	2.99E+00
11.0	2.98E+00
12.0	2.97E+00
13.0	2.95E+00
14.0	2.94E+00
15.0	2.92E+00
16.0	2.91E+00
17.0	2.89E+00
18.0	2.87E+00
19.0	2.85E+00
20.0	2.84E+00

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant **Vanadium**

Parameter (carried over from input sheet)	Value	Units
C_T	2.00E-02	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

calc calc Calc Kd l/kg

Calculation of partition coefficient for ionic organic chemical

Partition coefficient used in Level 1 Assessment 1.34E+02 l/kg

Calculated Remedial Target 2.69E+00 mg/kg for Vanadium

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27/04/2022
Version:	1

Level 2 Calculation Sheet

Contaminant **Vanadium**

Site assessed:	Glan Llyn
Date:	27/04/2022
Version:	1

Parameter	Value	Units		
(carried over from input sheet)				
Mz	0.00E+00	m		
L	0.00E+00	m		
da	0.00E+00	m		Calculated
Inf	0.00E+00	m/d		Dilution Factor
K	0.00E+00	m/d		
i	0.00E+00		Calculation based on target concentration	#DIV/0!
		m3/d		
A	0.00E+00	m2	Calculation based on observed contaminant concentration	#DIV/0!
		m3/d		
Cc	0.00E+00	mg/l		
C_T	2.00E-02	mg/l		
Cu	0.00E+00	mg/l		
w	0.00E+00	m		

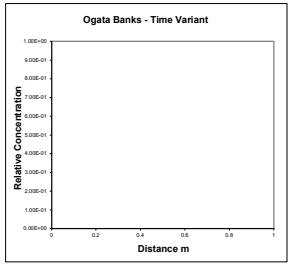
Contaminant **Vanadium**

OGATA BANKS SOLUTION

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	2.000E-02	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

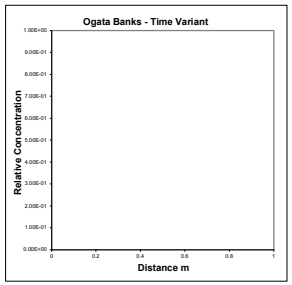


Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

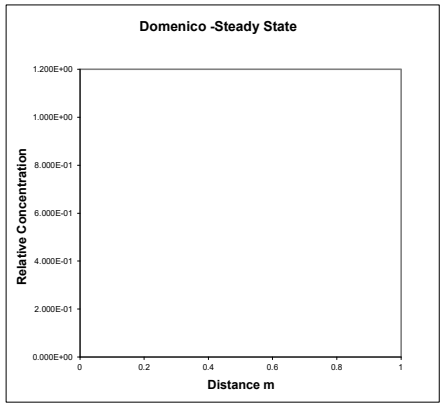
Contaminant **Vanadium**

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	2.000E-02	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



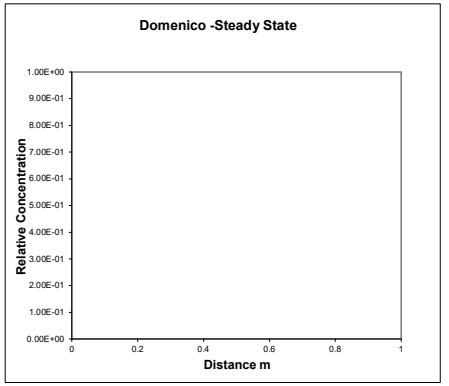
Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

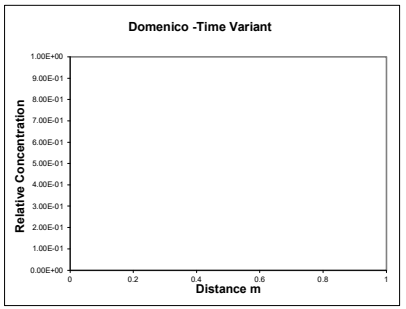
	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



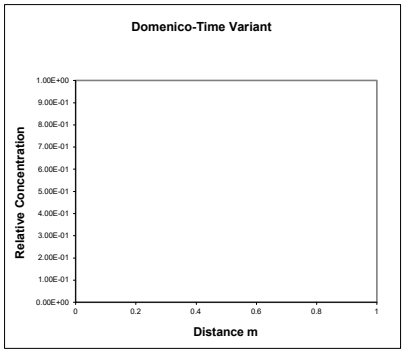
Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant	Vanadium																
			Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)														
			X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
Input	**Value**	**Units**	m														
C_T	0.02	mg/l	1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
DF	#DIV/0!		2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
λ	6.931E-101	$days^{-1}$	5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sz	0.000E+00	m	6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sy	0.000E+00	m	7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Kd	0.000E+00	l/kg	8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ρ	0.000E+00	g/cm3	9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
n	0.000E+00		10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
i	#DIV/0!		11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
K	0.000E+00	m/d	12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
x	0.000E+00	m	13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
z	0.000E+00	m	14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
y	0.000E+00	m	15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
t	1.000E+99	days	16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ax	0.000E+00	m	17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
az	0.000E+00	m	18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ay	0.000E+00	m	19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value																
			Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT														
			X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
v	#DIV/0!	m/d	m														
Rc	#DIV/0!		1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
u	#DIV/0!	m/d	2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

OGATA BANKS SOLUTION

Contaminant	Vanadium	
Input	**Value**	**Units**
C_T	0.02	mg/l
Co	3.01E+00	mg/l
λ	2.13E-104	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	2.13E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

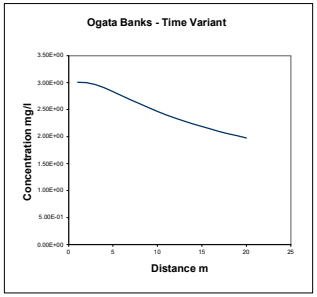
Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	3.62E+03	
u	2.98E-07	m/d

Date:	27/04/2022
Version:	1

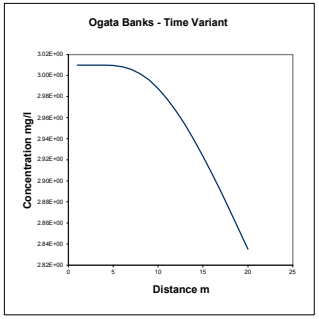
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	6.4E-01	1.9E+00	2.2E+46	0.000	3.2E+02	1	-3.2E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	3.01E+00
2	2	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.3E+00	3.6E+00	2.2E+46	0.000	2.2E+02	1	-2.2E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	3.00E+00
3	3	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.9E+00	6.8E+00	2.2E+46	0.000	1.8E+02	1	-1.8E+02	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	2.97E+00
4	4	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	2.6E+00	1.3E+01	2.2E+46	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	2.91E+00
5	5	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	3.2E+00	2.4E+01	2.2E+46	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	2.84E+00
6	6	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	3.8E+00	4.6E+01	2.2E+46	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9163	-1.2E+00	-0.91633	2.76E+00
7	7	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	4.5E+00	8.7E+01	2.2E+46	0.000	1.2E+02	1	-1.2E+02	-1	1.1E+00	0.8907	-1.1E+00	-0.89072	2.68E+00
8	8	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	5.1E+00	1.7E+02	2.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8659	-1.1E+00	-0.86587	2.61E+00
9	9	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	5.7E+00	3.1E+02	2.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8422	-1.0E+00	-0.84215	2.53E+00
10	10	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	6.4E+00	5.9E+02	2.2E+46	0.000	1.0E+02	1	-1.0E+02	-1	9.5E-01	0.8197	-9.5E-01	-0.81971	2.47E+00
11	11	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	7.0E+00	1.1E+03	2.2E+46	0.000	9.5E+01	1	-9.5E+01	-1	9.0E-01	0.7986	-9.0E-01	-0.79858	2.40E+00
12	12	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	7.7E+00	2.1E+03	2.2E+46	0.000	9.1E+01	1	-9.1E+01	-1	8.6E-01	0.7787	-8.6E-01	-0.77872	2.34E+00
13	13	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	8.3E+00	4.0E+03	2.2E+46	0.000	8.8E+01	1	-8.8E+01	-1	8.3E-01	0.7601	-8.3E-01	-0.76006	2.29E+00
14	14	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	8.9E+00	7.6E+03	2.2E+46	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7425	-8.0E-01	-0.74253	2.24E+00
15	15	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	9.6E+00	1.4E+04	2.2E+46	0.000	8.2E+01	1	-8.2E+01	-1	7.7E-01	0.726	-7.7E-01	-0.72604	2.19E+00
16	16	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.0E+01	2.7E+04	2.2E+46	0.000	7.9E+01	1	-7.9E+01	-1	7.5E-01	0.7105	-7.5E-01	-0.71052	2.14E+00
17	17	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.1E+01	5.2E+04	2.2E+46	0.000	7.7E+01	1	-7.7E+01	-1	7.3E-01	0.6959	-7.3E-01	-0.69588	2.09E+00
18	18	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.1E+01	9.8E+04	2.2E+46	0.000	7.4E+01	1	-7.4E+01	-1	7.1E-01	0.6821	-7.1E-01	-0.68205	2.05E+00
19	19	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.2E+01	1.8E+05	2.2E+46	0.000	7.2E+01	1	-7.2E+01	-1	6.9E-01	0.669	-6.9E-01	-0.66897	2.01E+00
20	20	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.3E+01	3.5E+05	2.2E+46	0.000	7.1E+01	1	-7.1E+01	-1	6.7E-01	0.6566	-6.7E-01	-0.65658	1.98E+00



Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	6.4E-01	1.9E+00	2.2E+46	0.000	3.2E+02	1	-3.2E+02	-1	6.0E+00	1	-6.0E+00	-1	3.01E+00
2	2	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.3E+00	3.6E+00	2.2E+46	0.000	2.2E+02	1	-2.2E+02	-1	4.2E+00	1	-4.2E+00	-1	3.01E+00
3	3	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.9E+00	6.8E+00	2.2E+46	0.000	1.8E+02	1	-1.8E+02	-1	3.5E+00	1	-3.5E+00	-1	3.01E+00
4	4	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	2.6E+00	1.3E+01	2.2E+46	0.000	1.6E+02	1	-1.6E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	3.01E+00
5	5	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	3.2E+00	2.4E+01	2.2E+46	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99985	3.01E+00
6	6	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	3.8E+00	4.6E+01	2.2E+46	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9995	-2.4E+00	-0.99946	3.01E+00
7	7	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	4.5E+00	8.7E+01	2.2E+46	0.000	1.2E+02	1	-1.2E+02	-1	2.3E+00	0.9986	-2.3E+00	-0.99864	3.01E+00
8	8	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	5.1E+00	1.7E+02	2.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	3.00E+00
9	9	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	5.7E+00	3.1E+02	2.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9953	-2.0E+00	-0.99527	3.00E+00
10	10	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	6.4E+00	5.9E+02	2.2E+46	0.000	1.0E+02	1	-1.0E+02	-1	1.9E+00	0.9926	-1.9E+00	-0.99263	2.99E+00
11	11	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	7.0E+00	1.1E+03	2.2E+46	0.000	9.5E+01	1	-9.5E+01	-1	1.8E+00	0.9894	-1.8E+00	-0.98938	2.98E+00
12	12	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	7.7E+00	2.1E+03	2.2E+46	0.000	9.1E+01	1	-9.1E+01	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	2.97E+00
13	13	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	8.3E+00	4.0E+03	2.2E+46	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9812	-1.7E+00	-0.98124	2.95E+00
14	14	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	8.9E+00	7.6E+03	2.2E+46	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9765	-1.6E+00	-0.97647	2.94E+00
15	15	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	9.6E+00	1.4E+04	2.2E+46	0.000	8.2E+01	1	-8.2E+01	-1	1.5E+00	0.9713	-1.5E+00	-0.97133	2.92E+00
16	16	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.0E+01	2.7E+04	2.2E+46	0.000	7.9E+01	1	-7.9E+01	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	2.91E+00
17	17	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.1E+01	5.2E+04	2.2E+46	0.000	7.7E+01	1	-7.7E+01	-1	1.5E+00	0.9601	-1.5E+00	-0.96015	2.89E+00
18	18	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.1E+01	9.8E+04	2.2E+46	0.000	7.4E+01	1	-7.4E+01	-1	1.4E+00	0.9542	-1.4E+00	-0.95421	2.87E+00
19	19	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.2E+01	1.8E+05	2.2E+46	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9481	-1.4E+00	-0.94812	2.85E+00
20	20	0.37625	0.0E+00	1.0E+00	-2.2E+46	2.000	1.3E+01	3.5E+05	2.2E+46	0.000	7.1E+01	1	-7.1E+01	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	2.84E+00



Contaminant **Vanadium**

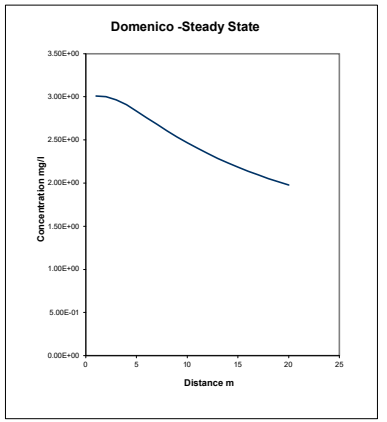
Input	Value	Units
C_T	0.02	mg/l
Co	3.01E+00	mg/l
λ	2.13E-104	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	2.13E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.7525	0.00E+00	1.00E+00	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	3.01E+00
2	2	0.7525	0.00E+00	1.00E+00	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.9973	3.00E+00
3	3	0.7525	0.00E+00	1.00E+00	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.9856	-1.73E+00	-0.9856	2.97E+00
4	4	0.7525	0.00E+00	1.00E+00	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.9659	-1.50E+00	-0.9659	2.91E+00
5	5	0.7525	0.00E+00	1.00E+00	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.9419	-1.34E+00	-0.9419	2.84E+00
6	6	0.7525	0.00E+00	1.00E+00	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.9163	-1.22E+00	-0.9163	2.76E+00
7	7	0.7525	0.00E+00	1.00E+00	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.8907	-1.13E+00	-0.8907	2.68E+00
8	8	0.7525	0.00E+00	1.00E+00	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.8659	-1.06E+00	-0.8659	2.61E+00
9	9	0.7525	0.00E+00	1.00E+00	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.8422	-9.99E-01	-0.8422	2.53E+00
10	10	0.7525	0.00E+00	1.00E+00	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.8197	-9.47E-01	-0.8197	2.47E+00
11	11	0.7525	0.00E+00	1.00E+00	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.7986	-9.03E-01	-0.7986	2.40E+00
12	12	0.7525	0.00E+00	1.00E+00	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.7787	-8.65E-01	-0.7787	2.34E+00
13	13	0.7525	0.00E+00	1.00E+00	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.7601	-8.31E-01	-0.7601	2.29E+00
14	14	0.7525	0.00E+00	1.00E+00	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.7425	-8.01E-01	-0.7425	2.24E+00
15	15	0.7525	0.00E+00	1.00E+00	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	2.19E+00
16	16	0.7525	0.00E+00	1.00E+00	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.7105	-7.49E-01	-0.7105	2.14E+00
17	17	0.7525	0.00E+00	1.00E+00	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.6959	-7.27E-01	-0.6959	2.09E+00
18	18	0.7525	0.00E+00	1.00E+00	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.6821	-7.06E-01	-0.6821	2.05E+00
19	19	0.7525	0.00E+00	1.00E+00	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	2.01E+00
20	20	0.7525	0.00E+00	1.00E+00	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.6566	-6.70E-01	-0.6566	1.98E+00



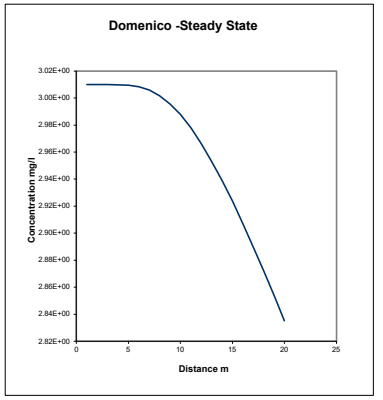
Calc **Value**

v	1.08E-03	m/d
Rc	3.62E+03	
u	2.98E-07	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.7525	0.00E+00	1.00E+00	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	3.01E+00
2	2	0.7525	0.00E+00	1.00E+00	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	3.01E+00
3	3	0.7525	0.00E+00	1.00E+00	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	3.01E+00
4	4	0.7525	0.00E+00	1.00E+00	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	3.01E+00
5	5	0.7525	0.00E+00	1.00E+00	1.41E+02	1	-1.41E+02	-1	2.68E+00	0.9998	-2.68E+00	-0.9998	3.01E+00
6	6	0.7525	0.00E+00	1.00E+00	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.9995	-2.45E+00	-0.9995	3.01E+00
7	7	0.7525	0.00E+00	1.00E+00	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.9986	-2.26E+00	-0.9986	3.01E+00
8	8	0.7525	0.00E+00	1.00E+00	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.9973	3.00E+00
9	9	0.7525	0.00E+00	1.00E+00	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.9953	-2.00E+00	-0.9953	3.00E+00
10	10	0.7525	0.00E+00	1.00E+00	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.9926	-1.89E+00	-0.9926	2.99E+00
11	11	0.7525	0.00E+00	1.00E+00	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.9894	-1.81E+00	-0.9894	2.98E+00
12	12	0.7525	0.00E+00	1.00E+00	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.9856	-1.73E+00	-0.9856	2.97E+00
13	13	0.7525	0.00E+00	1.00E+00	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.9812	-1.66E+00	-0.9812	2.95E+00
14	14	0.7525	0.00E+00	1.00E+00	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.9765	-1.60E+00	-0.9765	2.94E+00
15	15	0.7525	0.00E+00	1.00E+00	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.9713	-1.55E+00	-0.9713	2.92E+00
16	16	0.7525	0.00E+00	1.00E+00	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.9659	-1.50E+00	-0.9659	2.91E+00
17	17	0.7525	0.00E+00	1.00E+00	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.9601	-1.45E+00	-0.9601	2.89E+00
18	18	0.7525	0.00E+00	1.00E+00	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.9542	-1.41E+00	-0.9542	2.87E+00
19	19	0.7525	0.00E+00	1.00E+00	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.9481	-1.37E+00	-0.9481	2.85E+00
20	20	0.7525	0.00E+00	1.00E+00	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.9419	-1.34E+00	-0.9419	2.84E+00



Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

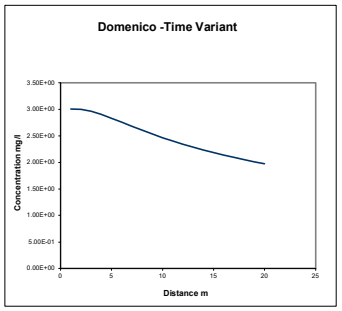
Contaminant	Vanadium	
Input	**Value**	**Units**
C_T	0.02	mg/l
Co	3.01E+00	mg/l
λ	2.13E-104	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	2.13E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion option: Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	3.62E+03	
u	2.98E-07	m/d

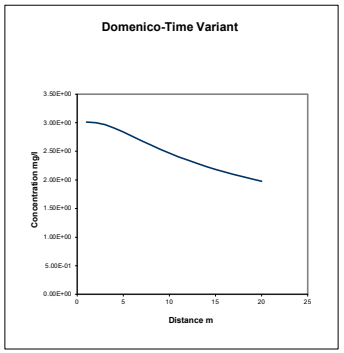
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	3.01E+00
2	2	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	3.00E+00
3	3	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.9856	-1.73E+00	-0.986	2.97E+00
4	4	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.9659	-1.50E+00	-0.966	2.91E+00
5	5	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.9419	-1.34E+00	-0.942	2.84E+00
6	6	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.9163	-1.22E+00	-0.916	2.76E+00
7	7	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.8907	-1.13E+00	-0.891	2.68E+00
8	8	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.8659	-1.06E+00	-0.866	2.61E+00
9	9	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.8422	-9.99E-01	-0.842	2.53E+00
10	10	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.8197	-9.47E-01	-0.82	2.47E+00
11	11	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.7986	-9.03E-01	-0.799	2.40E+00
12	12	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.7787	-8.65E-01	-0.779	2.34E+00
13	13	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.7601	-8.31E-01	-0.76	2.29E+00
14	14	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.7425	-8.01E-01	-0.743	2.24E+00
15	15	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	2.19E+00
16	16	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.7105	-7.49E-01	-0.711	2.14E+00
17	17	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.6959	-7.27E-01	-0.696	2.09E+00
18	18	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.6821	-7.06E-01	-0.682	2.05E+00
19	19	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	2.01E+00
20	20	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.6566	-6.70E-01	-0.657	1.98E+00



Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	3.01E+00
2	2	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	3.01E+00
3	3	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	3.01E+00
4	4	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	3.01E+00
5	5	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.41E+02	1	-1.41E+02	-1	2.68E+00	0.9998	-2.68E+00	-1	3.01E+00
6	6	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.9995	-2.45E+00	-0.999	3.01E+00
7	7	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.9986	-2.26E+00	-0.999	3.01E+00
8	8	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	3.00E+00
9	9	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.9953	-2.00E+00	-0.995	3.00E+00
10	10	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.9926	-1.89E+00	-0.993	2.99E+00
11	11	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.9894	-1.81E+00	-0.989	2.98E+00
12	12	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.9856	-1.73E+00	-0.986	2.97E+00
13	13	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.9812	-1.66E+00	-0.981	2.95E+00
14	14	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.9765	-1.60E+00	-0.976	2.94E+00
15	15	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.9713	-1.55E+00	-0.971	2.92E+00
16	16	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.9659	-1.50E+00	-0.966	2.91E+00
17	17	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.9601	-1.45E+00	-0.96	2.89E+00
18	18	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.9542	-1.41E+00	-0.954	2.87E+00
19	19	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.9481	-1.37E+00	-0.948	2.85E+00
20	20	0.37625	0.00E+00	1.00E+00	-2.18E+46	2	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.9419	-1.34E+00	-0.942	2.84E+00



Date:	27/04/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions).

Details to be completed for each assessment

Site Name:	**Glan Llyn**			
Site Address:	**Llanwern**			
Completed by:	**Ross Cameron**			
Date:	**25-Jun-22**		**Version:**	**1**
Contaminant	**TPH - n-Eicosane**			
Target Concentration (C_T)	**0.01**	**mg/l**	**Origin of C_T:**	**UK Drinking Water Standards 1989**

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**TPH - n-Eicosane**		
Target concentration	**C_T**	**0.01**	**mg/l**	
Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient.

The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**1.35E+00**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.01	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	25-Jun-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**TPH - n-Eicosane**		from Level 1
Target concentration	C_T	**0.01**	**mg/l**	from Level 1

This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Infiltration	Inf	0.00E+00	m/d	
Area of contaminant source	A	0.00E+00	m^2	Not used in calculation
Entry for groundwater flow below site				
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m	
Saturated aquifer thickness	da	0.00E+00	m	
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d	
Hydraulic gradient of water table	i	0.00E+00	fraction	
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m	Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l	
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**		
Enter mixing zone thickness	Mz	0.00E+00	m	
Calculated mixing zone thickness	Mz		m	

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentra**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	25-Jun-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters

	Variable	Value	Unit	Source
Contaminant		TPH - n-Eicosane		from Level 1
Target Concentration	C_T	0.01	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters

	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target	**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks	**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
	#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point	**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water
			partitioning equation.
Ratio of Compliance Point to Source Concentration C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)

Soil water partition coefficient	Kd		l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species	$K_{soc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{soc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

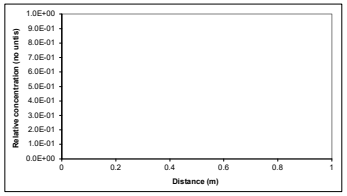
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	**1.0E+00**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**
0.0	**#DIV/0!**	**#DIV/0!**

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

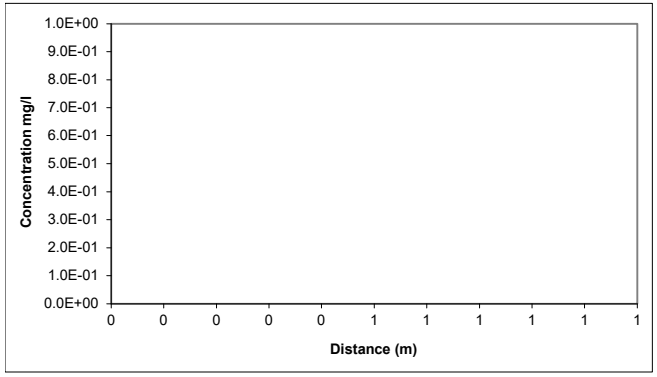
Only input required is Soil Contaminant Concentration

	Input Parameters			
	Soil contaminant concentration	C_0	0.00E+00	mg/kg
Level 1 Parameters				
	Water filled soil porosity	θ_W	5.00E-01	fraction
	Air filled soil porosity	θa	3.70E-01	fraction
	Bulk density	ρ	1.36E+00	g/cm^3
	Henry's Law constant	H	1.00E+00	dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02	l/kg
	Factor (partitioning between soil and water)		1.35E+02	dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!	
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!	

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		TPH - n-Eicosane		from Level 1
Target Concentration	C_T	1.00E-02	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

	Variable	Value	Unit	Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	1.47E-05	mg/l	*Based on 95 percentile soil conc of 11.55*
Half life for degradation of contaminant in water	$t_{1/2}$	3.65E+04	days	*10 year half life estimation*
Calculated decay rate	λ	1.90E-05	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappir*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	*Estimate*
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	1.51E+07	l/kg	*see options*
Longitudinal dispersivity	ax	2.00E+00	m	*see options*
Transverse dispersivity	az	2.00E-01	m	*see options*
Vertical dispersivity	ay	2.00E-02	m	*see options*

Calculated Parameters

	Variable	
Groundwater flow velocity	v	1.08E-03 m/d
Retardation factor	Rf	2.56E+08 fraction
Decay rate used	λ	7.42E-14 d^{-1}
Rate of contaminant flow due to retardation	u	4.22E-12 m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	9.46E-06 mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**1.55E+00**

Remedial Targets

Remedial Target		**1.55E-02**	**mg/l**
Domenico - Steady state			
Distance to compliance point		**20**	**m**
Concentration of contaminant at compliance point	**C_{ED}/C_0**	**9.46E-06**	**mg/l**

For comparison with measured groundwater concentration.

Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	1.51E+07	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.51E+07	l/kg

Define dispersivity (click brown cell and use pull down list)

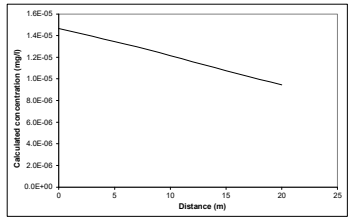
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value Xu & Eckstein		
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00	m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01	m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	1.5E-05
1.0	1.44E-05
2.0	1.42E-05
3.0	1.39E-05
4.0	1.37E-05
5.0	1.35E-05
6.0	1.32E-05
7.0	1.30E-05
8.0	1.27E-05
9.0	1.24E-05
10.0	1.22E-05
11.0	1.19E-05
12.0	1.16E-05
13.0	1.13E-05
14.0	1.10E-05
15.0	1.08E-05
16.0	1.05E-05
17.0	1.02E-05
18.0	9.97E-06
19.0	9.71E-06
20.0	9.46E-06

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant ΓPH - n-Eicosane

Parameter	Value	Units
(carried over from input sheet)		
C_T	1.00E-02	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

	calc	calc	Calc Kd	l/kg
Calculation of partition coefficient for ionic organic chemical				
Partition coefficient used in Level 1 Assessment			1.34E+02	l/kg

Calculated Remedial Target 1.35E+00 mg/kg for TPH - n-Eicosane

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Level 2 Calculation Sheet

Contaminant TPH - n-Eicosane

Site assessed:	Glan Llyn
Date:	25/06/2022
Version:	1

Parameter	Value	Units
(carried over from input sheet)		
Mz	0.00E+00	m
L	0.00E+00	m
da	0.00E+00	m
Inf	0.00E+00	m/d
K	0.00E+00	m/d
i	0.00E+00	
		m3/d
A	0.00E+00	m2
		m3/d
Cc	0.00E+00	mg/l
C_T	1.00E-02	mg/l
Cu	0.00E+00	mg/l
w	0.00E+00	m

Calculated Dilution Factor

Calculation based on target concentration: #DIV/0!

Calculation based on observed contaminant concentration: #DIV/0!

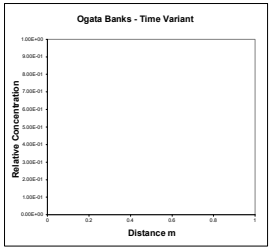
OGATA BANKS SOLUTION

Contaminant TPH - n-Eicosane

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	1.000E-02	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

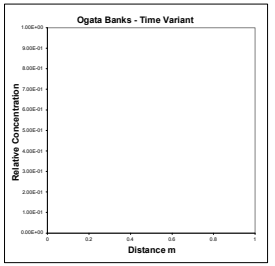
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	25/06/2022
Version:	1

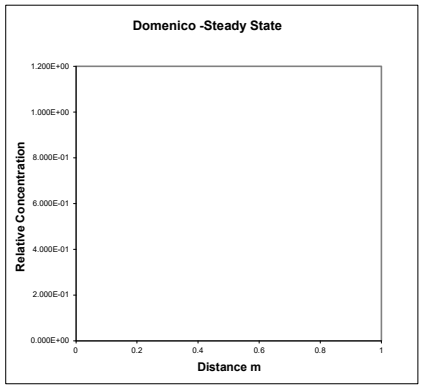
Contaminant **ᵎH - n-Eicosane**

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	1.000E-02	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

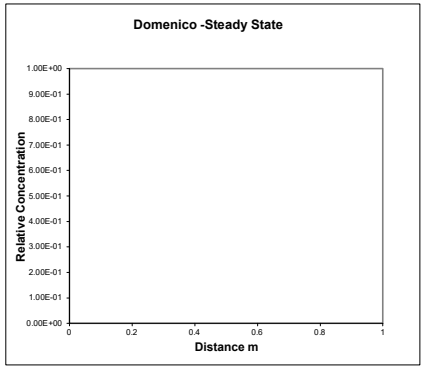


Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	25/06/2022
Version:	1

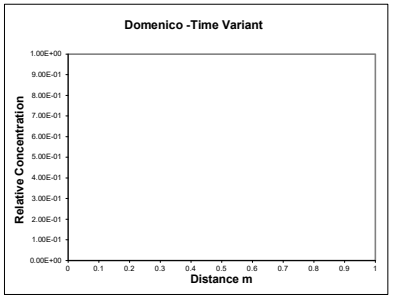
DOMENICO (TIME VARIANT)

Contaminant **²H - n-Eicosane**

Input	Value	Units
C_T	0.01	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

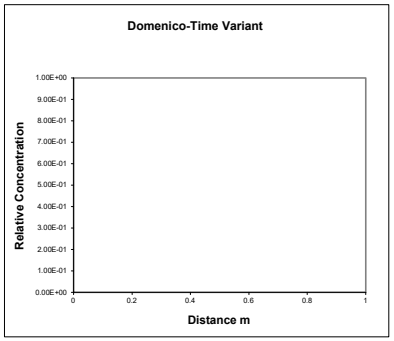
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!



Date:	25/06/2022
Version:	1

OGATA BANKS SOLUTION

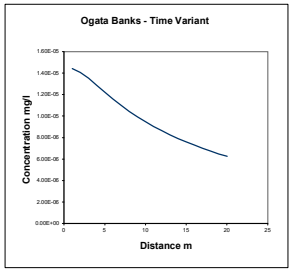
Contaminant **'PH - n-Eicosane**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.01	mg/l
Co	1.47E-05	mg/l
λ	7.42E-14	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	1.51E+07	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion option Simulate vertical dispersion in 1 direction

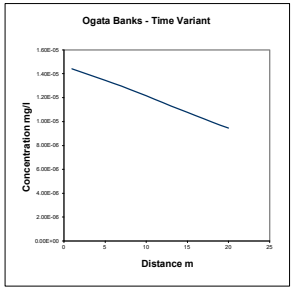
X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1.8E-06	-1.7E-02	9.8E-01	-7.8E+43	2.000	5.2E-01	1.7E+00	7.8E+43	0.000	2.8E+02	1	-2.8E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	1.44E-05
2	1.8E-06	-3.4E-02	9.7E-01	-7.8E+43	2.000	1.0E+00	2.8E+00	7.8E+43	0.000	2.0E+02	1	-2.0E+02	-1	1.9E+00	0.992	-1.9E+00	-0.99199	1.41E-05
3	1.8E-06	-5.1E-02	9.5E-01	-7.8E+43	2.000	1.6E+00	4.7E+00	7.8E+43	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	1.35E-05
4	1.8E-06	-6.8E-02	9.3E-01	-7.8E+43	2.000	2.1E+00	7.9E+00	7.8E+43	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	1.29E-05
5	1.8E-06	-8.5E-02	9.2E-01	-7.8E+43	2.000	2.6E+00	1.3E+01	7.8E+43	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	1.22E-05
6	1.8E-06	-1.0E-01	9.0E-01	-7.8E+43	2.000	3.1E+00	2.2E+01	7.8E+43	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8742	-1.1E+00	-0.87421	1.16E-05
7	1.8E-06	-1.2E-01	8.9E-01	-7.8E+43	2.000	3.6E+00	3.7E+01	7.8E+43	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8436	-1.0E+00	-0.84362	1.10E-05
8	1.8E-06	-1.4E-01	8.7E-01	-7.8E+43	2.000	4.1E+00	6.3E+01	7.8E+43	0.000	9.9E+01	1	-9.9E+01	-1	9.4E-01	0.8151	-9.4E-01	-0.8151	1.04E-05
9	1.8E-06	-1.5E-01	8.6E-01	-7.8E+43	2.000	4.7E+00	1.0E+02	7.8E+43	0.000	9.3E+01	1	-9.3E+01	-1	8.8E-01	0.7887	-8.8E-01	-0.7887	9.93E-06
10	1.8E-06	-1.7E-01	8.4E-01	-7.8E+43	2.000	5.2E+00	1.8E+02	7.8E+43	0.000	8.8E+01	1	-8.8E+01	-1	8.4E-01	0.7643	-8.4E-01	-0.76432	9.46E-06
11	1.8E-06	-1.9E-01	8.3E-01	-7.8E+43	2.000	5.7E+00	3.0E+02	7.8E+43	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7418	-8.0E-01	-0.7418	9.03E-06
12	1.8E-06	-2.0E-01	8.2E-01	-7.8E+43	2.000	6.2E+00	4.9E+02	7.8E+43	0.000	8.1E+01	1	-8.1E+01	-1	7.7E-01	0.721	-7.7E-01	-0.72098	8.62E-06
13	1.8E-06	-2.2E-01	8.0E-01	-7.8E+43	2.000	6.7E+00	8.3E+02	7.8E+43	0.000	7.8E+01	1	-7.8E+01	-1	7.4E-01	0.7017	-7.4E-01	-0.70169	8.25E-06
14	1.8E-06	-2.4E-01	7.9E-01	-7.8E+43	2.000	7.2E+00	1.4E+03	7.8E+43	0.000	7.5E+01	1	-7.5E+01	-1	7.1E-01	0.6838	-7.1E-01	-0.68377	7.91E-06
15	1.8E-06	-2.6E-01	7.7E-01	-7.8E+43	2.000	7.8E+00	2.3E+03	7.8E+43	0.000	7.2E+01	1	-7.2E+01	-1	6.8E-01	0.6671	-6.8E-01	-0.66708	7.58E-06
16	1.8E-06	-2.7E-01	7.6E-01	-7.8E+43	2.000	8.3E+00	3.9E+03	7.8E+43	0.000	7.0E+01	1	-7.0E+01	-1	6.6E-01	0.6515	-6.6E-01	-0.6515	7.28E-06
17	1.8E-06	-2.9E-01	7.5E-01	-7.8E+43	2.000	8.8E+00	6.6E+03	7.8E+43	0.000	6.8E+01	1	-6.8E+01	-1	6.4E-01	0.6369	-6.4E-01	-0.63692	7.00E-06
18	1.8E-06	-3.1E-01	7.4E-01	-7.8E+43	2.000	9.3E+00	1.1E+04	7.8E+43	0.000	6.6E+01	1	-6.6E+01	-1	6.3E-01	0.6232	-6.3E-01	-0.62324	6.73E-06
19	1.8E-06	-3.2E-01	7.2E-01	-7.8E+43	2.000	9.8E+00	1.8E+04	7.8E+43	0.000	6.4E+01	1	-6.4E+01	-1	6.1E-01	0.6104	-6.1E-01	-0.61038	6.48E-06
20	1.8E-06	-3.4E-01	7.1E-01	-7.8E+43	2.000	1.0E+01	3.1E+04	7.8E+43	0.000	6.3E+01	1	-6.3E+01	-1	5.9E-01	0.5983	-5.9E-01	-0.59826	6.25E-06



Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

Calc	Value	Units
v	1.08E-03	m/d
Rc	2.56E+08	
u	4.22E-12	m/d

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1.8E-06	-1.7E-02	9.8E-01	-7.8E+43	2.000	5.2E-01	1.7E+00	7.8E+43	0.000	2.8E+02	1	-2.8E+02	-1	5.3E+00	1	-5.3E+00	-1	1.44E-05
2	1.8E-06	-3.4E-02	9.7E-01	-7.8E+43	2.000	1.0E+00	2.8E+00	7.8E+43	0.000	2.0E+02	1	-2.0E+02	-1	3.8E+00	1	-3.8E+00	-1	1.42E-05
3	1.8E-06	-5.1E-02	9.5E-01	-7.8E+43	2.000	1.6E+00	4.7E+00	7.8E+43	0.000	1.6E+02	1	-1.6E+02	-1	3.1E+00	1	-3.1E+00	-0.99999	1.39E-05
4	1.8E-06	-6.8E-02	9.3E-01	-7.8E+43	2.000	2.1E+00	7.9E+00	7.8E+43	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	1.37E-05
5	1.8E-06	-8.5E-02	9.2E-01	-7.8E+43	2.000	2.6E+00	1.3E+01	7.8E+43	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9992	-2.4E+00	-0.9992	1.35E-05
6	1.8E-06	-1.0E-01	9.0E-01	-7.8E+43	2.000	3.1E+00	2.2E+01	7.8E+43	0.000	1.1E+02	1	-1.1E+02	-1	2.2E+00	0.9978	-2.2E+00	-0.9978	1.32E-05
7	1.8E-06	-1.2E-01	8.9E-01	-7.8E+43	2.000	3.6E+00	3.7E+01	7.8E+43	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9954	-2.0E+00	-0.99541	1.30E-05
8	1.8E-06	-1.4E-01	8.7E-01	-7.8E+43	2.000	4.1E+00	6.3E+01	7.8E+43	0.000	9.9E+01	1	-9.9E+01	-1	1.9E+00	0.992	-1.9E+00	-0.99199	1.27E-05
9	1.8E-06	-1.5E-01	8.6E-01	-7.8E+43	2.000	4.7E+00	1.0E+02	7.8E+43	0.000	9.3E+01	1	-9.3E+01	-1	1.8E+00	0.9876	-1.8E+00	-0.98758	1.24E-05
10	1.8E-06	-1.7E-01	8.4E-01	-7.8E+43	2.000	5.2E+00	1.8E+02	7.8E+43	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9823	-1.7E+00	-0.98229	1.22E-05
11	1.8E-06	-1.9E-01	8.3E-01	-7.8E+43	2.000	5.7E+00	3.0E+02	7.8E+43	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9763	-1.6E+00	-0.97626	1.19E-05
12	1.8E-06	-2.0E-01	8.2E-01	-7.8E+43	2.000	6.2E+00	4.9E+02	7.8E+43	0.000	8.1E+01	1	-8.1E+01	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	1.16E-05
13	1.8E-06	-2.2E-01	8.0E-01	-7.8E+43	2.000	6.7E+00	8.3E+02	7.8E+43	0.000	7.8E+01	1	-7.8E+01	-1	1.5E+00	0.9625	-1.5E+00	-0.96249	1.13E-05
14	1.8E-06	-2.4E-01	7.9E-01	-7.8E+43	2.000	7.2E+00	1.4E+03	7.8E+43	0.000	7.5E+01	1	-7.5E+01	-1	1.4E+00	0.955	-1.4E+00	-0.95498	1.10E-05
15	1.8E-06	-2.6E-01	7.7E-01	-7.8E+43	2.000	7.8E+00	2.3E+03	7.8E+43	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9472	-1.4E+00	-0.94719	1.08E-05
16	1.8E-06	-2.7E-01	7.6E-01	-7.8E+43	2.000	8.3E+00	3.9E+03	7.8E+43	0.000	7.0E+01	1	-7.0E+01	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	1.05E-05
17	1.8E-06	-2.9E-01	7.5E-01	-7.8E+43	2.000	8.8E+00	6.6E+03	7.8E+43	0.000	6.8E+01	1	-6.8E+01	-1	1.3E+00	0.9311	-1.3E+00	-0.93109	1.02E-05
18	1.8E-06	-3.1E-01	7.4E-01	-7.8E+43	2.000	9.3E+00	1.1E+04	7.8E+43	0.000	6.6E+01	1	-6.6E+01	-1	1.3E+00	0.9229	-1.3E+00	-0.9229	9.97E-06
19	1.8E-06	-3.2E-01	7.2E-01	-7.8E+43	2.000	9.8E+00	1.8E+04	7.8E+43	0.000	6.4E+01	1	-6.4E+01	-1	1.2E+00	0.9147	-1.2E+00	-0.91468	9.71E-06
20	1.8E-06	-3.4E-01	7.1E-01	-7.8E+43	2.000	1.0E+01	3.1E+04	7.8E+43	0.000	6.3E+01	1	-6.3E+01	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	9.46E-06



Date:	25/06/2022
Version:	1

Contaminant **ᵇH - n-Eicosane**

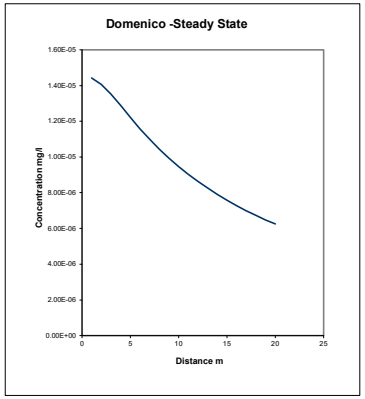
DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.01	mg/l
Co	1.47E-05	mg/l
λ	7.42E-14	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	1.51E+07	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

		X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1		3.7E-06	-1.70E-02	9.83E-01	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	1.44E-05
2	2		3.7E-06	-3.40E-02	9.67E-01	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	1.41E-05
3	3		3.7E-06	-5.10E-02	9.50E-01	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	1.35E-05
4	4		3.7E-06	-6.80E-02	9.34E-01	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	1.29E-05
5	5		3.7E-06	-8.50E-02	9.18E-01	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	1.22E-05
6	6		3.7E-06	-1.02E-01	9.03E-01	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.8742	1.16E-05
7	7		3.7E-06	-1.19E-01	8.88E-01	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.8436	1.10E-05
8	8		3.7E-06	-1.36E-01	8.73E-01	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.8151	1.04E-05
9	9		3.7E-06	-1.53E-01	8.58E-01	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.7887	9.93E-06
10	10		3.7E-06	-1.70E-01	8.44E-01	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.7643	9.46E-06
11	11		3.7E-06	-1.87E-01	8.29E-01	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.7418	9.03E-06
12	12		3.7E-06	-2.04E-01	8.15E-01	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	8.62E-06
13	13		3.7E-06	-2.21E-01	8.02E-01	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.7017	8.25E-06
14	14		3.7E-06	-2.38E-01	7.88E-01	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.6838	7.91E-06
15	15		3.7E-06	-2.55E-01	7.75E-01	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.6671	7.58E-06
16	16		3.7E-06	-2.72E-01	7.62E-01	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.6515	7.28E-06
17	17		3.7E-06	-2.89E-01	7.49E-01	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.6369	7.00E-06
18	18		3.7E-06	-3.06E-01	7.36E-01	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.6232	6.73E-06
19	19		3.7E-06	-3.23E-01	7.24E-01	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.6104	6.48E-06
20	20		3.7E-06	-3.40E-01	7.12E-01	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.5983	6.25E-06



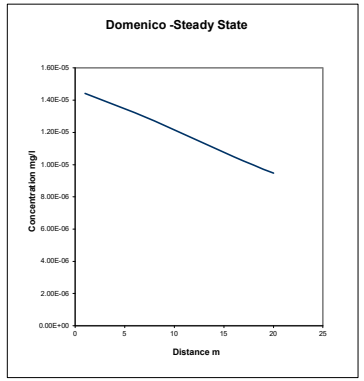
Calc **Value**

v	1.08E-03	m/d
Rc	2.56E+08	
u	4.22E-12	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

		X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1		3.7E-06	-1.70E-02	9.83E-01	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	1.44E-05
2	2		3.7E-06	-3.40E-02	9.67E-01	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	1.42E-05
3	3		3.7E-06	-5.10E-02	9.50E-01	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	1.39E-05
4	4		3.7E-06	-6.80E-02	9.34E-01	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	1.37E-05
5	5		3.7E-06	-8.50E-02	9.18E-01	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.9992	1.35E-05
6	6		3.7E-06	-1.02E-01	9.03E-01	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.9978	1.32E-05
7	7		3.7E-06	-1.19E-01	8.88E-01	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.9954	1.30E-05
8	8		3.7E-06	-1.36E-01	8.73E-01	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	1.27E-05
9	9		3.7E-06	-1.53E-01	8.58E-01	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.9876	1.24E-05
10	10		3.7E-06	-1.70E-01	8.44E-01	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.9823	1.22E-05
11	11		3.7E-06	-1.87E-01	8.29E-01	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.9763	1.19E-05
12	12		3.7E-06	-2.04E-01	8.15E-01	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	1.16E-05
13	13		3.7E-06	-2.21E-01	8.02E-01	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.9625	1.13E-05
14	14		3.7E-06	-2.38E-01	7.88E-01	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	1.10E-05
15	15		3.7E-06	-2.55E-01	7.75E-01	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.9472	1.08E-05
16	16		3.7E-06	-2.72E-01	7.62E-01	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	1.05E-05
17	17		3.7E-06	-2.89E-01	7.49E-01	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.9311	1.02E-05
18	18		3.7E-06	-3.06E-01	7.36E-01	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.9229	9.97E-06
19	19		3.7E-06	-3.23E-01	7.24E-01	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.9147	9.71E-06
20	20		3.7E-06	-3.40E-01	7.12E-01	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	9.46E-06



Date:	25/06/2022
Version:	1

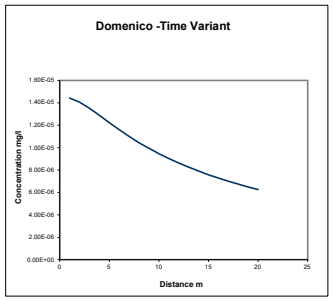
DOMENICO (TIME VARIANT)

Contaminant **²H - n-Eicosane**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.01	mg/l
Co	1.47E-05	mg/l
λ	7.42E-14	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	1.51E+07	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	1.8E-06	-1.70E-02	9.83E-01	-7.75E+43	2	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	1.44E-05
2	2	1.8E-06	-3.40E-02	9.67E-01	-7.75E+43	2	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	1.41E-05
3	3	1.8E-06	-5.10E-02	9.50E-01	-7.75E+43	2	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.97	1.35E-05
4	4	1.8E-06	-6.80E-02	9.34E-01	-7.75E+43	2	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.939	1.29E-05
5	5	1.8E-06	-8.50E-02	9.18E-01	-7.75E+43	2	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.906	1.22E-05
6	6	1.8E-06	-1.02E-01	9.03E-01	-7.75E+43	2	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.874	1.16E-05
7	7	1.8E-06	-1.19E-01	8.88E-01	-7.75E+43	2	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.844	1.10E-05
8	8	1.8E-06	-1.36E-01	8.73E-01	-7.75E+43	2	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.815	1.04E-05
9	9	1.8E-06	-1.53E-01	8.58E-01	-7.75E+43	2	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.789	9.93E-06
10	10	1.8E-06	-1.70E-01	8.44E-01	-7.75E+43	2	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.764	9.46E-06
11	11	1.8E-06	-1.87E-01	8.29E-01	-7.75E+43	2	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.742	9.03E-06
12	12	1.8E-06	-2.04E-01	8.15E-01	-7.75E+43	2	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	8.62E-06
13	13	1.8E-06	-2.21E-01	8.02E-01	-7.75E+43	2	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.702	8.25E-06
14	14	1.8E-06	-2.38E-01	7.88E-01	-7.75E+43	2	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.684	7.91E-06
15	15	1.8E-06	-2.55E-01	7.75E-01	-7.75E+43	2	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.667	7.58E-06
16	16	1.8E-06	-2.72E-01	7.62E-01	-7.75E+43	2	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.651	7.28E-06
17	17	1.8E-06	-2.89E-01	7.49E-01	-7.75E+43	2	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.637	7.00E-06
18	18	1.8E-06	-3.06E-01	7.36E-01	-7.75E+43	2	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.623	6.73E-06
19	19	1.8E-06	-3.23E-01	7.24E-01	-7.75E+43	2	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.61	6.48E-06
20	20	1.8E-06	-3.40E-01	7.12E-01	-7.75E+43	2	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.598	6.25E-06

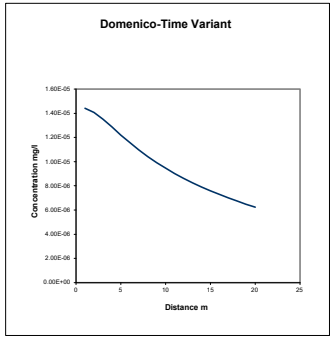


Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	2.56E+08	
u	4.22E-12	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	1.8E-06	-1.70E-02	9.83E-01	-7.75E+43	2	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	1.44E-05
2	2	1.8E-06	-3.40E-02	9.67E-01	-7.75E+43	2	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	1.42E-05
3	3	1.8E-06	-5.10E-02	9.50E-01	-7.75E+43	2	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	1.39E-05
4	4	1.8E-06	-6.80E-02	9.34E-01	-7.75E+43	2	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	1.37E-05
5	5	1.8E-06	-8.50E-02	9.18E-01	-7.75E+43	2	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.999	1.35E-05
6	6	1.8E-06	-1.02E-01	9.03E-01	-7.75E+43	2	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.998	1.32E-05
7	7	1.8E-06	-1.19E-01	8.88E-01	-7.75E+43	2	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.995	1.30E-05
8	8	1.8E-06	-1.36E-01	8.73E-01	-7.75E+43	2	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	1.27E-05
9	9	1.8E-06	-1.53E-01	8.58E-01	-7.75E+43	2	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.988	1.24E-05
10	10	1.8E-06	-1.70E-01	8.44E-01	-7.75E+43	2	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.982	1.22E-05
11	11	1.8E-06	-1.87E-01	8.29E-01	-7.75E+43	2	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.976	1.19E-05
12	12	1.8E-06	-2.04E-01	8.15E-01	-7.75E+43	2	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.97	1.16E-05
13	13	1.8E-06	-2.21E-01	8.02E-01	-7.75E+43	2	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.962	1.13E-05
14	14	1.8E-06	-2.38E-01	7.88E-01	-7.75E+43	2	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	1.10E-05
15	15	1.8E-06	-2.55E-01	7.75E-01	-7.75E+43	2	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.947	1.08E-05
16	16	1.8E-06	-2.72E-01	7.62E-01	-7.75E+43	2	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.939	1.05E-05
17	17	1.8E-06	-2.89E-01	7.49E-01	-7.75E+43	2	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.931	1.02E-05
18	18	1.8E-06	-3.06E-01	7.36E-01	-7.75E+43	2	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.923	9.97E-06
19	19	1.8E-06	-3.23E-01	7.24E-01	-7.75E+43	2	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.915	9.71E-06
20	20	1.8E-06	-3.40E-01	7.12E-01	-7.75E+43	2	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.906	9.46E-06



Date:	25/06/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions

Details to be completed for each assessment

Site Name:	**Glan Llyn**			
Site Address:	**Llanwern**			
Completed by:	**Ross Cameron**			
Date:	**27-Apr-22**		**Version:**	**1**
Contaminant	**Naphthalene**			
Target Concentration (C_T)	**0.002**	**mg/l**	**Origin of C_T:**	**Proposed Water Framework Directive EQS**

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Naphthalene**		
Target concentration	C_T	**0.002**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient. The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**2.69E-01**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.002	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Naphthalene**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	C_T	**0.002** mg/l	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	Variable	Value	Unit	Source of parameter value	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentra**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters	Variable	Value	Unit	Source
Contaminant		Naphthalene		from Level 1
Target Concentration	C_T	0.002	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target		**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks		**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
		#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point		**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

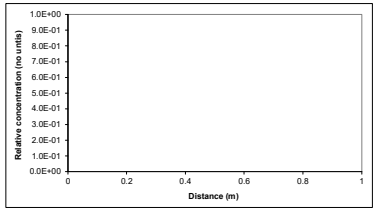
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

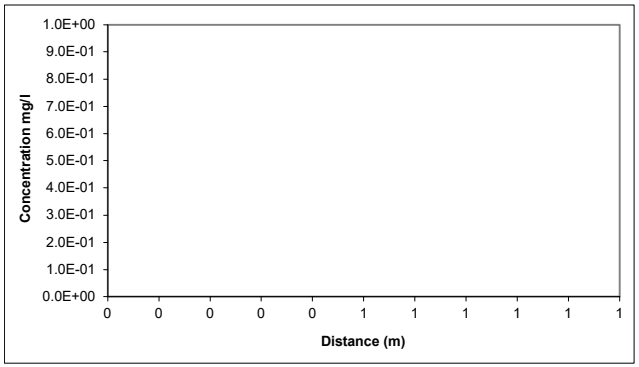
Only input required is Soil Contaminant Concentration

	Input Parameters		
	Soil contaminant concentration	C_0	0.00E+00 mg/kg
Level 1 Parameters			
	Water filled soil porosity	θ_W	5.00E-01 fraction
	Air filled soil porosity	θa	3.70E-01 fraction
	Bulk density	ρ	1.36E+00 g/cm^3
	Henry's Law constant	H	1.00E+00 dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02 l/kg
	Factor (partitioning between soil and water)		1.35E+02 dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu) | **Variable** | **Value** | **Unit** | **Source**

Contaminant		Naphthalene		from Level 1
Target Concentration	C_T	2.00E-03	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	1.65E-01	mg/l	*Based on 95 percentile soil conc of 6.018mg/kg*
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+02	days	*100 day half life estimation*
Calculated decay rate	λ	6.93E-03	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappi*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	3.60E+01	l/kg	*see options*
Longitudinal dispersivity	ax	2.00E+00	m	*see options*
Transverse dispersivity	az	2.00E-01	m	*see options*
Vertical dispersivity	ay	2.00E-02	m	*see options*

Calculated Parameters | **Variable**

Groundwater flow velocity	v	1.08E-03	m/d
Retardation factor	Rf	6.13E+02	fraction
Decay rate used	λ	1.13E-05	d^{-1}
Rate of contaminant flow due to retardation	u	1.76E-06	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	4.32E-15	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**3.82E+13**	

Remedial Targets

Remedial Target		**7.64E+10**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**20**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**4.32E-15**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)

Soil water partition coefficient — Kd — 3.60E+01 l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer — foc — fraction

Organic carbon partition coefficient — Koc — l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species — $K_{oc,n}$ — l/kg

Sorption coefficient for ionised species — $K_{oc,i}$ — l/kg

pH value — pH

acid dissociation constant — pKa

Fraction of organic carbon in aquifer — foc — fraction

Soil water partition coefficient — Kd — 3.60E+01 — l/kg

Define dispersivity (click brown cell and use pull down list)

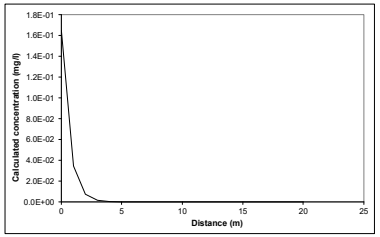
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00 m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01 m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.
Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	1.7E-01
1.0	3.47E-02
2.0	7.30E-03
3.0	1.54E-03
4.0	3.23E-04
5.0	6.80E-05
6.0	1.43E-05
7.0	3.00E-06
8.0	6.28E-07
9.0	1.32E-07
10.0	2.75E-08
11.0	5.76E-09
12.0	1.20E-09
13.0	2.51E-10
14.0	5.25E-11
15.0	1.10E-11
16.0	2.28E-12
17.0	4.77E-13
18.0	9.94E-14
19.0	2.07E-14
20.0	4.32E-15

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant **Naphthalene**

Parameter	Value	Units
(carried over from input sheet)		
C_T	2.00E-03	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

calc calc Calc Kd l/kg

Calculation of partition coefficient for ionic organic chemical

Partition coefficient used in Level 1 Assessment 1.34E+02 l/kg

Calculated Remedial Target 2.69E-01 mg/kg for Naphthalene

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27/04/2022
Version:	1

Level 2 Calculation Sheet

Contaminant **Naphthalene**

Site assessed:	Glan Llyn
Date:	27/04/2022
Version:	1

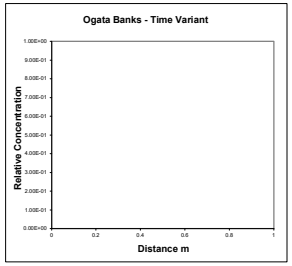
Parameter	Value	Units		
(carried over from input sheet)				
Mz	0.00E+00	m		
L	0.00E+00	m		
da	0.00E+00	m		Calculated
Inf	0.00E+00	m/d		Dilution Factor
K	0.00E+00	m/d		
i	0.00E+00		Calculation based on target concentration	#DIV/0!
		m3/d		
A	0.00E+00	m2	Calculation based on observed contaminant concentration	#DIV/0!
		m3/d		
Cc	0.00E+00	mg/l		
C_T	2.00E-03	mg/l		
Cu	0.00E+00	mg/l		
w	0.00E+00	m		

OGATA BANKS SOLUTION

Contaminant	Naphthalene	
Input	**Value**	**Units**
C_T	2.000E-03	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

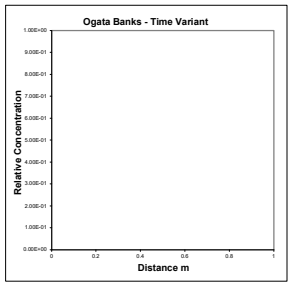
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

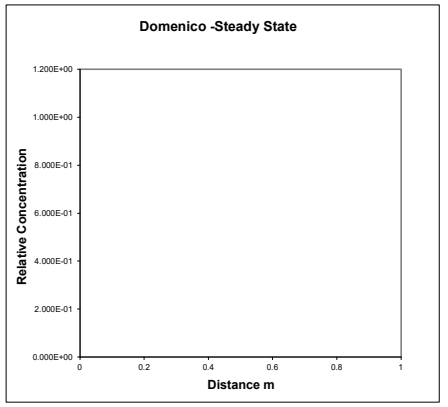
Contaminant **Naphthalene**

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	2.000E-03	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



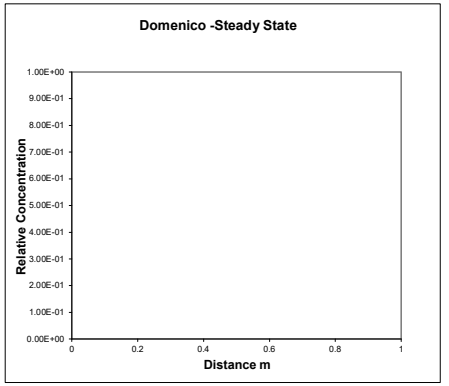
Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



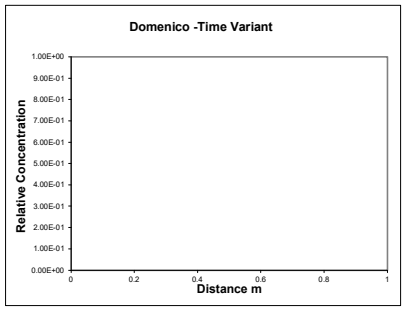
Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant **Naphthalene**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

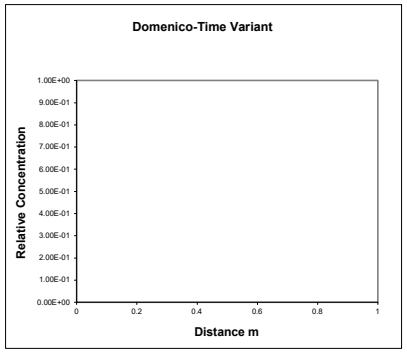
Input	Value	Units		X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
				m														
C_T	0.002	mg/l	1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
DF	#DIV/0!		2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
λ	6.931E-101	$days^{-1}$	5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sz	0.000E+00	m	6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sy	0.000E+00	m	7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Kd	0.000E+00	l/kg	8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ρ	0.000E+00	g/cm3	9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
n	0.000E+00		10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
i	#DIV/0!		11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
K	0.000E+00	m/d	12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
x	0.000E+00	m	13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
z	0.000E+00	m	14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
y	0.000E+00	m	15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
t	1.000E+99	days	16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ax	0.000E+00	m	17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
az	0.000E+00	m	18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ay	0.000E+00	m	19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc **Value**

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

				X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
v	#DIV/0!	m/d		m														
Rc	#DIV/0!		1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
u	#DIV/0!	m/d	2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

OGATA BANKS SOLUTION

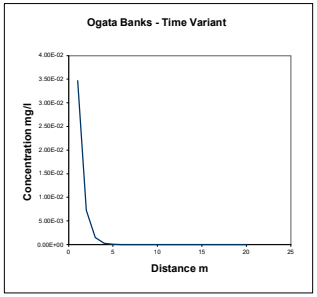
Contaminant	Naphthalene	
Input	**Value**	**Units**
C_T	0.002	mg/l
Co	1.65E-01	mg/l
λ	1.13E-05	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	3.60E+01	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	6.13E+02	
u	1.76E-06	m/d

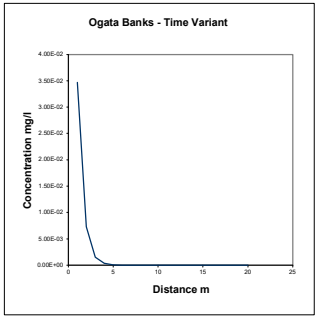
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	0.02063	-1.6E+00	2.1E-01	-3.4E+47	2.000	2.1E+00	7.8E+00	3.4E+47	0.000	2.8E+02	1	-2.8E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	3.47E-02
2	0.02063	-3.1E+00	4.4E-02	-3.4E+47	2.000	4.1E+00	6.1E+01	3.4E+47	0.000	2.0E+02	1	-2.0E+02	-1	1.9E+00	0.992	-1.9E+00	-0.99199	7.25E-03
3	0.02063	-4.7E+00	9.3E-03	-3.4E+47	2.000	6.2E+00	4.8E+02	3.4E+47	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	1.49E-03
4	0.02063	-6.2E+00	2.0E-03	-3.4E+47	2.000	8.2E+00	3.8E+03	3.4E+47	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	3.04E-04
5	0.02063	-7.8E+00	4.1E-04	-3.4E+47	2.000	1.0E+01	3.0E+04	3.4E+47	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	6.17E-05
6	0.02063	-9.4E+00	8.7E-05	-3.4E+47	2.000	1.2E+01	2.3E+05	3.4E+47	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8742	-1.1E+00	-0.87421	1.25E-05
7	0.02063	-1.1E+01	1.8E-05	-3.4E+47	2.000	1.4E+01	1.8E+06	3.4E+47	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8436	-1.0E+00	-0.84362	2.54E-06
8	0.02063	-1.2E+01	3.8E-06	-3.4E+47	2.000	1.6E+01	1.4E+07	3.4E+47	0.000	9.9E+01	1	-9.9E+01	-1	9.4E-01	0.8151	-9.4E-01	-0.8151	5.16E-07
9	0.02063	-1.4E+01	8.1E-07	-3.4E+47	2.000	1.9E+01	1.1E+08	3.4E+47	0.000	9.3E+01	1	-9.3E+01	-1	8.8E-01	0.7887	-8.8E-01	-0.7887	1.05E-07
10	0.02063	-1.6E+01	1.7E-07	-3.4E+47	2.000	2.1E+01	8.7E+08	3.4E+47	0.000	8.8E+01	1	-8.8E+01	-1	8.4E-01	0.7643	-8.4E-01	-0.76432	2.14E-08
11	0.02063	-1.7E+01	3.6E-08	-3.4E+47	2.000	2.3E+01	6.8E+09	3.4E+47	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7418	-8.0E-01	-0.7418	4.38E-09
12	0.02063	-1.9E+01	7.5E-09	-3.4E+47	2.000	2.5E+01	5.4E+10	3.4E+47	0.000	8.1E+01	1	-8.1E+01	-1	7.7E-01	0.721	-7.7E-01	-0.72098	8.95E-10
13	0.02063	-2.0E+01	1.6E-09	-3.4E+47	2.000	2.7E+01	4.2E+11	3.4E+47	0.000	7.8E+01	1	-7.8E+01	-1	7.4E-01	0.7017	-7.4E-01	-0.70169	1.83E-10
14	0.02063	-2.2E+01	3.3E-10	-3.4E+47	2.000	2.9E+01	3.3E+12	3.4E+47	0.000	7.5E+01	1	-7.5E+01	-1	7.1E-01	0.6838	-7.1E-01	-0.68377	3.76E-11
15	0.02063	-2.3E+01	7.0E-11	-3.4E+47	2.000	3.1E+01	2.6E+13	3.4E+47	0.000	7.2E+01	1	-7.2E+01	-1	6.8E-01	0.6671	-6.8E-01	-0.66708	7.71E-12
16	0.02063	-2.5E+01	1.5E-11	-3.4E+47	2.000	3.3E+01	2.0E+14	3.4E+47	0.000	7.0E+01	1	-7.0E+01	-1	6.6E-01	0.6515	-6.6E-01	-0.6515	1.58E-12
17	0.02063	-2.6E+01	3.1E-12	-3.4E+47	2.000	3.5E+01	1.6E+15	3.4E+47	0.000	6.8E+01	1	-6.8E+01	-1	6.4E-01	0.6369	-6.4E-01	-0.63692	3.26E-13
18	0.02063	-2.8E+01	6.5E-13	-3.4E+47	2.000	3.7E+01	1.2E+16	3.4E+47	0.000	6.6E+01	1	-6.6E+01	-1	6.3E-01	0.6232	-6.3E-01	-0.62324	6.71E-14
19	0.02063	-3.0E+01	1.4E-13	-3.4E+47	2.000	3.9E+01	9.7E+16	3.4E+47	0.000	6.4E+01	1	-6.4E+01	-1	6.1E-01	0.6104	-6.1E-01	-0.61038	1.38E-14
20	0.02063	-3.1E+01	2.9E-14	-3.4E+47	2.000	4.1E+01	7.6E+17	3.4E+47	0.000	6.3E+01	1	-6.3E+01	-1	5.9E-01	0.5983	-5.9E-01	-0.59826	2.85E-15



Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	0.02063	-1.6E+00	2.1E-01	-3.4E+47	2.000	2.1E+00	7.8E+00	3.4E+47	0.000	2.8E+02	1	-2.8E+02	-1	5.3E+00	1	-5.3E+00	-1	3.47E-02
2	0.02063	-3.1E+00	4.4E-02	-3.4E+47	2.000	4.1E+00	6.1E+01	3.4E+47	0.000	2.0E+02	1	-2.0E+02	-1	3.8E+00	1	-3.8E+00	-1	7.30E-03
3	0.02063	-4.7E+00	9.3E-03	-3.4E+47	2.000	6.2E+00	4.8E+02	3.4E+47	0.000	1.6E+02	1	-1.6E+02	-1	3.1E+00	1	-3.1E+00	-0.99999	1.54E-03
4	0.02063	-6.2E+00	2.0E-03	-3.4E+47	2.000	8.2E+00	3.8E+03	3.4E+47	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	3.23E-04
5	0.02063	-7.8E+00	4.1E-04	-3.4E+47	2.000	1.0E+01	3.0E+04	3.4E+47	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9992	-2.4E+00	-0.9992	6.80E-05
6	0.02063	-9.4E+00	8.7E-05	-3.4E+47	2.000	1.2E+01	2.3E+05	3.4E+47	0.000	1.1E+02	1	-1.1E+02	-1	2.2E+00	0.9978	-2.2E+00	-0.9978	1.43E-05
7	0.02063	-1.1E+01	1.8E-05	-3.4E+47	2.000	1.4E+01	1.8E+06	3.4E+47	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9954	-2.0E+00	-0.99541	3.00E-06
8	0.02063	-1.2E+01	3.8E-06	-3.4E+47	2.000	1.6E+01	1.4E+07	3.4E+47	0.000	9.9E+01	1	-9.9E+01	-1	1.9E+00	0.992	-1.9E+00	-0.99199	6.28E-07
9	0.02063	-1.4E+01	8.1E-07	-3.4E+47	2.000	1.9E+01	1.1E+08	3.4E+47	0.000	9.3E+01	1	-9.3E+01	-1	1.8E+00	0.9876	-1.8E+00	-0.98758	1.32E-07
10	0.02063	-1.6E+01	1.7E-07	-3.4E+47	2.000	2.1E+01	8.7E+08	3.4E+47	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9823	-1.7E+00	-0.98229	2.75E-08
11	0.02063	-1.7E+01	3.6E-08	-3.4E+47	2.000	2.3E+01	6.8E+09	3.4E+47	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9763	-1.6E+00	-0.97626	5.76E-09
12	0.02063	-1.9E+01	7.5E-09	-3.4E+47	2.000	2.5E+01	5.4E+10	3.4E+47	0.000	8.1E+01	1	-8.1E+01	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	1.20E-09
13	0.02063	-2.0E+01	1.6E-09	-3.4E+47	2.000	2.7E+01	4.2E+11	3.4E+47	0.000	7.8E+01	1	-7.8E+01	-1	1.5E+00	0.9625	-1.5E+00	-0.96249	2.51E-10
14	0.02063	-2.2E+01	3.3E-10	-3.4E+47	2.000	2.9E+01	3.3E+12	3.4E+47	0.000	7.5E+01	1	-7.5E+01	-1	1.4E+00	0.955	-1.4E+00	-0.95498	5.25E-11
15	0.02063	-2.3E+01	7.0E-11	-3.4E+47	2.000	3.1E+01	2.6E+13	3.4E+47	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9472	-1.4E+00	-0.94719	1.10E-11
16	0.02063	-2.5E+01	1.5E-11	-3.4E+47	2.000	3.3E+01	2.0E+14	3.4E+47	0.000	7.0E+01	1	-7.0E+01	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	2.28E-12
17	0.02063	-2.6E+01	3.1E-12	-3.4E+47	2.000	3.5E+01	1.6E+15	3.4E+47	0.000	6.8E+01	1	-6.8E+01	-1	1.3E+00	0.9311	-1.3E+00	-0.93109	4.77E-13
18	0.02063	-2.8E+01	6.5E-13	-3.4E+47	2.000	3.7E+01	1.2E+16	3.4E+47	0.000	6.6E+01	1	-6.6E+01	-1	1.3E+00	0.9229	-1.3E+00	-0.9229	9.94E-14
19	0.02063	-3.0E+01	1.4E-13	-3.4E+47	2.000	3.9E+01	9.7E+16	3.4E+47	0.000	6.4E+01	1	-6.4E+01	-1	1.2E+00	0.9147	-1.2E+00	-0.91468	2.07E-14
20	0.02063	-3.1E+01	2.9E-14	-3.4E+47	2.000	4.1E+01	7.6E+17	3.4E+47	0.000	6.3E+01	1	-6.3E+01	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	4.32E-15



Date:	27/04/2022
Version:	1

Contaminant **Naphthalene**

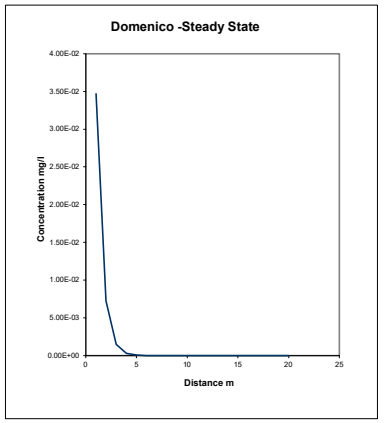
Input	Value	Units
C_T	0.002	mg/l
Co	1.65E-01	mg/l
λ	1.13E-05	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	3.60E+01	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.04125	-1.56E+00	2.10E-01	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	3.47E-02
2	2	0.04125	-3.12E+00	4.43E-02	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	7.25E-03
3	3	0.04125	-4.68E+00	9.31E-03	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	1.49E-03
4	4	0.04125	-6.24E+00	1.96E-03	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	3.04E-04
5	5	0.04125	-7.79E+00	4.12E-04	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	6.17E-05
6	6	0.04125	-9.35E+00	8.67E-05	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.8742	1.25E-05
7	7	0.04125	-1.09E+01	1.82E-05	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.8436	2.54E-06
8	8	0.04125	-1.25E+01	3.84E-06	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.8151	5.16E-07
9	9	0.04125	-1.40E+01	8.08E-07	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.7887	1.05E-07
10	10	0.04125	-1.56E+01	1.70E-07	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.7643	2.14E-08
11	11	0.04125	-1.71E+01	3.58E-08	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.7418	4.38E-09
12	12	0.04125	-1.87E+01	7.52E-09	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	8.95E-10
13	13	0.04125	-2.03E+01	1.58E-09	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.7017	1.83E-10
14	14	0.04125	-2.18E+01	3.33E-10	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.6838	3.76E-11
15	15	0.04125	-2.34E+01	7.01E-11	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.6671	7.71E-12
16	16	0.04125	-2.49E+01	1.47E-11	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.6515	1.58E-12
17	17	0.04125	-2.65E+01	3.10E-12	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.6369	3.26E-13
18	18	0.04125	-2.81E+01	6.53E-13	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.6232	6.71E-14
19	19	0.04125	-2.96E+01	1.37E-13	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.6104	1.38E-14
20	20	0.04125	-3.12E+01	2.89E-14	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.5983	2.85E-15



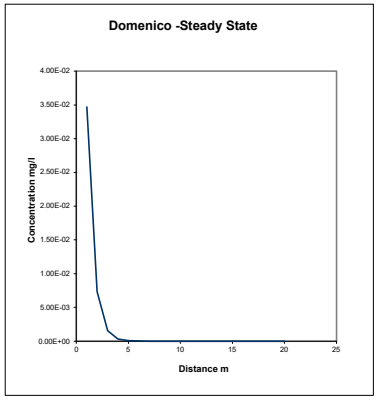
Calc **Value**

v	1.08E-03	m/d
Rc	6.13E+02	
u	1.76E-06	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.04125	-1.56E+00	2.10E-01	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	3.47E-02
2	2	0.04125	-3.12E+00	4.43E-02	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	7.30E-03
3	3	0.04125	-4.68E+00	9.31E-03	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	1.54E-03
4	4	0.04125	-6.24E+00	1.96E-03	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	3.23E-04
5	5	0.04125	-7.79E+00	4.12E-04	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.9992	6.80E-05
6	6	0.04125	-9.35E+00	8.67E-05	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.9978	1.43E-05
7	7	0.04125	-1.09E+01	1.82E-05	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.9954	3.00E-06
8	8	0.04125	-1.25E+01	3.84E-06	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	6.28E-07
9	9	0.04125	-1.40E+01	8.08E-07	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.9876	1.32E-07
10	10	0.04125	-1.56E+01	1.70E-07	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.9823	2.75E-08
11	11	0.04125	-1.71E+01	3.58E-08	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.9763	5.76E-09
12	12	0.04125	-1.87E+01	7.52E-09	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	1.20E-09
13	13	0.04125	-2.03E+01	1.58E-09	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.9625	2.51E-10
14	14	0.04125	-2.18E+01	3.33E-10	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	5.25E-11
15	15	0.04125	-2.34E+01	7.01E-11	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.9472	1.10E-11
16	16	0.04125	-2.49E+01	1.47E-11	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	2.28E-12
17	17	0.04125	-2.65E+01	3.10E-12	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.9311	4.77E-13
18	18	0.04125	-2.81E+01	6.53E-13	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.9229	9.94E-14
19	19	0.04125	-2.96E+01	1.37E-13	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.9147	2.07E-14
20	20	0.04125	-3.12E+01	2.89E-14	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	4.32E-15



Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant **Naphthalene**

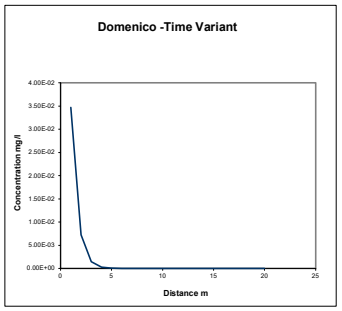
Input	Value	Units
C_T	0.002	mg/l
Co	1.65E-01	mg/l
λ	1.13E-05	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	3.60E+01	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	Units
v	1.08E-03	m/d
Rc	6.13E+02	
u	1.76E-06	m/d

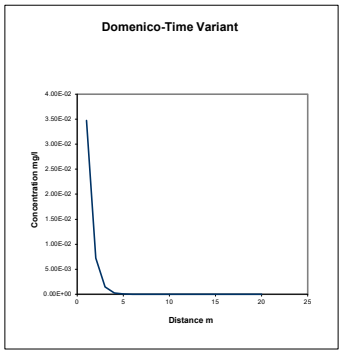
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.02063	-1.56E+00	2.10E-01	-3.40E+47	2	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	3.47E-02
2	2	0.02063	-3.12E+00	4.43E-02	-3.40E+47	2	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	7.25E-03
3	3	0.02063	-4.68E+00	9.31E-03	-3.40E+47	2	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.97	1.49E-03
4	4	0.02063	-6.24E+00	1.96E-03	-3.40E+47	2	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.939	3.04E-04
5	5	0.02063	-7.79E+00	4.12E-04	-3.40E+47	2	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.906	6.17E-05
6	6	0.02063	-9.35E+00	8.67E-05	-3.40E+47	2	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.874	1.25E-05
7	7	0.02063	-1.09E+01	1.82E-05	-3.40E+47	2	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.844	2.54E-06
8	8	0.02063	-1.25E+01	3.84E-06	-3.40E+47	2	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.815	5.16E-07
9	9	0.02063	-1.40E+01	8.08E-07	-3.40E+47	2	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.789	1.05E-07
10	10	0.02063	-1.56E+01	1.70E-07	-3.40E+47	2	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.764	2.14E-08
11	11	0.02063	-1.71E+01	3.58E-08	-3.40E+47	2	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.742	4.38E-09
12	12	0.02063	-1.87E+01	7.52E-09	-3.40E+47	2	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	8.95E-10
13	13	0.02063	-2.03E+01	1.58E-09	-3.40E+47	2	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.702	1.83E-10
14	14	0.02063	-2.18E+01	3.33E-10	-3.40E+47	2	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.684	3.76E-11
15	15	0.02063	-2.34E+01	7.01E-11	-3.40E+47	2	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.667	7.71E-12
16	16	0.02063	-2.49E+01	1.47E-11	-3.40E+47	2	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.651	1.58E-12
17	17	0.02063	-2.65E+01	3.10E-12	-3.40E+47	2	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.637	3.26E-13
18	18	0.02063	-2.81E+01	6.53E-13	-3.40E+47	2	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.623	6.71E-14
19	19	0.02063	-2.96E+01	1.37E-13	-3.40E+47	2	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.61	1.38E-14
20	20	0.02063	-3.12E+01	2.89E-14	-3.40E+47	2	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.598	2.85E-15



Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.02063	-1.56E+00	2.10E-01	-3.40E+47	2	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	3.47E-02
2	2	0.02063	-3.12E+00	4.43E-02	-3.40E+47	2	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	7.30E-03
3	3	0.02063	-4.68E+00	9.31E-03	-3.40E+47	2	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	1.54E-03
4	4	0.02063	-6.24E+00	1.96E-03	-3.40E+47	2	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	3.23E-04
5	5	0.02063	-7.79E+00	4.12E-04	-3.40E+47	2	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.999	6.80E-05
6	6	0.02063	-9.35E+00	8.67E-05	-3.40E+47	2	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.998	1.43E-05
7	7	0.02063	-1.09E+01	1.82E-05	-3.40E+47	2	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.995	3.00E-06
8	8	0.02063	-1.25E+01	3.84E-06	-3.40E+47	2	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	6.28E-07
9	9	0.02063	-1.40E+01	8.08E-07	-3.40E+47	2	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.988	1.32E-07
10	10	0.02063	-1.56E+01	1.70E-07	-3.40E+47	2	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.982	2.75E-08
11	11	0.02063	-1.71E+01	3.58E-08	-3.40E+47	2	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.976	5.76E-09
12	12	0.02063	-1.87E+01	7.52E-09	-3.40E+47	2	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.97	1.20E-09
13	13	0.02063	-2.03E+01	1.58E-09	-3.40E+47	2	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.962	2.51E-10
14	14	0.02063	-2.18E+01	3.33E-10	-3.40E+47	2	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	5.25E-11
15	15	0.02063	-2.34E+01	7.01E-11	-3.40E+47	2	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.947	1.10E-11
16	16	0.02063	-2.49E+01	1.47E-11	-3.40E+47	2	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.939	2.28E-12
17	17	0.02063	-2.65E+01	3.10E-12	-3.40E+47	2	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.931	4.77E-13
18	18	0.02063	-2.81E+01	6.53E-13	-3.40E+47	2	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.923	9.94E-14
19	19	0.02063	-2.96E+01	1.37E-13	-3.40E+47	2	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.915	2.07E-14
20	20	0.02063	-3.12E+01	2.89E-14	-3.40E+47	2	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.906	4.32E-15



Date:	27/04/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions

Details to be completed for each assessment

Site Name:	**Glan Llyn**			
Site Address:	**Llanwern**			
Completed by:	**Ross Cameron**			
Date:	**27-Apr-22**		**Version:**	**1**
Contaminant	**Manganese**			
Target Concentration (C_T)	**0.123**	**mg/l**	**Origin of C_T:**	**Water Framework Directive (EQS**

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Manganese**		
Target concentration	C_T	**0.123**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient. The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**1.66E+01**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.123	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Manganese**		from Level 1
Target concentration	C_T	**0.123**	**mg/l**	from Level 1

This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentra**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters	Variable	Value	Unit	Source
Contaminant		Manganese		from Level 1
Target Concentration	C_T	0.123	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target		**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks		**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
		#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point		**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

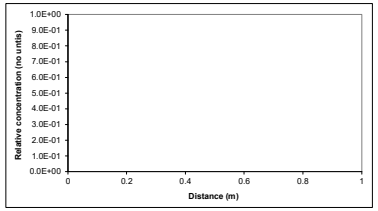
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

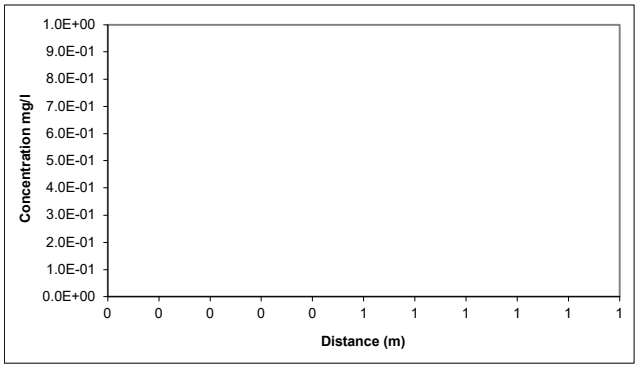
Only input required is Soil Contaminant Concentration

	Input Parameters		
	Soil contaminant concentration	C_0	0.00E+00 mg/kg
Level 1 Parameters			
	Water filled soil porosity	θ_W	5.00E-01 fraction
	Air filled soil porosity	θa	3.70E-01 fraction
	Bulk density	ρ	1.36E+00 g/cm^3
	Henry's Law constant	H	1.00E+00 dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02 l/kg
	Factor (partitioning between soil and water)		1.35E+02 dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Environment Agency

Input Parameters (using pull down menu)	Variable	Value	Unit	Source
Contaminant		Manganese		from Level 1
Target Concentration	C_T	1.23E-01	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	4.47E+01	mg/l	*Based on 95 percentile soil conc of 32200mg/kg*
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	*Estimation*
Calculated decay rate	λ	7.70E-101	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappi*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	7.20E+02	l/kg	*see options*
Longitudinal dispersivity	ax	1.57E+00	m	*see options*
Transverse dispersivity	az	1.57E-01	m	*see options*
Vertical dispersivity	ay	1.57E-02	m	*see options*

Calculated Parameters	Variable		
Groundwater flow velocity	v	1.08E-03	m/d
Retardation factor	Rf	1.22E+04	fraction
Decay rate used	λ	6.29E-105	d^{-1}
Rate of contaminant flow due to retardation	u	8.82E-08	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	4.21E+01	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**1.06E+00**	

Remedial Targets

Remedial Target		**1.31E-01**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**20**	**m**	
Concentration of contaminant at compliance point	**C_{ED}/C_0**	**4.21E+01**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	7.20E+02	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	7.20E+02	l/kg

Define dispersivity (click brown cell and use pull down list)

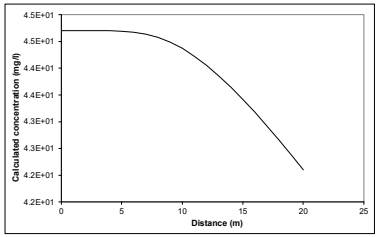
Dispersivity based on Xu & Eckstein (1995)

		Enter value	Calc value Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00 m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01 m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}X)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.
Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	4.5E+01
1.0	4.47E+01
2.0	4.47E+01
3.0	4.47E+01
4.0	4.47E+01
5.0	4.47E+01
6.0	4.47E+01
7.0	4.46E+01
8.0	4.46E+01
9.0	4.45E+01
10.0	4.44E+01
11.0	4.42E+01
12.0	4.41E+01
13.0	4.39E+01
14.0	4.36E+01
15.0	4.34E+01
16.0	4.32E+01
17.0	4.29E+01
18.0	4.27E+01
19.0	4.24E+01
20.0	4.21E+01

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant **Manganese**

Parameter	Value	Units
(carried over from input sheet)		
C_T	1.23E-01	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

calc calc Calc Kd l/kg

Calculation of partition coefficient for ionic organic chemical

Partition coefficient used in Level 1 Assessment 1.34E+02 l/kg

Calculated Remedial Target **1.66E+01 mg/kg** **for Manganese**

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27/04/2022
Version:	1

Level 2 Calculation Sheet

Contaminant **Manganese**

Site assessed:	Glan Llyn
Date:	27/04/2022
Version:	1

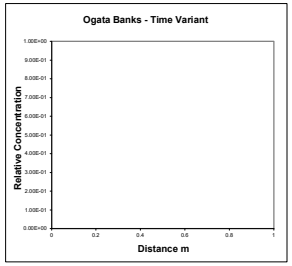
Parameter	Value	Units		
(carried over from input sheet)				
Mz	0.00E+00	m		
L	0.00E+00	m		
da	0.00E+00	m		Calculated
Inf	0.00E+00	m/d		Dilution Factor
K	0.00E+00	m/d		
i	0.00E+00		Calculation based on target concentration	#DIV/0!
		m3/d		
A	0.00E+00	m2	Calculation based on observed contaminant concentration	#DIV/0!
		m3/d		
Cc	0.00E+00	mg/l		
C_T	1.23E-01	mg/l		
Cu	0.00E+00	mg/l		
w	0.00E+00	m		

OGATA BANKS SOLUTION

Contaminant	Manganese	
Input	**Value**	**Units**
C_T	1.230E-01	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

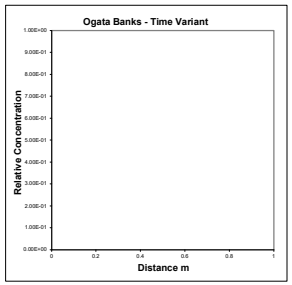
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

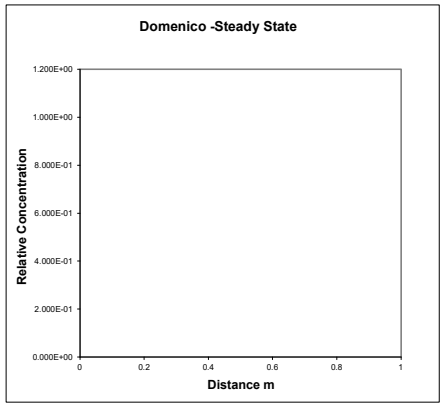
Contaminant **Manganese**

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	1.230E-01	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



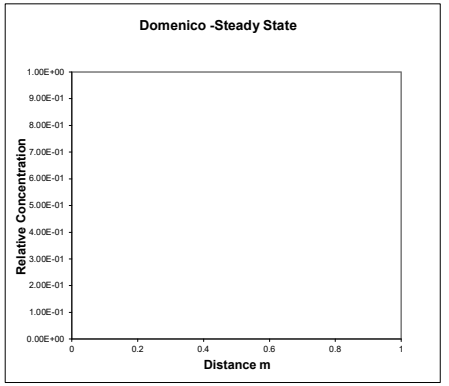
Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

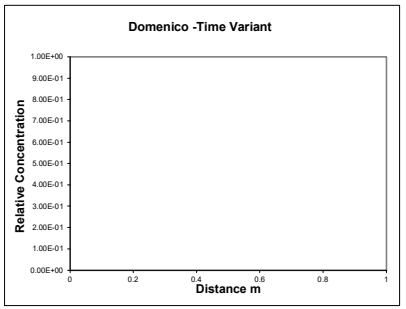
	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



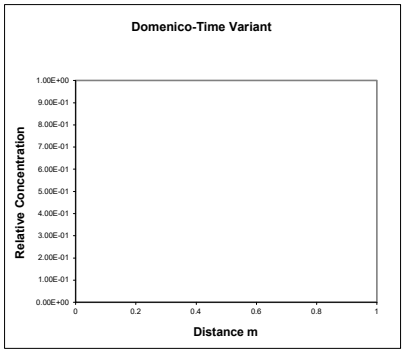
Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant	Manganese																
			Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)														
				X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
Input	**Value**	**Units**		m														
C_T	0.123	mg/l	1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
DF	#DIV/0!		2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
λ	6.931E-101	$days^{-1}$	5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sz	0.000E+00	m	6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sy	0.000E+00	m	7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Kd	0.000E+00	l/kg	8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ρ	0.000E+00	g/cm3	9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
n	0.000E+00		10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
i	#DIV/0!		11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
K	0.000E+00	m/d	12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
x	0.000E+00	m	13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
z	0.000E+00	m	14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
y	0.000E+00	m	15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
t	1.000E+99	days	16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ax	0.000E+00	m	17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
az	0.000E+00	m	18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ay	0.000E+00	m	19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value																
			Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT														
				X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
v	#DIV/0!	m/d		m														
Rc	#DIV/0!		1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
u	#DIV/0!	m/d	2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

OGATA BANKS SOLUTION

Contaminant	Manganese	
Input	**Value**	**Units**
C_T	0.123	mg/l
Co	4.47E+01	mg/l
λ	6.29E-105	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	7.20E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

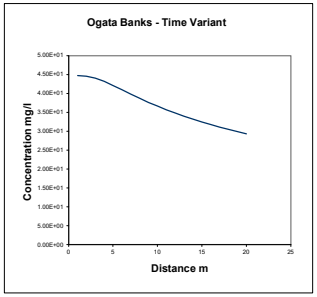
Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	1.22E+04	
u	8.82E-08	m/d

Date:	27/04/2022
Version:	1

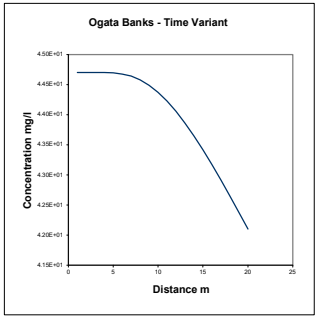
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	6.4E-01	1.9E+00	1.2E+46	0.000	3.2E+02	1	-3.2E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	4.47E+01
2	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.3E+00	3.6E+00	1.2E+46	0.000	2.2E+02	1	-2.2E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	4.46E+01
3	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.9E+00	6.8E+00	1.2E+46	0.000	1.8E+02	1	-1.8E+02	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	4.41E+01
4	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	2.6E+00	1.3E+01	1.2E+46	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	4.32E+01
5	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	3.2E+00	2.4E+01	1.2E+46	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	4.21E+01
6	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	3.8E+00	4.6E+01	1.2E+46	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9163	-1.2E+00	-0.91633	4.10E+01
7	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	4.5E+00	8.7E+01	1.2E+46	0.000	1.2E+02	1	-1.2E+02	-1	1.1E+00	0.8907	-1.1E+00	-0.89072	3.98E+01
8	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	5.1E+00	1.7E+02	1.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8659	-1.1E+00	-0.86587	3.87E+01
9	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	5.7E+00	3.1E+02	1.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8422	-1.0E+00	-0.84215	3.76E+01
10	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	6.4E+00	5.9E+02	1.2E+46	0.000	1.0E+02	1	-1.0E+02	-1	9.5E-01	0.8197	-9.5E-01	-0.81971	3.66E+01
11	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	7.0E+00	1.1E+03	1.2E+46	0.000	9.5E+01	1	-9.5E+01	-1	9.0E-01	0.7986	-9.0E-01	-0.79858	3.57E+01
12	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	7.7E+00	2.1E+03	1.2E+46	0.000	9.1E+01	1	-9.1E+01	-1	8.6E-01	0.7787	-8.6E-01	-0.77872	3.48E+01
13	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	8.3E+00	4.0E+03	1.2E+46	0.000	8.8E+01	1	-8.8E+01	-1	8.3E-01	0.7601	-8.3E-01	-0.76006	3.40E+01
14	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	8.9E+00	7.6E+03	1.2E+46	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7425	-8.0E-01	-0.74253	3.32E+01
15	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	9.6E+00	1.4E+04	1.2E+46	0.000	8.2E+01	1	-8.2E+01	-1	7.7E-01	0.726	-7.7E-01	-0.72604	3.25E+01
16	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.0E+01	2.7E+04	1.2E+46	0.000	7.9E+01	1	-7.9E+01	-1	7.5E-01	0.7105	-7.5E-01	-0.71052	3.18E+01
17	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.1E+01	5.2E+04	1.2E+46	0.000	7.7E+01	1	-7.7E+01	-1	7.3E-01	0.6959	-7.3E-01	-0.69588	3.11E+01
18	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.1E+01	9.8E+04	1.2E+46	0.000	7.4E+01	1	-7.4E+01	-1	7.1E-01	0.6821	-7.1E-01	-0.68205	3.05E+01
19	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.2E+01	1.8E+05	1.2E+46	0.000	7.2E+01	1	-7.2E+01	-1	6.9E-01	0.669	-6.9E-01	-0.66897	2.99E+01
20	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.3E+01	3.5E+05	1.2E+46	0.000	7.1E+01	1	-7.1E+01	-1	6.7E-01	0.6566	-6.7E-01	-0.65658	2.93E+01



Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	6.4E-01	1.9E+00	1.2E+46	0.000	3.2E+02	1	-3.2E+02	-1	6.0E+00	1	-6.0E+00	-1	4.47E+01
2	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.3E+00	3.6E+00	1.2E+46	0.000	2.2E+02	1	-2.2E+02	-1	4.2E+00	1	-4.2E+00	-1	4.47E+01
3	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.9E+00	6.8E+00	1.2E+46	0.000	1.8E+02	1	-1.8E+02	-1	3.5E+00	1	-3.5E+00	-1	4.47E+01
4	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	2.6E+00	1.3E+01	1.2E+46	0.000	1.6E+02	1	-1.6E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	4.47E+01
5	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	3.2E+00	2.4E+01	1.2E+46	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99985	4.47E+01
6	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	3.8E+00	4.6E+01	1.2E+46	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9995	-2.4E+00	-0.99946	4.47E+01
7	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	4.5E+00	8.7E+01	1.2E+46	0.000	1.2E+02	1	-1.2E+02	-1	2.3E+00	0.9986	-2.3E+00	-0.99864	4.46E+01
8	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	5.1E+00	1.7E+02	1.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	4.46E+01
9	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	5.7E+00	3.1E+02	1.2E+46	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9953	-2.0E+00	-0.99527	4.45E+01
10	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	6.4E+00	5.9E+02	1.2E+46	0.000	1.0E+02	1	-1.0E+02	-1	1.9E+00	0.9926	-1.9E+00	-0.99263	4.44E+01
11	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	7.0E+00	1.1E+03	1.2E+46	0.000	9.5E+01	1	-9.5E+01	-1	1.8E+00	0.9894	-1.8E+00	-0.98938	4.42E+01
12	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	7.7E+00	2.1E+03	1.2E+46	0.000	9.1E+01	1	-9.1E+01	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	4.41E+01
13	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	8.3E+00	4.0E+03	1.2E+46	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9812	-1.7E+00	-0.98124	4.39E+01
14	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	8.9E+00	7.6E+03	1.2E+46	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9765	-1.6E+00	-0.97647	4.36E+01
15	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	9.6E+00	1.4E+04	1.2E+46	0.000	8.2E+01	1	-8.2E+01	-1	1.5E+00	0.9713	-1.5E+00	-0.97133	4.34E+01
16	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.0E+01	2.7E+04	1.2E+46	0.000	7.9E+01	1	-7.9E+01	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	4.32E+01
17	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.1E+01	5.2E+04	1.2E+46	0.000	7.7E+01	1	-7.7E+01	-1	1.5E+00	0.9601	-1.5E+00	-0.96015	4.29E+01
18	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.1E+01	9.8E+04	1.2E+46	0.000	7.4E+01	1	-7.4E+01	-1	1.4E+00	0.9542	-1.4E+00	-0.95421	4.27E+01
19	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.2E+01	1.8E+05	1.2E+46	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9481	-1.4E+00	-0.94812	4.24E+01
20	5.5875	0.0E+00	1.0E+00	-1.2E+46	2.000	1.3E+01	3.5E+05	1.2E+46	0.000	7.1E+01	1	-7.1E+01	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	4.21E+01



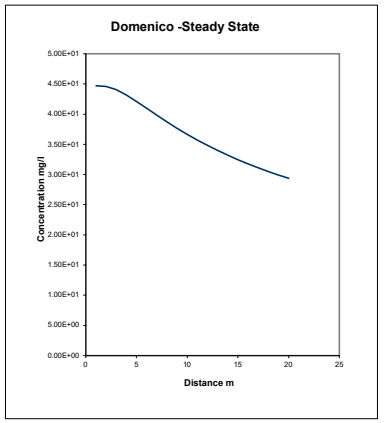
DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Contaminant	Manganese	
Input	**Value**	**Units**
C_T	0.123	mg/l
Co	4.47E+01	mg/l
λ	6.29E-105	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	7.20E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	11.175	0.00E+00	1.00E+00	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	4.47E+01
2	2	11.175	0.00E+00	1.00E+00	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.9973	4.46E+01
3	3	11.175	0.00E+00	1.00E+00	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.9856	-1.73E+00	-0.9856	4.41E+01
4	4	11.175	0.00E+00	1.00E+00	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.9659	-1.50E+00	-0.9659	4.32E+01
5	5	11.175	0.00E+00	1.00E+00	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.9419	-1.34E+00	-0.9419	4.21E+01
6	6	11.175	0.00E+00	1.00E+00	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.9163	-1.22E+00	-0.9163	4.10E+01
7	7	11.175	0.00E+00	1.00E+00	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.8907	-1.13E+00	-0.8907	3.98E+01
8	8	11.175	0.00E+00	1.00E+00	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.8659	-1.06E+00	-0.8659	3.87E+01
9	9	11.175	0.00E+00	1.00E+00	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.8422	-9.99E-01	-0.8422	3.76E+01
10	10	11.175	0.00E+00	1.00E+00	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.8197	-9.47E-01	-0.8197	3.66E+01
11	11	11.175	0.00E+00	1.00E+00	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.7986	-9.03E-01	-0.7986	3.57E+01
12	12	11.175	0.00E+00	1.00E+00	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.7787	-8.65E-01	-0.7787	3.48E+01
13	13	11.175	0.00E+00	1.00E+00	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.7601	-8.31E-01	-0.7601	3.40E+01
14	14	11.175	0.00E+00	1.00E+00	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.7425	-8.01E-01	-0.7425	3.32E+01
15	15	11.175	0.00E+00	1.00E+00	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	3.25E+01
16	16	11.175	0.00E+00	1.00E+00	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.7105	-7.49E-01	-0.7105	3.18E+01
17	17	11.175	0.00E+00	1.00E+00	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.6959	-7.27E-01	-0.6959	3.11E+01
18	18	11.175	0.00E+00	1.00E+00	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.6821	-7.06E-01	-0.6821	3.05E+01
19	19	11.175	0.00E+00	1.00E+00	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	2.99E+01
20	20	11.175	0.00E+00	1.00E+00	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.6566	-6.70E-01	-0.6566	2.93E+01

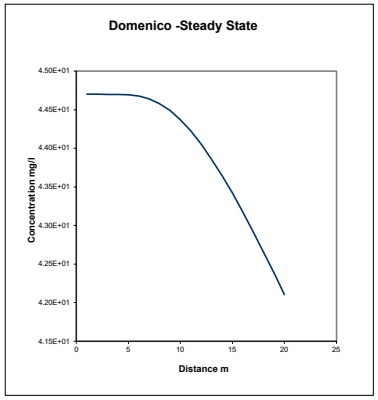


DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

Calc	Value	
v	1.08E-03	m/d
Rc	1.22E+04	
u	8.82E-08	m/d

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	11.175	0.00E+00	1.00E+00	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	4.47E+01
2	2	11.175	0.00E+00	1.00E+00	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	4.47E+01
3	3	11.175	0.00E+00	1.00E+00	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	4.47E+01
4	4	11.175	0.00E+00	1.00E+00	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	4.47E+01
5	5	11.175	0.00E+00	1.00E+00	1.41E+02	1	-1.41E+02	-1	2.68E+00	0.9998	-2.68E+00	-0.9998	4.47E+01
6	6	11.175	0.00E+00	1.00E+00	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.9995	-2.45E+00	-0.9995	4.47E+01
7	7	11.175	0.00E+00	1.00E+00	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.9986	-2.26E+00	-0.9986	4.46E+01
8	8	11.175	0.00E+00	1.00E+00	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.9973	4.46E+01
9	9	11.175	0.00E+00	1.00E+00	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.9953	-2.00E+00	-0.9953	4.45E+01
10	10	11.175	0.00E+00	1.00E+00	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.9926	-1.89E+00	-0.9926	4.44E+01
11	11	11.175	0.00E+00	1.00E+00	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.9894	-1.81E+00	-0.9894	4.42E+01
12	12	11.175	0.00E+00	1.00E+00	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.9856	-1.73E+00	-0.9856	4.41E+01
13	13	11.175	0.00E+00	1.00E+00	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.9812	-1.66E+00	-0.9812	4.39E+01
14	14	11.175	0.00E+00	1.00E+00	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.9765	-1.60E+00	-0.9765	4.36E+01
15	15	11.175	0.00E+00	1.00E+00	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.9713	-1.55E+00	-0.9713	4.34E+01
16	16	11.175	0.00E+00	1.00E+00	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.9659	-1.50E+00	-0.9659	4.32E+01
17	17	11.175	0.00E+00	1.00E+00	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.9601	-1.45E+00	-0.9601	4.29E+01
18	18	11.175	0.00E+00	1.00E+00	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.9542	-1.41E+00	-0.9542	4.27E+01
19	19	11.175	0.00E+00	1.00E+00	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.9481	-1.37E+00	-0.9481	4.24E+01
20	20	11.175	0.00E+00	1.00E+00	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.9419	-1.34E+00	-0.9419	4.21E+01



Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

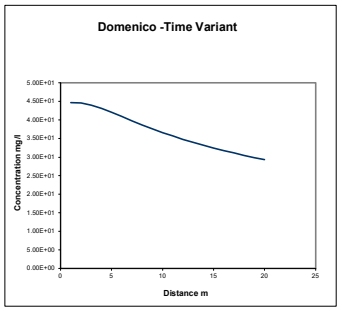
Contaminant	Manganese	
Input	**Value**	**Units**
C_T	0.123	mg/l
Co	4.47E+01	mg/l
λ	6.29E-105	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	7.20E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion option: Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	1.22E+04	
u	8.82E-08	m/d

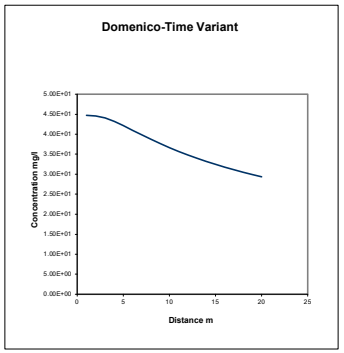
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	4.47E+01
2	2	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	4.46E+01
3	3	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.9856	-1.73E+00	-0.986	4.41E+01
4	4	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.9659	-1.50E+00	-0.966	4.32E+01
5	5	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.9419	-1.34E+00	-0.942	4.21E+01
6	6	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.9163	-1.22E+00	-0.916	4.10E+01
7	7	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.8907	-1.13E+00	-0.891	3.98E+01
8	8	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.8659	-1.06E+00	-0.866	3.87E+01
9	9	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.8422	-9.99E-01	-0.842	3.76E+01
10	10	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.8197	-9.47E-01	-0.82	3.66E+01
11	11	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.7986	-9.03E-01	-0.799	3.57E+01
12	12	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.7787	-8.65E-01	-0.779	3.48E+01
13	13	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.7601	-8.31E-01	-0.76	3.40E+01
14	14	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.7425	-8.01E-01	-0.743	3.32E+01
15	15	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	3.25E+01
16	16	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.7105	-7.49E-01	-0.711	3.18E+01
17	17	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.6959	-7.27E-01	-0.696	3.11E+01
18	18	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.6821	-7.06E-01	-0.682	3.05E+01
19	19	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	2.99E+01
20	20	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.6566	-6.70E-01	-0.657	2.93E+01



Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	4.47E+01
2	2	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	4.47E+01
3	3	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	4.47E+01
4	4	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	4.47E+01
5	5	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.41E+02	1	-1.41E+02	-1	2.68E+00	0.9998	-2.68E+00	-1	4.47E+01
6	6	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.9995	-2.45E+00	-0.999	4.47E+01
7	7	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.9986	-2.26E+00	-0.999	4.46E+01
8	8	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	4.46E+01
9	9	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.9953	-2.00E+00	-0.995	4.45E+01
10	10	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.9926	-1.89E+00	-0.993	4.44E+01
11	11	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.9894	-1.81E+00	-0.989	4.42E+01
12	12	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.9856	-1.73E+00	-0.986	4.41E+01
13	13	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.9812	-1.66E+00	-0.981	4.39E+01
14	14	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.9765	-1.60E+00	-0.976	4.36E+01
15	15	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.9713	-1.55E+00	-0.971	4.34E+01
16	16	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.9659	-1.50E+00	-0.966	4.32E+01
17	17	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.9601	-1.45E+00	-0.96	4.29E+01
18	18	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.9542	-1.41E+00	-0.954	4.27E+01
19	19	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.9481	-1.37E+00	-0.948	4.24E+01
20	20	5.5875	0.00E+00	1.00E+00	-1.19E+46	2	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.9419	-1.34E+00	-0.942	4.21E+01



Date:	27/04/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions

Details to be completed for each assessment				
Site Name:	Glan Llyn			
Site Address:	Llanwern			
Completed by:	Ross Cameron			
Date:	27-Apr-22		Version:	1
Contaminant	Iron			
Target Concentration (C_T)	1	mg/l	Origin of C_T:	Water Framework Directive EQS

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Iron**		
Target concentration	C_T	**1**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	
Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient. The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Level 1 Remedial Target

Level 1 Remedial Target	**1.35E+02**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	1	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Iron**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	C_T	**1** mg/l	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	Variable	Value	Unit	Source of parameter value	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentra**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters	Variable	Value	Unit	Source
Contaminant		Iron		from Level 1
Target Concentration	C_T	1	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target		**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks		**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
		#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point		**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

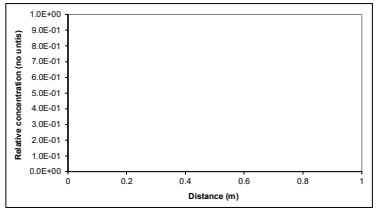
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

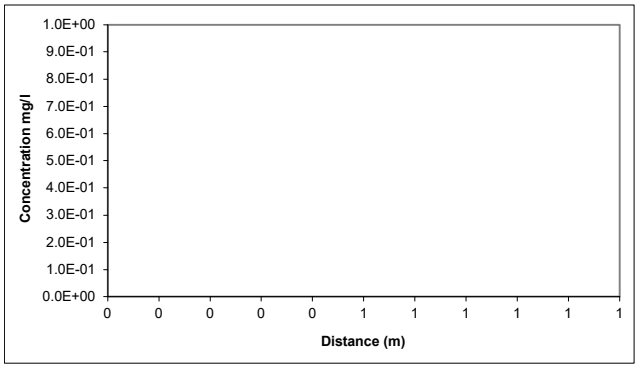
Only input required is Soil Contaminant Concentration

	Input Parameters			
	Soil contaminant concentration	C_0	0.00E+00	mg/kg
Level 1 Parameters				
	Water filled soil porosity	θ_W	5.00E-01	fraction
	Air filled soil porosity	θa	3.70E-01	fraction
	Bulk density	ρ	1.36E+00	g/cm^3
	Henry's Law constant	H	1.00E+00	dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02	l/kg
	Factor (partitioning between soil and water)		1.35E+02	dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!	
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!	

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Iron		from Level 1
Target Concentration	C_T	1.00E+00	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	3.15E+02	mg/l	*Based on 95 percentile soil conc of 255000mg/kg*
Half life for degradation of contaminant in water	$t_{1/2}$	9.00E+99	days	*100 day half life estimation*
Calculated decay rate	λ	7.70E-101	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappi*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	8.10E+02	l/kg	*see options*
Longitudinal dispersivity	ax	1.57E+00	m	*see options*
Transverse dispersivity	az	1.57E-01	m	*see options*
Vertical dispersivity	ay	1.57E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	1.08E-03	m/d
Retardation factor	Rf	1.38E+04	fraction
Decay rate used	λ	5.59E-105	d^{-1}
Rate of contaminant flow due to retardation	u	7.84E-08	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	2.96E+02	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**1.06E+00**	

Remedial Targets

Remedial Target		**1.06E+00**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**20**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**2.96E+02**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	8.10E+02	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	8.10E+02	l/kg

Define dispersivity (click brown cell and use pull down list)

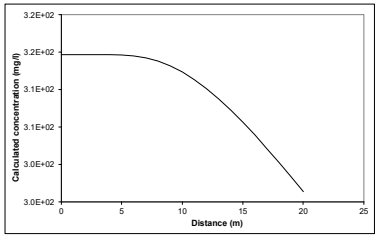
Dispersivity based on Xu & Eckstein (1995)

		Enter value	Calc value Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00 m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01 m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report $ax = 0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.
Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	3.1E+02
1.0	3.15E+02
2.0	3.15E+02
3.0	3.15E+02
4.0	3.15E+02
5.0	3.15E+02
6.0	3.14E+02
7.0	3.14E+02
8.0	3.14E+02
9.0	3.13E+02
10.0	3.12E+02
11.0	3.11E+02
12.0	3.10E+02
13.0	3.09E+02
14.0	3.07E+02
15.0	3.06E+02
16.0	3.04E+02
17.0	3.02E+02
18.0	3.00E+02
19.0	2.98E+02
20.0	2.96E+02

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant **Iron**

Parameter	Value	Units
(carried over from input sheet)		
C_T	1.00E+00	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

calc calc Calc Kd l/kg

Calculation of partition coefficient for ionic organic chemical

Partition coefficient used in Level 1 Assessment 1.34E+02 l/kg

Calculated Remedial Target **1.35E+02 mg/kg** **for Iron**

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27/04/2022
Version:	1

Level 2 Calculation Sheet

Contaminant **Iron**

Site assessed:	Glan Llyn
Date:	27/04/2022
Version:	1

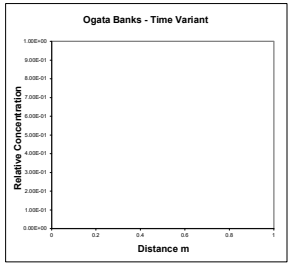
Parameter	Value	Units		
(carried over from input sheet)				
Mz	0.00E+00	m		
L	0.00E+00	m		
da	0.00E+00	m		Calculated
Inf	0.00E+00	m/d		Dilution Factor
K	0.00E+00	m/d		
i	0.00E+00		Calculation based on target concentration	#DIV/0!
		m3/d		
A	0.00E+00	m2	Calculation based on observed contaminant concentration	#DIV/0!
		m3/d		
Cc	0.00E+00	mg/l		
C_T	1.00E+00	mg/l		
Cu	0.00E+00	mg/l		
w	0.00E+00	m		

OGATA BANKS SOLUTION

Contaminant	Iron	
Input	**Value**	**Units**
C_T	1.000E+00	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

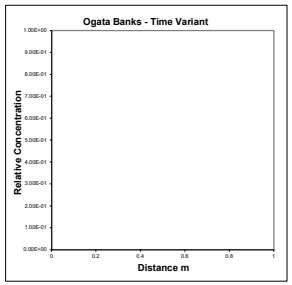
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



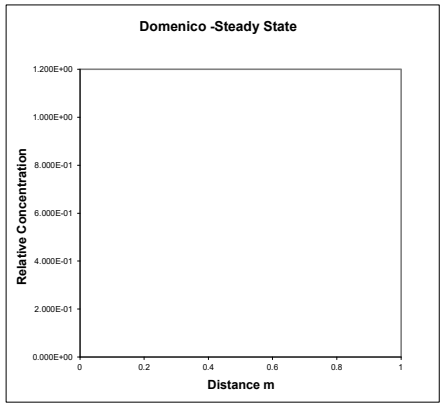
Date:	27/04/2022
Version:	1

DOMENICO (STEADY STATE)

Contaminant	Iron	
Input	**Value**	**Units**
C_T	1.000E+00	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!

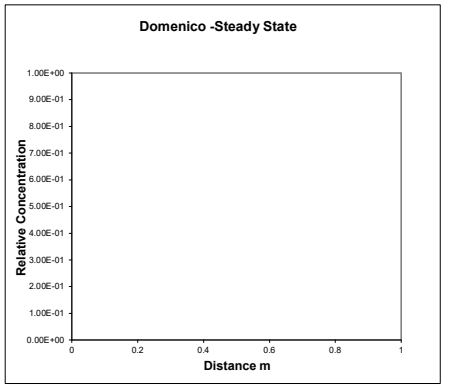


DOMENICO (STEADY STATE)

Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



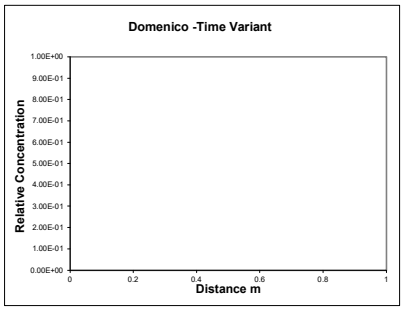
Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant	Iron	
Input	**Value**	**Units**
C_T	1	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

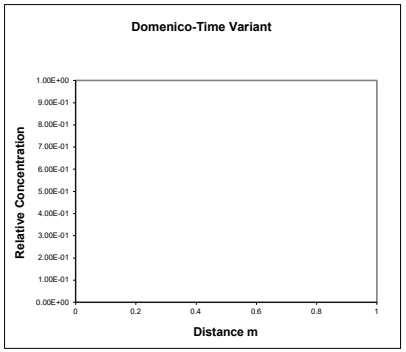
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

OGATA BANKS SOLUTION

Contaminant	Iron	
Input	**Value**	**Units**
C_T	1	mg/l
Co	3.15E+02	mg/l
λ	5.59E-105	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	8.10E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

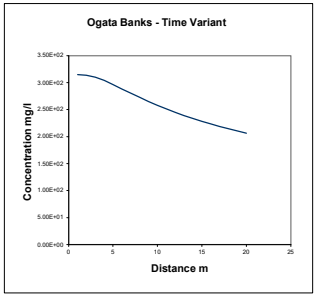
Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	1.38E+04	
u	7.84E-08	m/d

Date:	27/04/2022
Version:	1

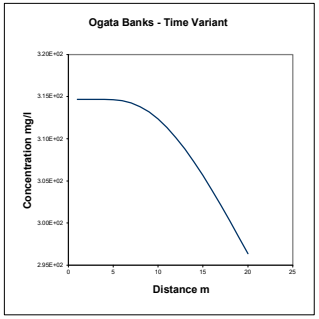
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	6.4E-01	1.9E+00	1.1E+46	0.000	3.2E+02	1	-3.2E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	3.15E+02
2	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.3E+00	3.6E+00	1.1E+46	0.000	2.2E+02	1	-2.2E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	3.14E+02
3	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.9E+00	6.8E+00	1.1E+46	0.000	1.8E+02	1	-1.8E+02	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	3.10E+02
4	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	2.6E+00	1.3E+01	1.1E+46	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	3.04E+02
5	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	3.2E+00	2.4E+01	1.1E+46	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	2.96E+02
6	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	3.8E+00	4.6E+01	1.1E+46	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9163	-1.2E+00	-0.91633	2.88E+02
7	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	4.5E+00	8.7E+01	1.1E+46	0.000	1.2E+02	1	-1.2E+02	-1	1.1E+00	0.8907	-1.1E+00	-0.89072	2.80E+02
8	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	5.1E+00	1.7E+02	1.1E+46	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8659	-1.1E+00	-0.86587	2.72E+02
9	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	5.7E+00	3.1E+02	1.1E+46	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8422	-1.0E+00	-0.84215	2.65E+02
10	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	6.4E+00	5.9E+02	1.1E+46	0.000	1.0E+02	1	-1.0E+02	-1	9.5E-01	0.8197	-9.5E-01	-0.81971	2.58E+02
11	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	7.0E+00	1.1E+03	1.1E+46	0.000	9.5E+01	1	-9.5E+01	-1	9.0E-01	0.7986	-9.0E-01	-0.79858	2.51E+02
12	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	7.7E+00	2.1E+03	1.1E+46	0.000	9.1E+01	1	-9.1E+01	-1	8.6E-01	0.7787	-8.6E-01	-0.77872	2.45E+02
13	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	8.3E+00	4.0E+03	1.1E+46	0.000	8.8E+01	1	-8.8E+01	-1	8.3E-01	0.7601	-8.3E-01	-0.76006	2.39E+02
14	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	8.9E+00	7.6E+03	1.1E+46	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7425	-8.0E-01	-0.74253	2.34E+02
15	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	9.6E+00	1.4E+04	1.1E+46	0.000	8.2E+01	1	-8.2E+01	-1	7.7E-01	0.726	-7.7E-01	-0.72604	2.28E+02
16	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.0E+01	2.7E+04	1.1E+46	0.000	7.9E+01	1	-7.9E+01	-1	7.5E-01	0.7105	-7.5E-01	-0.71052	2.24E+02
17	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.1E+01	5.2E+04	1.1E+46	0.000	7.7E+01	1	-7.7E+01	-1	7.3E-01	0.6959	-7.3E-01	-0.69588	2.19E+02
18	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.1E+01	9.8E+04	1.1E+46	0.000	7.4E+01	1	-7.4E+01	-1	7.1E-01	0.6821	-7.1E-01	-0.68205	2.15E+02
19	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.2E+01	1.8E+05	1.1E+46	0.000	7.2E+01	1	-7.2E+01	-1	6.9E-01	0.669	-6.9E-01	-0.66897	2.11E+02
20	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.3E+01	3.5E+05	1.1E+46	0.000	7.1E+01	1	-7.1E+01	-1	6.7E-01	0.6566	-6.7E-01	-0.65658	2.07E+02



Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	6.4E-01	1.9E+00	1.1E+46	0.000	3.2E+02	1	-3.2E+02	-1	6.0E+00	1	-6.0E+00	-1	3.15E+02
2	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.3E+00	3.6E+00	1.1E+46	0.000	2.2E+02	1	-2.2E+02	-1	4.2E+00	1	-4.2E+00	-1	3.15E+02
3	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.9E+00	6.8E+00	1.1E+46	0.000	1.8E+02	1	-1.8E+02	-1	3.5E+00	1	-3.5E+00	-1	3.15E+02
4	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	2.6E+00	1.3E+01	1.1E+46	0.000	1.6E+02	1	-1.6E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	3.15E+02
5	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	3.2E+00	2.4E+01	1.1E+46	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99985	3.15E+02
6	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	3.8E+00	4.6E+01	1.1E+46	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9995	-2.4E+00	-0.99946	3.14E+02
7	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	4.5E+00	8.7E+01	1.1E+46	0.000	1.2E+02	1	-1.2E+02	-1	2.3E+00	0.9986	-2.3E+00	-0.99864	3.14E+02
8	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	5.1E+00	1.7E+02	1.1E+46	0.000	1.1E+02	1	-1.1E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	3.14E+02
9	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	5.7E+00	3.1E+02	1.1E+46	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9953	-2.0E+00	-0.99527	3.13E+02
10	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	6.4E+00	5.9E+02	1.1E+46	0.000	1.0E+02	1	-1.0E+02	-1	1.9E+00	0.9926	-1.9E+00	-0.99263	3.12E+02
11	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	7.0E+00	1.1E+03	1.1E+46	0.000	9.5E+01	1	-9.5E+01	-1	1.8E+00	0.9894	-1.8E+00	-0.98938	3.11E+02
12	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	7.7E+00	2.1E+03	1.1E+46	0.000	9.1E+01	1	-9.1E+01	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	3.10E+02
13	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	8.3E+00	4.0E+03	1.1E+46	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9812	-1.7E+00	-0.98124	3.09E+02
14	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	8.9E+00	7.6E+03	1.1E+46	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9765	-1.6E+00	-0.97647	3.07E+02
15	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	9.6E+00	1.4E+04	1.1E+46	0.000	8.2E+01	1	-8.2E+01	-1	1.5E+00	0.9713	-1.5E+00	-0.97133	3.06E+02
16	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.0E+01	2.7E+04	1.1E+46	0.000	7.9E+01	1	-7.9E+01	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	3.04E+02
17	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.1E+01	5.2E+04	1.1E+46	0.000	7.7E+01	1	-7.7E+01	-1	1.5E+00	0.9601	-1.5E+00	-0.96015	3.02E+02
18	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.1E+01	9.8E+04	1.1E+46	0.000	7.4E+01	1	-7.4E+01	-1	1.4E+00	0.9542	-1.4E+00	-0.95421	3.00E+02
19	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.2E+01	1.8E+05	1.1E+46	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9481	-1.4E+00	-0.94812	2.98E+02
20	39.3338	0.0E+00	1.0E+00	-1.1E+46	2.000	1.3E+01	3.5E+05	1.1E+46	0.000	7.1E+01	1	-7.1E+01	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	2.96E+02



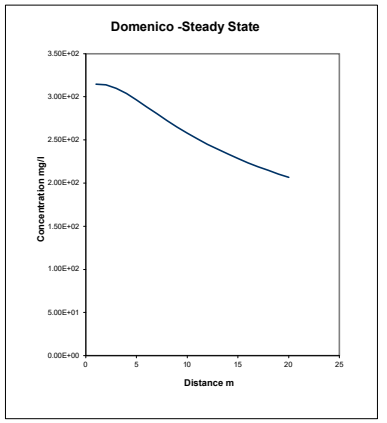
DOMENICO (STEADY STATE)

Contaminant	Iron	
Input	**Value**	**Units**
C_T	1	mg/l
Co	3.15E+02	mg/l
λ	5.59E-105	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	8.10E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	78.6675	0.00E+00	1.00E+00	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	3.15E+02
2	2	78.6675	0.00E+00	1.00E+00	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.9973	3.14E+02
3	3	78.6675	0.00E+00	1.00E+00	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.9856	-1.73E+00	-0.9856	3.10E+02
4	4	78.6675	0.00E+00	1.00E+00	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.9659	-1.50E+00	-0.9659	3.04E+02
5	5	78.6675	0.00E+00	1.00E+00	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.9419	-1.34E+00	-0.9419	2.96E+02
6	6	78.6675	0.00E+00	1.00E+00	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.9163	-1.22E+00	-0.9163	2.88E+02
7	7	78.6675	0.00E+00	1.00E+00	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.8907	-1.13E+00	-0.8907	2.80E+02
8	8	78.6675	0.00E+00	1.00E+00	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.8659	-1.06E+00	-0.8659	2.72E+02
9	9	78.6675	0.00E+00	1.00E+00	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.8422	-9.99E-01	-0.8422	2.65E+02
10	10	78.6675	0.00E+00	1.00E+00	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.8197	-9.47E-01	-0.8197	2.58E+02
11	11	78.6675	0.00E+00	1.00E+00	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.7986	-9.03E-01	-0.7986	2.51E+02
12	12	78.6675	0.00E+00	1.00E+00	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.7787	-8.65E-01	-0.7787	2.45E+02
13	13	78.6675	0.00E+00	1.00E+00	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.7601	-8.31E-01	-0.7601	2.39E+02
14	14	78.6675	0.00E+00	1.00E+00	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.7425	-8.01E-01	-0.7425	2.34E+02
15	15	78.6675	0.00E+00	1.00E+00	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	2.28E+02
16	16	78.6675	0.00E+00	1.00E+00	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.7105	-7.49E-01	-0.7105	2.24E+02
17	17	78.6675	0.00E+00	1.00E+00	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.6959	-7.27E-01	-0.6959	2.19E+02
18	18	78.6675	0.00E+00	1.00E+00	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.6821	-7.06E-01	-0.6821	2.15E+02
19	19	78.6675	0.00E+00	1.00E+00	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	2.11E+02
20	20	78.6675	0.00E+00	1.00E+00	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.6566	-6.70E-01	-0.6566	2.07E+02

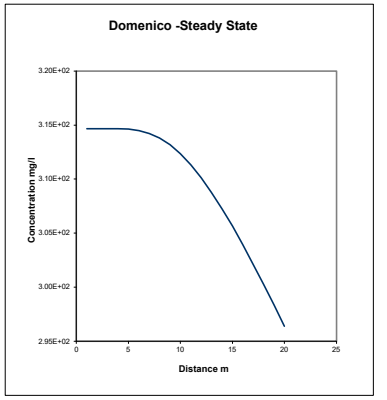


DOMENICO (STEADY STATE)

Calc	Value	
v	1.08E-03	m/d
Rc	1.38E+04	
u	7.84E-08	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	78.6675	0.00E+00	1.00E+00	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	3.15E+02
2	2	78.6675	0.00E+00	1.00E+00	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	3.15E+02
3	3	78.6675	0.00E+00	1.00E+00	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	3.15E+02
4	4	78.6675	0.00E+00	1.00E+00	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	3.15E+02
5	5	78.6675	0.00E+00	1.00E+00	1.41E+02	1	-1.41E+02	-1	2.68E+00	0.9998	-2.68E+00	-0.9998	3.15E+02
6	6	78.6675	0.00E+00	1.00E+00	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.9995	-2.45E+00	-0.9995	3.14E+02
7	7	78.6675	0.00E+00	1.00E+00	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.9986	-2.26E+00	-0.9986	3.14E+02
8	8	78.6675	0.00E+00	1.00E+00	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.9973	3.14E+02
9	9	78.6675	0.00E+00	1.00E+00	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.9953	-2.00E+00	-0.9953	3.13E+02
10	10	78.6675	0.00E+00	1.00E+00	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.9926	-1.89E+00	-0.9926	3.12E+02
11	11	78.6675	0.00E+00	1.00E+00	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.9894	-1.81E+00	-0.9894	3.11E+02
12	12	78.6675	0.00E+00	1.00E+00	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.9856	-1.73E+00	-0.9856	3.10E+02
13	13	78.6675	0.00E+00	1.00E+00	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.9812	-1.66E+00	-0.9812	3.09E+02
14	14	78.6675	0.00E+00	1.00E+00	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.9765	-1.60E+00	-0.9765	3.07E+02
15	15	78.6675	0.00E+00	1.00E+00	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.9713	-1.55E+00	-0.9713	3.06E+02
16	16	78.6675	0.00E+00	1.00E+00	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.9659	-1.50E+00	-0.9659	3.04E+02
17	17	78.6675	0.00E+00	1.00E+00	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.9601	-1.45E+00	-0.9601	3.02E+02
18	18	78.6675	0.00E+00	1.00E+00	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.9542	-1.41E+00	-0.9542	3.00E+02
19	19	78.6675	0.00E+00	1.00E+00	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.9481	-1.37E+00	-0.9481	2.98E+02
20	20	78.6675	0.00E+00	1.00E+00	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.9419	-1.34E+00	-0.9419	2.96E+02



Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant **Iron**

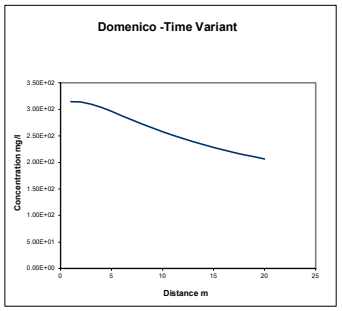
Input	Value	Units
C_T	1	mg/l
Co	3.15E+02	mg/l
λ	5.59E-105	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	8.10E+02	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	1.38E+04	
u	7.84E-08	m/d

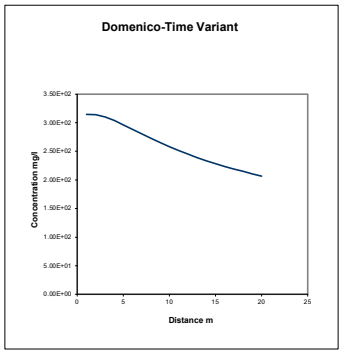
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	3.15E+02
2	2	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	3.14E+02
3	3	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.9856	-1.73E+00	-0.986	3.10E+02
4	4	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.9659	-1.50E+00	-0.966	3.04E+02
5	5	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.9419	-1.34E+00	-0.942	2.96E+02
6	6	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.9163	-1.22E+00	-0.916	2.88E+02
7	7	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.8907	-1.13E+00	-0.891	2.80E+02
8	8	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.8659	-1.06E+00	-0.866	2.72E+02
9	9	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.8422	-9.99E-01	-0.842	2.65E+02
10	10	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.8197	-9.47E-01	-0.82	2.58E+02
11	11	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.7986	-9.03E-01	-0.799	2.51E+02
12	12	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.7787	-8.65E-01	-0.779	2.45E+02
13	13	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.7601	-8.31E-01	-0.76	2.39E+02
14	14	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.7425	-8.01E-01	-0.743	2.34E+02
15	15	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	2.28E+02
16	16	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.7105	-7.49E-01	-0.711	2.24E+02
17	17	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.6959	-7.27E-01	-0.696	2.19E+02
18	18	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.6821	-7.06E-01	-0.682	2.15E+02
19	19	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	2.11E+02
20	20	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.6566	-6.70E-01	-0.657	2.07E+02



Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	3.15E+02
2	2	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	3.15E+02
3	3	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	3.15E+02
4	4	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	3.15E+02
5	5	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.41E+02	1	-1.41E+02	-1	2.68E+00	0.9998	-2.68E+00	-1	3.15E+02
6	6	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.9995	-2.45E+00	-0.999	3.14E+02
7	7	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.9986	-2.26E+00	-0.999	3.14E+02
8	8	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	3.14E+02
9	9	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.9953	-2.00E+00	-0.995	3.13E+02
10	10	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.9926	-1.89E+00	-0.993	3.12E+02
11	11	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.9894	-1.81E+00	-0.989	3.11E+02
12	12	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.9856	-1.73E+00	-0.986	3.10E+02
13	13	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.9812	-1.66E+00	-0.981	3.09E+02
14	14	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.9765	-1.60E+00	-0.976	3.07E+02
15	15	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.9713	-1.55E+00	-0.971	3.06E+02
16	16	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.9659	-1.50E+00	-0.966	3.04E+02
17	17	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.9601	-1.45E+00	-0.96	3.02E+02
18	18	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.9542	-1.41E+00	-0.954	3.00E+02
19	19	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.9481	-1.37E+00	-0.948	2.98E+02
20	20	39.3338	0.00E+00	1.00E+00	-1.12E+46	2	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.9419	-1.34E+00	-0.942	2.96E+02



Date:	27/04/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions)

Details to be completed for each assessment

Site Name:	**Glan Llyn**			
Site Address:	**Llanwern**			
Completed by:	**Ross Cameron**			
Date:	**24-Jun-22**		**Version:**	**1**
Contaminant	**Cyanide**			
Target Concentration (C_T)	**0.001**	**mg/l**	**Origin of C_T:**	**Water Framework Directive (DEFRA/Ministers 2015)**

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		Cyanide		
Target concentration	C_T	0.001	mg/l	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient.

The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

Level 1 Remedial Target

Level 1 Remedial Target	**1.35E-01**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.001	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	24-Jun-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Cyanide**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	C_T	**0.001** **mg/l**	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentr**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	24-Jun-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Input Parameters

	Variable	Value	Unit	Source
Contaminant		Cyanide		from Level 1
Target Concentration	C_T	0.001	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters

	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target	**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks	**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
	#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point	**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water
Ratio of Compliance Point to Source Concentration	**C_{ED}/C_0**	**#DIV/0!**	**fraction** partitioning equation. Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)

Soil water partition coefficient	Kd		l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

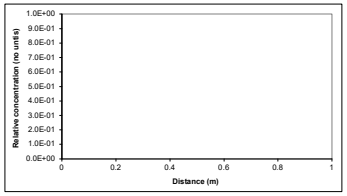
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

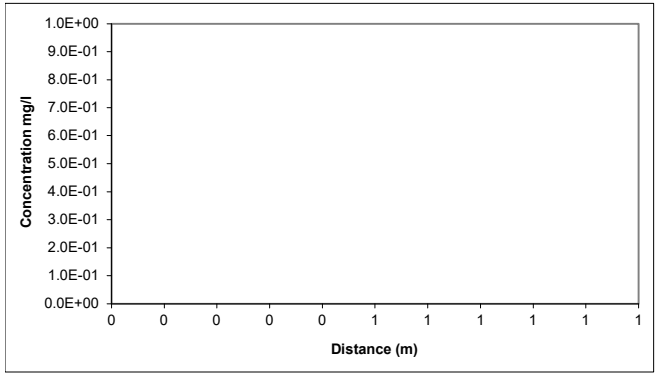
Only input required is Soil Contaminant Concentration

	Input Parameters			
	Soil contaminant concentration	C_0	0.00E+00	mg/kg
Level 1 Parameters				
	Water filled soil porosity	θ_W	5.00E-01	fraction
	Air filled soil porosity	θa	3.70E-01	fraction
	Bulk density	ρ	1.36E+00	g/cm^3
	Henry's Law constant	H	1.00E+00	dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02	l/kg
	Factor (partitioning between soil and water)		1.35E+02	dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!	
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!	

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Cyanide		from Level 1
Target Concentration	C_T	1.00E-03	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

	Variable	Value	Unit	Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	5.26E+00	mg/l	*Based on 95th percentile soil conc of 28.23*
Half life for degradation of contaminant in water	$t_{1/2}$	1.50E+01	days	*WFD UKTechnical Advisory Group*
Calculated decay rate	λ	4.62E-02	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappir*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	5.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	1.57E+00	m	*see options*
Transverse dispersivity	az	1.57E-01	m	*see options*
Vertical dispersivity	ay	1.57E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	1.08E-03	m/d
Retardation factor	Rf	8.60E+01	fraction
Decay rate used	λ	5.37E-04	d^{-1}
Rate of contaminant flow due to retardation	u	1.26E-05	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	9.74E-43	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**5.39E+42**	

Remedial Targets

Remedial Target		**5.39E+39**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**20**	**m**	
Concentration of contaminant at compliance point	**C_{ED}/C_0**	**9.74E-43**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	5.00E+00	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	5.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

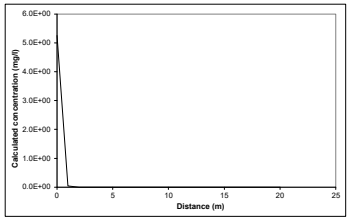
Dispersivity based on Xu & Eckstein (1995)

		Enter value	Calc value Xu & Eckstein		
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00	m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01	m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	5.3E+00
1.0	3.85E-02
2.0	2.82E-04
3.0	2.06E-06
4.0	1.51E-08
5.0	1.11E-10
6.0	8.10E-13
7.0	5.93E-15
8.0	4.34E-17
9.0	3.17E-19
10.0	2.31E-21
11.0	1.69E-23
12.0	1.23E-25
13.0	8.99E-28
14.0	6.55E-30
15.0	4.77E-32
16.0	3.47E-34
17.0	2.53E-36
18.0	1.84E-38
19.0	1.34E-40
20.0	9.74E-43

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant **Cyanide**

Parameter (carried over from input sheet)	**Value**	**Units**
C_T	1.00E-03	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

	calc	calc	Calc Kd	l/kg
Calculation of partition coefficient for ionic organic chemical				
Partition coefficient used in Level 1 Assessment			1.34E+02	l/kg

Calculated Remedial Target **1.35E-01 mg/kg** **for Cyanide**

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	24/06/2022
Version:	1

Level 2 Calculation Sheet

Contaminant **Cyanide**

Site assessed:	Glan Llyn
Date:	24/06/2022
Version:	1

Parameter	Value	Units
(carried over from input sheet)		
Mz	0.00E+00	m
L	0.00E+00	m
da	0.00E+00	m
Inf	0.00E+00	m/d
K	0.00E+00	m/d
i	0.00E+00	
		m3/d
A	0.00E+00	m2
		m3/d
Cc	0.00E+00	mg/l
C_T	1.00E-03	mg/l
Cu	0.00E+00	mg/l
w	0.00E+00	m

Calculated Dilution Factor

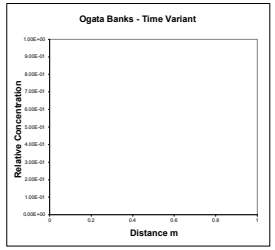
Calculation based on target concentration #DIV/0!

Calculation based on observed contaminant concentration #DIV/0!

OGATA BANKS SOLUTION

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Contaminant	Cyanide			X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
Input	**Value**	**Units**																				
C_T	1.000E-03	mg/l	1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
DF	#DIV/0!		2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
λ	6.931E-101	$days^{-1}$	5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sz	0.000E+00	m	6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Sy	0.000E+00	m	7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Kd	0.000E+00	l/kg	8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ρ	0.000E+00	g/cm3	9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
n	0.000E+00		10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
i	#DIV/0!		11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
K	0.000E+00	m/d	12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
x	0.000E+00	m	13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
z	0.000E+00	m	14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
y	0.000E+00	m	15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
t	1.000E+99	days	16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ax	0.000E+00	m	17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
az	0.000E+00	m	18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
ay	0.000E+00	m	19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
			20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

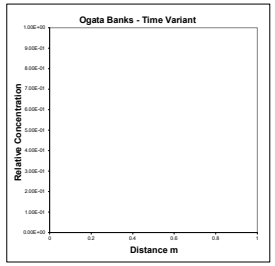


Calc

Value	
#DIV/0!	m/d
#DIV/0!	
#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



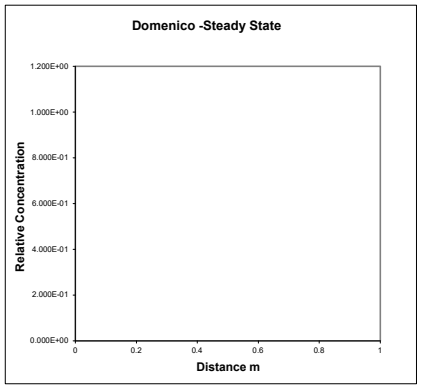
Date:	24/06/2022
Version:	1

Contaminant	Cyanide	
Input	**Value**	**Units**
C_T	1.000E-03	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!

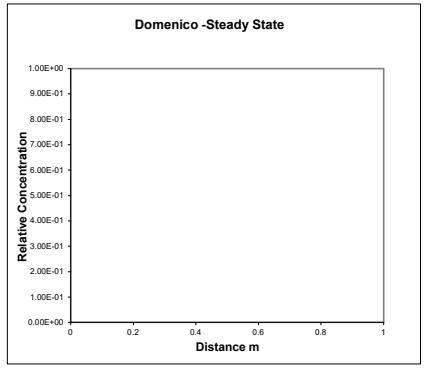


Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!



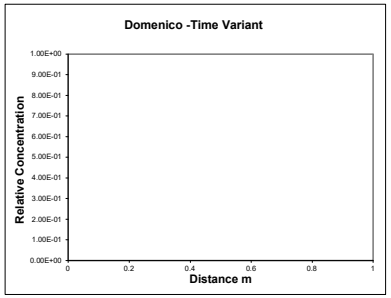
Date:	24/06/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant	Cyanide	
Input	**Value**	**Units**
C_T	0.001	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

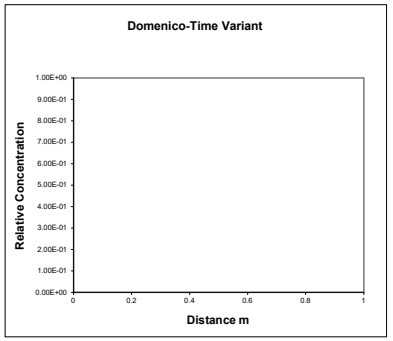
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	24/06/2022
Version:	1

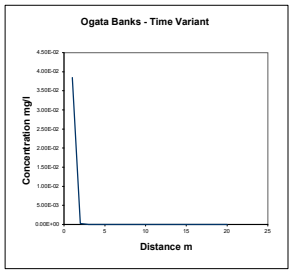
OGATA BANKS SOLUTION

Contaminant	Cyanide	
Input	**Value**	**Units**
C_T	0.001	mg/l
Co	5.26E+00	mg/l
λ	5.37E-04	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	5.00E+00	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion option: Simulate vertical dispersion in 1 direction

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

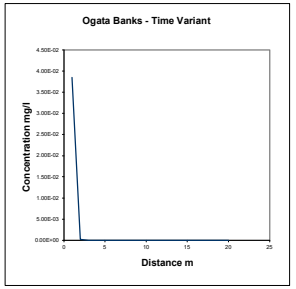
X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	0.657	-4.9E+00	7.3E-03	-2.3E+48	2.000	5.6E+00	2.6E+02	2.3E+48	0.000	3.2E+02	1	-3.2E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	3.85E-02
2	0.657	-9.8E+00	5.4E-05	-2.3E+48	2.000	1.1E+01	6.7E+04	2.3E+48	0.000	2.2E+02	1	-2.2E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	2.81E-04
3	0.657	-1.5E+01	3.9E-07	-2.3E+48	2.000	1.7E+01	1.7E+07	2.3E+48	0.000	1.8E+02	1	-1.8E+02	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	2.03E-06
4	0.657	-2.0E+01	2.9E-09	-2.3E+48	2.000	2.2E+01	4.5E+09	2.3E+48	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	1.46E-08
5	0.657	-2.5E+01	2.1E-11	-2.3E+48	2.000	2.8E+01	1.2E+12	2.3E+48	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	1.04E-10
6	0.657	-3.0E+01	1.5E-13	-2.3E+48	2.000	3.3E+01	3.0E+14	2.3E+48	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9163	-1.2E+00	-0.91633	7.43E-13
7	0.657	-3.4E+01	1.1E-15	-2.3E+48	2.000	3.9E+01	7.7E+16	2.3E+48	0.000	1.2E+02	1	-1.2E+02	-1	1.1E+00	0.8907	-1.1E+00	-0.89072	5.29E-15
8	0.657	-3.9E+01	8.3E-18	-2.3E+48	2.000	4.4E+01	2.0E+19	2.3E+48	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8659	-1.1E+00	-0.86587	3.76E-17
9	0.657	-4.4E+01	6.1E-20	-2.3E+48	2.000	5.0E+01	5.2E+21	2.3E+48	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8422	-1.0E+00	-0.84215	2.68E-19
10	0.657	-4.9E+01	4.4E-22	-2.3E+48	2.000	5.6E+01	1.3E+24	2.3E+48	0.000	1.0E+02	1	-1.0E+02	-1	9.5E-01	0.8197	-9.5E-01	-0.81971	1.91E-21
11	0.657	-5.4E+01	3.2E-24	-2.3E+48	2.000	6.1E+01	3.4E+26	2.3E+48	0.000	9.5E+01	1	-9.5E+01	-1	9.0E-01	0.7986	-9.0E-01	-0.79858	1.36E-23
12	0.657	-5.9E+01	2.4E-26	-2.3E+48	2.000	6.7E+01	8.9E+28	2.3E+48	0.000	9.1E+01	1	-9.1E+01	-1	8.6E-01	0.7787	-8.6E-01	-0.77872	9.74E-26
13	0.657	-6.4E+01	1.7E-28	-2.3E+48	2.000	7.2E+01	2.3E+31	2.3E+48	0.000	8.8E+01	1	-8.8E+01	-1	8.3E-01	0.7601	-8.3E-01	-0.76006	6.96E-28
14	0.657	-6.9E+01	1.3E-30	-2.3E+48	2.000	7.8E+01	6.0E+33	2.3E+48	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7425	-8.0E-01	-0.74253	4.98E-30
15	0.657	-7.4E+01	9.3E-33	-2.3E+48	2.000	8.3E+01	1.5E+36	2.3E+48	0.000	8.2E+01	1	-8.2E+01	-1	7.7E-01	0.726	-7.7E-01	-0.72604	3.57E-32
16	0.657	-7.9E+01	6.8E-35	-2.3E+48	2.000	8.9E+01	4.0E+38	2.3E+48	0.000	7.9E+01	1	-7.9E+01	-1	7.5E-01	0.7105	-7.5E-01	-0.71052	2.56E-34
17	0.657	-8.4E+01	5.0E-37	-2.3E+48	2.000	9.4E+01	1.0E+41	2.3E+48	0.000	7.7E+01	1	-7.7E+01	-1	7.3E-01	0.6959	-7.3E-01	-0.69588	1.83E-36
18	0.657	-8.9E+01	3.7E-39	-2.3E+48	2.000	1.0E+02	2.7E+43	2.3E+48	0.000	7.4E+01	1	-7.4E+01	-1	7.1E-01	0.6821	-7.1E-01	-0.68205	1.32E-38
19	0.657	-9.3E+01	2.7E-41	-2.3E+48	2.000	1.1E+02	6.9E+45	2.3E+48	0.000	7.2E+01	1	-7.2E+01	-1	6.9E-01	0.669	-6.9E-01	-0.66897	9.45E-41
20	0.657	-9.8E+01	2.0E-43	-2.3E+48	2.000	1.1E+02	1.8E+48	2.3E+48	0.000	7.1E+01	1	-7.1E+01	-1	6.7E-01	0.6566	-6.7E-01	-0.65658	6.79E-43



Calc	Value	
v	1.08E-03	m/d
Rc	8.60E+01	
u	1.26E-05	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

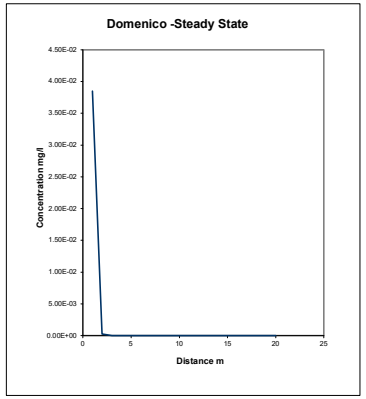
X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	0.657	-4.9E+00	7.3E-03	-2.3E+48	2.000	5.6E+00	2.6E+02	2.3E+48	0.000	3.2E+02	1	-3.2E+02	-1	6.0E+00	1	-6.0E+00	-1	3.85E-02
2	0.657	-9.8E+00	5.4E-05	-2.3E+48	2.000	1.1E+01	6.7E+04	2.3E+48	0.000	2.2E+02	1	-2.2E+02	-1	4.2E+00	1	-4.2E+00	-1	2.82E-04
3	0.657	-1.5E+01	3.9E-07	-2.3E+48	2.000	1.7E+01	1.7E+07	2.3E+48	0.000	1.8E+02	1	-1.8E+02	-1	3.5E+00	1	-3.5E+00	-1	2.06E-06
4	0.657	-2.0E+01	2.9E-09	-2.3E+48	2.000	2.2E+01	4.5E+09	2.3E+48	0.000	1.6E+02	1	-1.6E+02	-1	3.0E+00	1	-3.0E+00	-0.99998	1.51E-08
5	0.657	-2.5E+01	2.1E-11	-2.3E+48	2.000	2.8E+01	1.2E+12	2.3E+48	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99985	1.11E-10
6	0.657	-3.0E+01	1.5E-13	-2.3E+48	2.000	3.3E+01	3.0E+14	2.3E+48	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9995	-2.4E+00	-0.99946	8.10E-13
7	0.657	-3.4E+01	1.1E-15	-2.3E+48	2.000	3.9E+01	7.7E+16	2.3E+48	0.000	1.2E+02	1	-1.2E+02	-1	2.3E+00	0.9986	-2.3E+00	-0.99864	5.93E-15
8	0.657	-3.9E+01	8.3E-18	-2.3E+48	2.000	4.4E+01	2.0E+19	2.3E+48	0.000	1.1E+02	1	-1.1E+02	-1	2.1E+00	0.9973	-2.1E+00	-0.99726	4.34E-17
9	0.657	-4.4E+01	6.1E-20	-2.3E+48	2.000	5.0E+01	5.2E+21	2.3E+48	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9953	-2.0E+00	-0.99527	3.17E-19
10	0.657	-4.9E+01	4.4E-22	-2.3E+48	2.000	5.6E+01	1.3E+24	2.3E+48	0.000	1.0E+02	1	-1.0E+02	-1	1.9E+00	0.9926	-1.9E+00	-0.99263	2.31E-21
11	0.657	-5.4E+01	3.2E-24	-2.3E+48	2.000	6.1E+01	3.4E+26	2.3E+48	0.000	9.5E+01	1	-9.5E+01	-1	1.8E+00	0.9894	-1.8E+00	-0.98938	1.69E-23
12	0.657	-5.9E+01	2.4E-26	-2.3E+48	2.000	6.7E+01	8.9E+28	2.3E+48	0.000	9.1E+01	1	-9.1E+01	-1	1.7E+00	0.9856	-1.7E+00	-0.98557	1.23E-25
13	0.657	-6.4E+01	1.7E-28	-2.3E+48	2.000	7.2E+01	2.3E+31	2.3E+48	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9812	-1.7E+00	-0.98124	8.99E-28
14	0.657	-6.9E+01	1.3E-30	-2.3E+48	2.000	7.8E+01	6.0E+33	2.3E+48	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9765	-1.6E+00	-0.97647	6.55E-30
15	0.657	-7.4E+01	9.3E-33	-2.3E+48	2.000	8.3E+01	1.5E+36	2.3E+48	0.000	8.2E+01	1	-8.2E+01	-1	1.5E+00	0.9713	-1.5E+00	-0.97133	4.77E-32
16	0.657	-7.9E+01	6.8E-35	-2.3E+48	2.000	8.9E+01	4.0E+38	2.3E+48	0.000	7.9E+01	1	-7.9E+01	-1	1.5E+00	0.9659	-1.5E+00	-0.96587	3.47E-34
17	0.657	-8.4E+01	5.0E-37	-2.3E+48	2.000	9.4E+01	1.0E+41	2.3E+48	0.000	7.7E+01	1	-7.7E+01	-1	1.5E+00	0.9601	-1.5E+00	-0.96015	2.53E-36
18	0.657	-8.9E+01	3.7E-39	-2.3E+48	2.000	1.0E+02	2.7E+43	2.3E+48	0.000	7.4E+01	1	-7.4E+01	-1	1.4E+00	0.9542	-1.4E+00	-0.95421	1.84E-38
19	0.657	-9.3E+01	2.7E-41	-2.3E+48	2.000	1.1E+02	6.9E+45	2.3E+48	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9481	-1.4E+00	-0.94812	1.34E-40
20	0.657	-9.8E+01	2.0E-43	-2.3E+48	2.000	1.1E+02	1.8E+48	2.3E+48	0.000	7.1E+01	1	-7.1E+01	-1	1.3E+00	0.9419	-1.3E+00	-0.94189	9.74E-43



Date:	24/06/2022
Version:	1

DOMENICO (STEADY STATE)

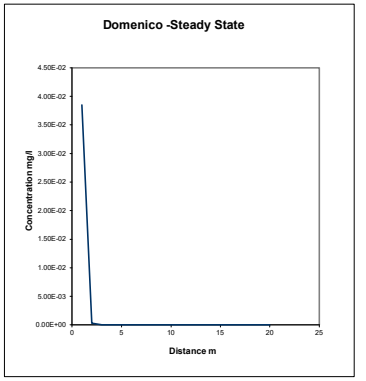
Contaminant	Cyanide				Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)											
				X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
Input	**Value**	**Units**														
C_T	0.001	mg/l	1	1	1.314	-4.92E+00	7.32E-03	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	3.85E-02
			2	2	1.314	-9.83E+00	5.36E-05	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.997	-2.12E+00	-0.9973	2.81E-04
			3	3	1.314	-1.48E+01	3.93E-07	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.986	-1.73E+00	-0.9856	2.03E-06
Co	5.26E+00	mg/l	4	4	1.314	-1.97E+01	2.88E-09	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.966	-1.50E+00	-0.9659	1.46E-08
λ	5.37E-04	$days^{-1}$	5	5	1.314	-2.46E+01	2.11E-11	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.942	-1.34E+00	-0.9419	1.04E-10
Sz	5.00E+02	m	6	6	1.314	-2.95E+01	1.54E-13	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.916	-1.22E+00	-0.9163	7.43E-13
Sy	1.50E+00	m	7	7	1.314	-3.44E+01	1.13E-15	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.891	-1.13E+00	-0.8907	5.29E-15
Kd	5.00E+00	l/kg	8	8	1.314	-3.93E+01	8.27E-18	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.866	-1.06E+00	-0.8659	3.76E-17
ρ	1.36E+00	g/cm3	9	9	1.314	-4.43E+01	6.06E-20	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.842	-9.99E-01	-0.8422	2.68E-19
n	8.00E-02		10	10	1.314	-4.92E+01	4.44E-22	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.82	-9.47E-01	-0.8197	1.91E-21
i	1.00E-02		11	11	1.314	-5.41E+01	3.25E-24	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.799	-9.03E-01	-0.7986	1.36E-23
K	8.64E-03	m/d	12	12	1.314	-5.90E+01	2.38E-26	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.779	-8.65E-01	-0.7787	9.74E-26
x	2.00E+01	m	13	13	1.314	-6.39E+01	1.74E-28	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.76	-8.31E-01	-0.7601	6.96E-28
z	0.00E+00	m	14	14	1.314	-6.88E+01	1.28E-30	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.743	-8.01E-01	-0.7425	4.98E-30
y	0.00E+00	m	15	15	1.314	-7.38E+01	9.34E-33	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	3.57E-32
			16	16	1.314	-7.87E+01	6.84E-35	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.711	-7.49E-01	-0.7105	2.56E-34
ax	1.57E+00	m	17	17	1.314	-8.36E+01	5.01E-37	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.696	-7.27E-01	-0.6959	1.83E-36
az	1.57E-01	m	18	18	1.314	-8.85E+01	3.67E-39	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.682	-7.06E-01	-0.6821	1.32E-38
ay	1.57E-02	m	19	19	1.314	-9.34E+01	2.69E-41	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	9.45E-41
			20	20	1.314	-9.83E+01	1.97E-43	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.657	-6.70E-01	-0.6566	6.79E-43



Vertical dispersion optio Simulate vertical dispersion in 1 direction

DOMENICO (STEADY STATE)

Calc	Value				Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT											
				X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
v	1.08E-03	m/d														
Rc	8.60E+01															
u	1.26E-05	m/d	1	1	1.314	-4.92E+00	7.32E-03	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	3.85E-02
			2	2	1.314	-9.83E+00	5.36E-05	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	2.82E-04
			3	3	1.314	-1.48E+01	3.93E-07	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	2.06E-06
			4	4	1.314	-1.97E+01	2.88E-09	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	1.51E-08
			5	5	1.314	-2.46E+01	2.11E-11	1.41E+02	1	-1.41E+02	-1	2.68E+00	1	-2.68E+00	-0.9998	1.11E-10
			6	6	1.314	-2.95E+01	1.54E-13	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.999	-2.45E+00	-0.9995	8.10E-13
			7	7	1.314	-3.44E+01	1.13E-15	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.999	-2.26E+00	-0.9986	5.93E-15
			8	8	1.314	-3.93E+01	8.27E-18	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.997	-2.12E+00	-0.9973	4.34E-17
			9	9	1.314	-4.43E+01	6.06E-20	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.995	-2.00E+00	-0.9953	3.17E-19
			10	10	1.314	-4.92E+01	4.44E-22	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.993	-1.89E+00	-0.9926	2.31E-21
			11	11	1.314	-5.41E+01	3.25E-24	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.989	-1.81E+00	-0.9894	1.69E-23
			12	12	1.314	-5.90E+01	2.38E-26	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.986	-1.73E+00	-0.9856	1.23E-25
			13	13	1.314	-6.39E+01	1.74E-28	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.981	-1.66E+00	-0.9812	8.99E-28
			14	14	1.314	-6.88E+01	1.28E-30	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.976	-1.60E+00	-0.9765	6.55E-30
			15	15	1.314	-7.38E+01	9.34E-33	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.971	-1.55E+00	-0.9713	4.77E-32
			16	16	1.314	-7.87E+01	6.84E-35	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.966	-1.50E+00	-0.9659	3.47E-34
			17	17	1.314	-8.36E+01	5.01E-37	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.96	-1.45E+00	-0.9601	2.53E-36
			18	18	1.314	-8.85E+01	3.67E-39	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.954	-1.41E+00	-0.9542	1.84E-38
			19	19	1.314	-9.34E+01	2.69E-41	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.948	-1.37E+00	-0.9481	1.34E-40
			20	20	1.314	-9.83E+01	1.97E-43	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.942	-1.34E+00	-0.9419	9.74E-43



Date:	24/06/2022
Version:	1

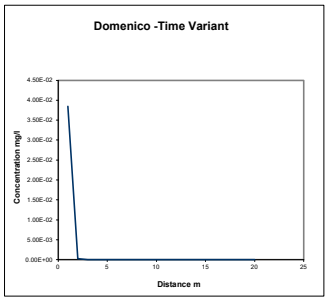
DOMENICO (TIME VARIANT)

Contaminant	Cyanide	
Input	**Value**	**Units**
C_T	0.001	mg/l
Co	5.26E+00	mg/l
λ	5.37E-04	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	5.00E+00	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	1.57E+00	m
az	1.57E-01	m
ay	1.57E-02	m

Vertical dispersion option: Simulate vertical dispersion in 1 direction

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

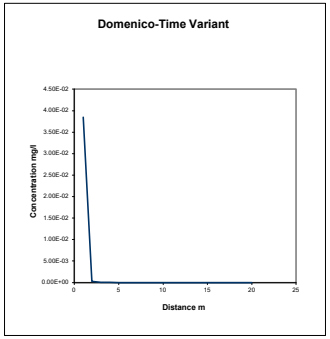
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.657	-4.92E+00	7.32E-03	-2.32E+48	2	3.16E+02	1	-3.16E+02	-1	3.00E+00	1	-3.00E+00	-1	3.85E-02
2	2	0.657	-9.83E+00	5.36E-05	-2.32E+48	2	2.23E+02	1	-2.23E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	2.81E-04
3	3	0.657	-1.48E+01	3.93E-07	-2.32E+48	2	1.82E+02	1	-1.82E+02	-1	1.73E+00	0.9856	-1.73E+00	-0.986	2.03E-06
4	4	0.657	-1.97E+01	2.88E-09	-2.32E+48	2	1.58E+02	1	-1.58E+02	-1	1.50E+00	0.9659	-1.50E+00	-0.966	1.46E-08
5	5	0.657	-2.46E+01	2.11E-11	-2.32E+48	2	1.41E+02	1	-1.41E+02	-1	1.34E+00	0.9419	-1.34E+00	-0.942	1.04E-10
6	6	0.657	-2.95E+01	1.54E-13	-2.32E+48	2	1.29E+02	1	-1.29E+02	-1	1.22E+00	0.9163	-1.22E+00	-0.916	7.43E-13
7	7	0.657	-3.44E+01	1.13E-15	-2.32E+48	2	1.19E+02	1	-1.19E+02	-1	1.13E+00	0.8907	-1.13E+00	-0.891	5.29E-15
8	8	0.657	-3.93E+01	8.27E-18	-2.32E+48	2	1.12E+02	1	-1.12E+02	-1	1.06E+00	0.8659	-1.06E+00	-0.866	3.76E-17
9	9	0.657	-4.43E+01	6.06E-20	-2.32E+48	2	1.05E+02	1	-1.05E+02	-1	9.99E-01	0.8422	-9.99E-01	-0.842	2.68E-19
10	10	0.657	-4.92E+01	4.44E-22	-2.32E+48	2	9.99E+01	1	-9.99E+01	-1	9.47E-01	0.8197	-9.47E-01	-0.82	1.91E-21
11	11	0.657	-5.41E+01	3.25E-24	-2.32E+48	2	9.52E+01	1	-9.52E+01	-1	9.03E-01	0.7986	-9.03E-01	-0.799	1.36E-23
12	12	0.657	-5.90E+01	2.38E-26	-2.32E+48	2	9.12E+01	1	-9.12E+01	-1	8.65E-01	0.7787	-8.65E-01	-0.779	9.74E-26
13	13	0.657	-6.39E+01	1.74E-28	-2.32E+48	2	8.76E+01	1	-8.76E+01	-1	8.31E-01	0.7601	-8.31E-01	-0.76	6.96E-28
14	14	0.657	-6.88E+01	1.28E-30	-2.32E+48	2	8.44E+01	1	-8.44E+01	-1	8.01E-01	0.7425	-8.01E-01	-0.743	4.98E-30
15	15	0.657	-7.38E+01	9.34E-33	-2.32E+48	2	8.15E+01	1	-8.15E+01	-1	7.74E-01	0.726	-7.74E-01	-0.726	3.57E-32
16	16	0.657	-7.87E+01	6.84E-35	-2.32E+48	2	7.90E+01	1	-7.90E+01	-1	7.49E-01	0.7105	-7.49E-01	-0.711	2.56E-34
17	17	0.657	-8.36E+01	5.01E-37	-2.32E+48	2	7.66E+01	1	-7.66E+01	-1	7.27E-01	0.6959	-7.27E-01	-0.696	1.83E-36
18	18	0.657	-8.85E+01	3.67E-39	-2.32E+48	2	7.44E+01	1	-7.44E+01	-1	7.06E-01	0.6821	-7.06E-01	-0.682	1.32E-38
19	19	0.657	-9.34E+01	2.69E-41	-2.32E+48	2	7.25E+01	1	-7.25E+01	-1	6.87E-01	0.669	-6.87E-01	-0.669	9.45E-41
20	20	0.657	-9.83E+01	1.97E-43	-2.32E+48	2	7.06E+01	1	-7.06E+01	-1	6.70E-01	0.6566	-6.70E-01	-0.657	6.79E-43



Calc	Value	
v	1.08E-03	m/d
Rc	8.60E+01	
u	1.26E-05	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.657	-4.92E+00	7.32E-03	-2.32E+48	2	3.16E+02	1	-3.16E+02	-1	5.99E+00	1	-5.99E+00	-1	3.85E-02
2	2	0.657	-9.83E+00	5.36E-05	-2.32E+48	2	2.23E+02	1	-2.23E+02	-1	4.24E+00	1	-4.24E+00	-1	2.82E-04
3	3	0.657	-1.48E+01	3.93E-07	-2.32E+48	2	1.82E+02	1	-1.82E+02	-1	3.46E+00	1	-3.46E+00	-1	2.06E-06
4	4	0.657	-1.97E+01	2.88E-09	-2.32E+48	2	1.58E+02	1	-1.58E+02	-1	3.00E+00	1	-3.00E+00	-1	1.51E-08
5	5	0.657	-2.46E+01	2.11E-11	-2.32E+48	2	1.41E+02	1	-1.41E+02	-1	2.68E+00	0.9998	-2.68E+00	-1	1.11E-10
6	6	0.657	-2.95E+01	1.54E-13	-2.32E+48	2	1.29E+02	1	-1.29E+02	-1	2.45E+00	0.9995	-2.45E+00	-0.999	8.10E-13
7	7	0.657	-3.44E+01	1.13E-15	-2.32E+48	2	1.19E+02	1	-1.19E+02	-1	2.26E+00	0.9986	-2.26E+00	-0.999	5.93E-15
8	8	0.657	-3.93E+01	8.27E-18	-2.32E+48	2	1.12E+02	1	-1.12E+02	-1	2.12E+00	0.9973	-2.12E+00	-0.997	4.34E-17
9	9	0.657	-4.43E+01	6.06E-20	-2.32E+48	2	1.05E+02	1	-1.05E+02	-1	2.00E+00	0.9953	-2.00E+00	-0.995	3.17E-19
10	10	0.657	-4.92E+01	4.44E-22	-2.32E+48	2	9.99E+01	1	-9.99E+01	-1	1.89E+00	0.9926	-1.89E+00	-0.993	2.31E-21
11	11	0.657	-5.41E+01	3.25E-24	-2.32E+48	2	9.52E+01	1	-9.52E+01	-1	1.81E+00	0.9894	-1.81E+00	-0.989	1.69E-23
12	12	0.657	-5.90E+01	2.38E-26	-2.32E+48	2	9.12E+01	1	-9.12E+01	-1	1.73E+00	0.9856	-1.73E+00	-0.986	1.23E-25
13	13	0.657	-6.39E+01	1.74E-28	-2.32E+48	2	8.76E+01	1	-8.76E+01	-1	1.66E+00	0.9812	-1.66E+00	-0.981	8.99E-28
14	14	0.657	-6.88E+01	1.28E-30	-2.32E+48	2	8.44E+01	1	-8.44E+01	-1	1.60E+00	0.9765	-1.60E+00	-0.976	6.55E-30
15	15	0.657	-7.38E+01	9.34E-33	-2.32E+48	2	8.15E+01	1	-8.15E+01	-1	1.55E+00	0.9713	-1.55E+00	-0.971	4.77E-32
16	16	0.657	-7.87E+01	6.84E-35	-2.32E+48	2	7.90E+01	1	-7.90E+01	-1	1.50E+00	0.9659	-1.50E+00	-0.966	3.47E-34
17	17	0.657	-8.36E+01	5.01E-37	-2.32E+48	2	7.66E+01	1	-7.66E+01	-1	1.45E+00	0.9601	-1.45E+00	-0.96	2.53E-36
18	18	0.657	-8.85E+01	3.67E-39	-2.32E+48	2	7.44E+01	1	-7.44E+01	-1	1.41E+00	0.9542	-1.41E+00	-0.954	1.84E-38
19	19	0.657	-9.34E+01	2.69E-41	-2.32E+48	2	7.25E+01	1	-7.25E+01	-1	1.37E+00	0.9481	-1.37E+00	-0.948	1.34E-40
20	20	0.657	-9.83E+01	1.97E-43	-2.32E+48	2	7.06E+01	1	-7.06E+01	-1	1.34E+00	0.9419	-1.34E+00	-0.942	9.74E-43



Date:	24/06/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions

Details to be completed for each assessment

Site Name:	**Glan Llyn**			
Site Address:	**Llanwern**			
Completed by:	**Ross Cameron**			
Date:	**27-Apr-22**		**Version:**	**1**
Contaminant	**Benzo(b)fluoranthene**			
Target Concentration (C_T)	**0.00000017**	**mg/l**	**Origin of C_T:**	**Proposed Water Framework Directive EQS**

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Benzo(b)fluoranthene**		
Target concentration	C_T	**0.00000017**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient. The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

Level 1 Remedial Target

Level 1 Remedial Target	**2.29E-05**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.00000017	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Benzo(b)fluoranthene**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	C_T	**0.00000017** mg/l	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	Variable	Value	Unit	Source of parameter value	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentra**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters	Variable	Value	Unit	Source
Contaminant		Benzo(b)fluoranthene		from Level 1
Target Concentration	C_T	0.00000017	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target		**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks		**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
		#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point		**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd		l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

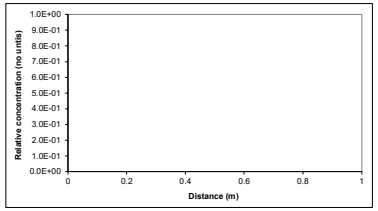
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration	Concentration
	(No units)	mg/l
0	1.0E+00	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

Only input required is Soil Contaminant Concentration

Input Parameters			
Soil contaminant concentration	C_0	0.00E+00	mg/kg

Level 1 Parameters

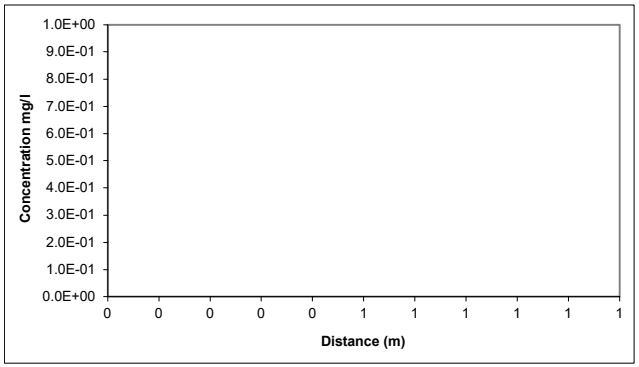
Water filled soil porosity	θ_W	5.00E-01	fraction
Air filled soil porosity	θa	3.70E-01	fraction
Bulk density	ρ	1.36E+00	g/cm^3
Henry's Law constant	H	1.00E+00	dimensionless
Soil water partition coefficient used in Level Assessment	Kd	1.34E+02	l/kg
Factor (partitioning between soil and water)		1.35E+02	dimensionless

Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!

R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Environment Agency

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Benzo(b)fluoranthene		from Level 1
Target Concentration	C_T	1.70E-07	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	2.80E-01	mg/l	*Based on 95 percentile soil conc of 15.2mg/kg*
Half life for degradation of contaminant in water	$t_{1/2}$	3.65E+04	days	*10 year half life estimation*
Calculated decay rate	λ	1.90E-05	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappi*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	5.34E+04	l/kg	*see options*
Longitudinal dispersivity	ax	2.00E+00	m	*see options*
Transverse dispersivity	az	2.00E-01	m	*see options*
Vertical dispersivity	ay	2.00E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	1.08E-03	m/d
Retardation factor	Rf	9.09E+05	fraction
Decay rate used	λ	2.09E-11	d^{-1}
Rate of contaminant flow due to retardation	u	1.19E-09	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	1.81E-01	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**1.55E+00**	

Remedial Targets

Remedial Target		**2.64E-07**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**20**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**1.81E-01**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)

Soil water partition coefficient — Kd — 5.34E+04 l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer — foc — fraction

Organic carbon partition coefficient — Koc — l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species — $K_{oc,n}$ — l/kg

Sorption coefficient for ionised species — $K_{oc,i}$ — l/kg

pH value — pH

acid dissociation constant — pKa

Fraction of organic carbon in aquifer — foc — fraction

Soil water partition coefficient — Kd — 5.34E+04 l/kg

Define dispersivity (click brown cell and use pull down list)

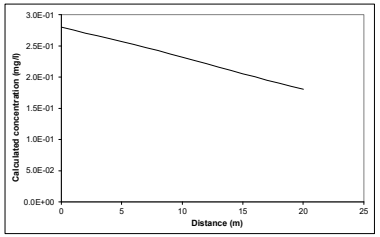
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00 m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01 m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.
Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	2.8E-01
1.0	2.75E-01
2.0	2.71E-01
3.0	2.66E-01
4.0	2.62E-01
5.0	2.57E-01
6.0	2.52E-01
7.0	2.47E-01
8.0	2.42E-01
9.0	2.37E-01
10.0	2.32E-01
11.0	2.27E-01
12.0	2.21E-01
13.0	2.16E-01
14.0	2.11E-01
15.0	2.06E-01
16.0	2.00E-01
17.0	1.95E-01
18.0	1.90E-01
19.0	1.85E-01
20.0	1.81E-01

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	**#DIV/0!**
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant nzo(b)fluoranthene

Parameter	Value	Units
(carried over from input sheet)		
C_T	1.70E-07	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

	calc	calc	Calc Kd	l/kg
Calculation of partition coefficient for ionic organic chemical				
Partition coefficient used in Level 1 Assessment			1.34E+02	l/kg

Calculated Remedial Target **2.29E-05 mg/kg** **for Benzo(b)fluoranthene**

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27/04/2022
Version:	1

Level 2 Calculation Sheet

Contaminant **enzo(b)fluoranthene**

Site assessed:	Glan Llyn
Date:	27/04/2022
Version:	1

Parameter	Value	Units
(carried over from input sheet)		
Mz	0.00E+00	m
L	0.00E+00	m
da	0.00E+00	m
Inf	0.00E+00	m/d
K	0.00E+00	m/d
i	0.00E+00	m3/d
A	0.00E+00	m2
		m3/d
Cc	0.00E+00	mg/l
C_T	1.70E-07	mg/l
Cu	0.00E+00	mg/l
w	0.00E+00	m

Calculation based on target concentration

Calculated Dilution Factor

#DIV/0!

Calculation based on observed contaminant concentration

#DIV/0!

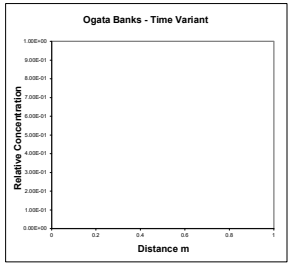
OGATA BANKS SOLUTION

Contaminant	nzo(b)fluoranthene	
Input	**Value**	**Units**
C_T	1.700E-07	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

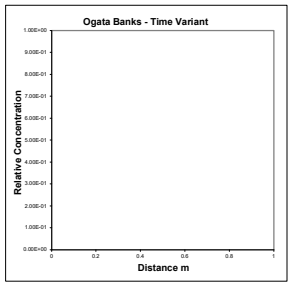
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

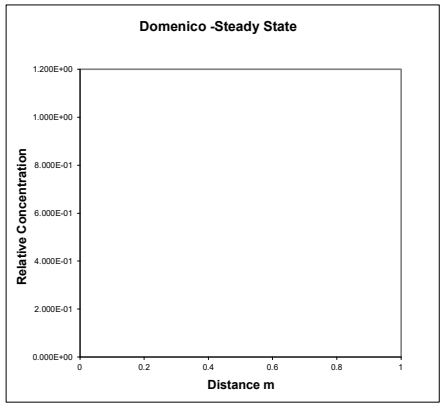
Contaminant **zo(b)fluoranthene**

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	1.700E-07	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



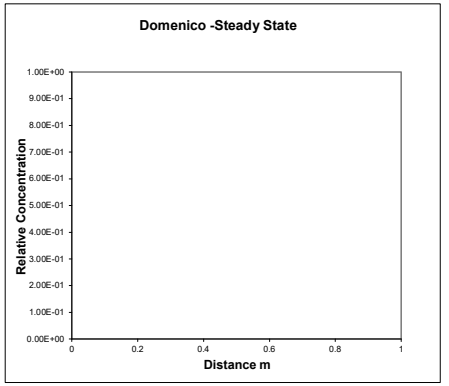
Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

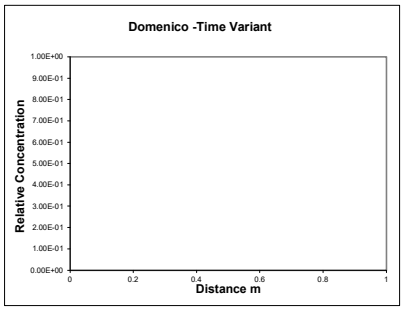
DOMENICO (TIME VARIANT)

Contaminant **zo(b)fluoranthene**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.00000017	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

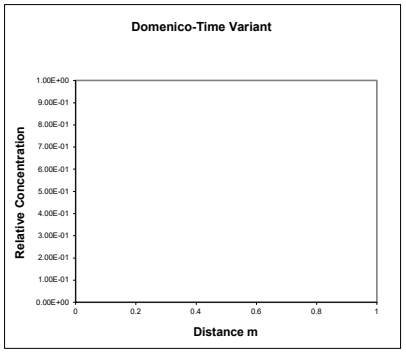


Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

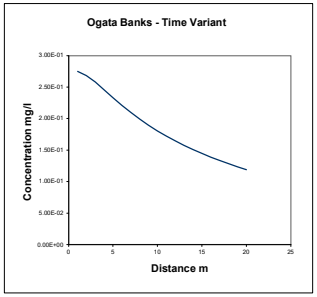
OGATA BANKS SOLUTION

Contaminant nzo(b)fluoranthene

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.00000017	mg/l
Co	2.80E-01	mg/l
λ	2.09E-11	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	5.34E+04	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1	0.035	-1.7E-02	9.8E-01	-1.3E+45	2.000	5.2E-01	1.7E+00	1.3E+45	0.000	2.8E+02	1	-2.8E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	2.75E-01
2	2	0.035	-3.4E-02	9.7E-01	-1.3E+45	2.000	1.0E+00	2.8E+00	1.3E+45	0.000	2.0E+02	1	-2.0E+02	-1	1.9E+00	0.992	-1.9E+00	-0.99199	2.68E-01
3	3	0.035	-5.1E-02	9.5E-01	-1.3E+45	2.000	1.6E+00	4.7E+00	1.3E+45	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	2.58E-01
4	4	0.035	-6.8E-02	9.3E-01	-1.3E+45	2.000	2.1E+00	7.9E+00	1.3E+45	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	2.46E-01
5	5	0.035	-8.5E-02	9.2E-01	-1.3E+45	2.000	2.6E+00	1.3E+01	1.3E+45	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	2.33E-01
6	6	0.035	-1.0E-01	9.0E-01	-1.3E+45	2.000	3.1E+00	2.2E+01	1.3E+45	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8742	-1.1E+00	-0.87421	2.21E-01
7	7	0.035	-1.2E-01	8.9E-01	-1.3E+45	2.000	3.6E+00	3.7E+01	1.3E+45	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8436	-1.0E+00	-0.84362	2.10E-01
8	8	0.035	-1.4E-01	8.7E-01	-1.3E+45	2.000	4.1E+00	6.3E+01	1.3E+45	0.000	9.9E+01	1	-9.9E+01	-1	9.4E-01	0.8151	-9.4E-01	-0.8151	1.99E-01
9	9	0.035	-1.5E-01	8.6E-01	-1.3E+45	2.000	4.7E+00	1.0E+02	1.3E+45	0.000	9.3E+01	1	-9.3E+01	-1	8.8E-01	0.7887	-8.8E-01	-0.7887	1.89E-01
10	10	0.035	-1.7E-01	8.4E-01	-1.3E+45	2.000	5.2E+00	1.8E+02	1.3E+45	0.000	8.8E+01	1	-8.8E+01	-1	8.4E-01	0.7643	-8.4E-01	-0.76432	1.81E-01
11	11	0.035	-1.9E-01	8.3E-01	-1.3E+45	2.000	5.7E+00	3.0E+02	1.3E+45	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7418	-8.0E-01	-0.7418	1.72E-01
12	12	0.035	-2.0E-01	8.2E-01	-1.3E+45	2.000	6.2E+00	4.9E+02	1.3E+45	0.000	8.1E+01	1	-8.1E+01	-1	7.7E-01	0.721	-7.7E-01	-0.72098	1.65E-01
13	13	0.035	-2.2E-01	8.0E-01	-1.3E+45	2.000	6.7E+00	8.3E+02	1.3E+45	0.000	7.8E+01	1	-7.8E+01	-1	7.4E-01	0.7017	-7.4E-01	-0.70169	1.58E-01
14	14	0.035	-2.4E-01	7.9E-01	-1.3E+45	2.000	7.2E+00	1.4E+03	1.3E+45	0.000	7.5E+01	1	-7.5E+01	-1	7.1E-01	0.6838	-7.1E-01	-0.68377	1.51E-01
15	15	0.035	-2.6E-01	7.7E-01	-1.3E+45	2.000	7.8E+00	2.3E+03	1.3E+45	0.000	7.2E+01	1	-7.2E+01	-1	6.8E-01	0.6671	-6.8E-01	-0.66708	1.45E-01
16	16	0.035	-2.7E-01	7.6E-01	-1.3E+45	2.000	8.3E+00	3.9E+03	1.3E+45	0.000	7.0E+01	1	-7.0E+01	-1	6.6E-01	0.6515	-6.6E-01	-0.6515	1.39E-01
17	17	0.035	-2.9E-01	7.5E-01	-1.3E+45	2.000	8.8E+00	6.6E+03	1.3E+45	0.000	6.8E+01	1	-6.8E+01	-1	6.4E-01	0.6369	-6.4E-01	-0.63692	1.34E-01
18	18	0.035	-3.1E-01	7.4E-01	-1.3E+45	2.000	9.3E+00	1.1E+04	1.3E+45	0.000	6.6E+01	1	-6.6E+01	-1	6.3E-01	0.6232	-6.3E-01	-0.62324	1.28E-01
19	19	0.035	-3.2E-01	7.2E-01	-1.3E+45	2.000	9.8E+00	1.8E+04	1.3E+45	0.000	6.4E+01	1	-6.4E+01	-1	6.1E-01	0.6104	-6.1E-01	-0.61038	1.24E-01
20	20	0.035	-3.4E-01	7.1E-01	-1.3E+45	2.000	1.0E+01	3.1E+04	1.3E+45	0.000	6.3E+01	1	-6.3E+01	-1	5.9E-01	0.5983	-5.9E-01	-0.59826	1.19E-01

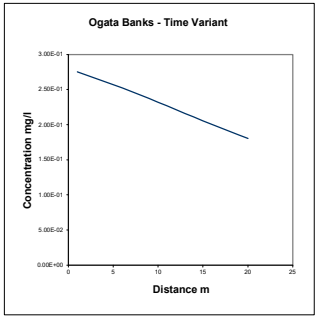


Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	9.09E+05	
u	1.19E-09	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	1	0.035	-1.7E-02	9.8E-01	-1.3E+45	2.000	5.2E-01	1.7E+00	1.3E+45	0.000	2.8E+02	1	-2.8E+02	-1	5.3E+00	1	-5.3E+00	-1	2.75E-01
2	2	0.035	-3.4E-02	9.7E-01	-1.3E+45	2.000	1.0E+00	2.8E+00	1.3E+45	0.000	2.0E+02	1	-2.0E+02	-1	3.8E+00	1	-3.8E+00	-1	2.71E-01
3	3	0.035	-5.1E-02	9.5E-01	-1.3E+45	2.000	1.6E+00	4.7E+00	1.3E+45	0.000	1.6E+02	1	-1.6E+02	-1	3.1E+00	1	-3.1E+00	-0.99999	2.66E-01
4	4	0.035	-6.8E-02	9.3E-01	-1.3E+45	2.000	2.1E+00	7.9E+00	1.3E+45	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	2.62E-01
5	5	0.035	-8.5E-02	9.2E-01	-1.3E+45	2.000	2.6E+00	1.3E+01	1.3E+45	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9992	-2.4E+00	-0.9992	2.57E-01
6	6	0.035	-1.0E-01	9.0E-01	-1.3E+45	2.000	3.1E+00	2.2E+01	1.3E+45	0.000	1.1E+02	1	-1.1E+02	-1	2.2E+00	0.9978	-2.2E+00	-0.9978	2.52E-01
7	7	0.035	-1.2E-01	8.9E-01	-1.3E+45	2.000	3.6E+00	3.7E+01	1.3E+45	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9954	-2.0E+00	-0.99541	2.47E-01
8	8	0.035	-1.4E-01	8.7E-01	-1.3E+45	2.000	4.1E+00	6.3E+01	1.3E+45	0.000	9.9E+01	1	-9.9E+01	-1	1.9E+00	0.992	-1.9E+00	-0.99199	2.42E-01
9	9	0.035	-1.5E-01	8.6E-01	-1.3E+45	2.000	4.7E+00	1.0E+02	1.3E+45	0.000	9.3E+01	1	-9.3E+01	-1	1.8E+00	0.9876	-1.8E+00	-0.98758	2.37E-01
10	10	0.035	-1.7E-01	8.4E-01	-1.3E+45	2.000	5.2E+00	1.8E+02	1.3E+45	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9823	-1.7E+00	-0.98229	2.32E-01
11	11	0.035	-1.9E-01	8.3E-01	-1.3E+45	2.000	5.7E+00	3.0E+02	1.3E+45	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9763	-1.6E+00	-0.97626	2.27E-01
12	12	0.035	-2.0E-01	8.2E-01	-1.3E+45	2.000	6.2E+00	4.9E+02	1.3E+45	0.000	8.1E+01	1	-8.1E+01	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	2.21E-01
13	13	0.035	-2.2E-01	8.0E-01	-1.3E+45	2.000	6.7E+00	8.3E+02	1.3E+45	0.000	7.8E+01	1	-7.8E+01	-1	1.5E+00	0.9625	-1.5E+00	-0.96249	2.16E-01
14	14	0.035	-2.4E-01	7.9E-01	-1.3E+45	2.000	7.2E+00	1.4E+03	1.3E+45	0.000	7.5E+01	1	-7.5E+01	-1	1.4E+00	0.955	-1.4E+00	-0.95498	2.11E-01
15	15	0.035	-2.6E-01	7.7E-01	-1.3E+45	2.000	7.8E+00	2.3E+03	1.3E+45	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9472	-1.4E+00	-0.94719	2.06E-01
16	16	0.035	-2.7E-01	7.6E-01	-1.3E+45	2.000	8.3E+00	3.9E+03	1.3E+45	0.000	7.0E+01	1	-7.0E+01	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	2.00E-01
17	17	0.035	-2.9E-01	7.5E-01	-1.3E+45	2.000	8.8E+00	6.6E+03	1.3E+45	0.000	6.8E+01	1	-6.8E+01	-1	1.3E+00	0.9311	-1.3E+00	-0.93109	1.95E-01
18	18	0.035	-3.1E-01	7.4E-01	-1.3E+45	2.000	9.3E+00	1.1E+04	1.3E+45	0.000	6.6E+01	1	-6.6E+01	-1	1.3E+00	0.9229	-1.3E+00	-0.9229	1.90E-01
19	19	0.035	-3.2E-01	7.2E-01	-1.3E+45	2.000	9.8E+00	1.8E+04	1.3E+45	0.000	6.4E+01	1	-6.4E+01	-1	1.2E+00	0.9147	-1.2E+00	-0.91468	1.85E-01
20	20	0.035	-3.4E-01	7.1E-01	-1.3E+45	2.000	1.0E+01	3.1E+04	1.3E+45	0.000	6.3E+01	1	-6.3E+01	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	1.81E-01



Date:	27/04/2022
Version:	1

Contaminant **zo(b)fluoranthene**

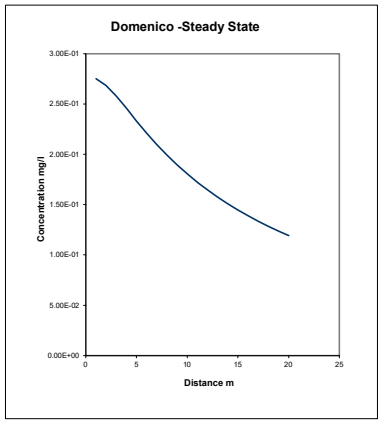
DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.00000017	mg/l
Co	2.80E-01	mg/l
λ	2.09E-11	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	5.34E+04	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.07	-1.70E-02	9.83E-01	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	2.75E-01
2	2	0.07	-3.40E-02	9.67E-01	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	2.68E-01
3	3	0.07	-5.10E-02	9.50E-01	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	2.58E-01
4	4	0.07	-6.80E-02	9.34E-01	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	2.46E-01
5	5	0.07	-8.50E-02	9.18E-01	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	2.33E-01
6	6	0.07	-1.02E-01	9.03E-01	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.8742	2.21E-01
7	7	0.07	-1.19E-01	8.88E-01	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.8436	2.10E-01
8	8	0.07	-1.36E-01	8.73E-01	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.8151	1.99E-01
9	9	0.07	-1.53E-01	8.58E-01	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.7887	1.89E-01
10	10	0.07	-1.70E-01	8.44E-01	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.7643	1.81E-01
11	11	0.07	-1.87E-01	8.29E-01	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.7418	1.72E-01
12	12	0.07	-2.04E-01	8.15E-01	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	1.65E-01
13	13	0.07	-2.21E-01	8.02E-01	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.7017	1.58E-01
14	14	0.07	-2.38E-01	7.88E-01	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.6838	1.51E-01
15	15	0.07	-2.55E-01	7.75E-01	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.6671	1.45E-01
16	16	0.07	-2.72E-01	7.62E-01	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.6515	1.39E-01
17	17	0.07	-2.89E-01	7.49E-01	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.6369	1.34E-01
18	18	0.07	-3.06E-01	7.36E-01	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.6232	1.28E-01
19	19	0.07	-3.23E-01	7.24E-01	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.6104	1.24E-01
20	20	0.07	-3.40E-01	7.12E-01	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.5983	1.19E-01



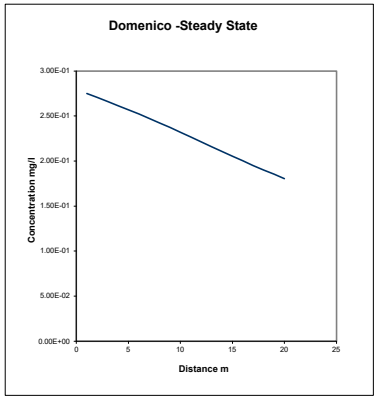
Calc **Value**

v	1.08E-03	m/d
Rc	9.09E+05	
u	1.19E-09	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.07	-1.70E-02	9.83E-01	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	2.75E-01
2	2	0.07	-3.40E-02	9.67E-01	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	2.71E-01
3	3	0.07	-5.10E-02	9.50E-01	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	2.66E-01
4	4	0.07	-6.80E-02	9.34E-01	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	2.62E-01
5	5	0.07	-8.50E-02	9.18E-01	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.9992	2.57E-01
6	6	0.07	-1.02E-01	9.03E-01	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.9978	2.52E-01
7	7	0.07	-1.19E-01	8.88E-01	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.9954	2.47E-01
8	8	0.07	-1.36E-01	8.73E-01	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	2.42E-01
9	9	0.07	-1.53E-01	8.58E-01	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.9876	2.37E-01
10	10	0.07	-1.70E-01	8.44E-01	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.9823	2.32E-01
11	11	0.07	-1.87E-01	8.29E-01	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.9763	2.27E-01
12	12	0.07	-2.04E-01	8.15E-01	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	2.21E-01
13	13	0.07	-2.21E-01	8.02E-01	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.9625	2.16E-01
14	14	0.07	-2.38E-01	7.88E-01	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	2.11E-01
15	15	0.07	-2.55E-01	7.75E-01	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.9472	2.06E-01
16	16	0.07	-2.72E-01	7.62E-01	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	2.00E-01
17	17	0.07	-2.89E-01	7.49E-01	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.9311	1.95E-01
18	18	0.07	-3.06E-01	7.36E-01	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.9229	1.90E-01
19	19	0.07	-3.23E-01	7.24E-01	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.9147	1.85E-01
20	20	0.07	-3.40E-01	7.12E-01	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	1.81E-01



Date:	27/04/2022
Version:	1

DOMENICO (TIME VARIANT)

Contaminant **zo(b)fluoranthene**

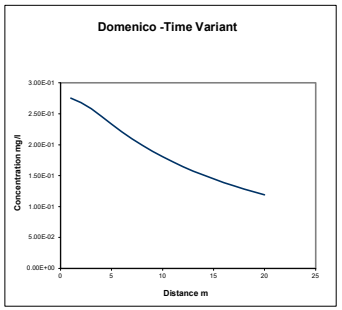
Input	Value	Units
C_T	0.00000017	mg/l
Co	2.80E-01	mg/l
λ	2.09E-11	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	5.34E+04	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	9.09E+05	
u	1.19E-09	m/d

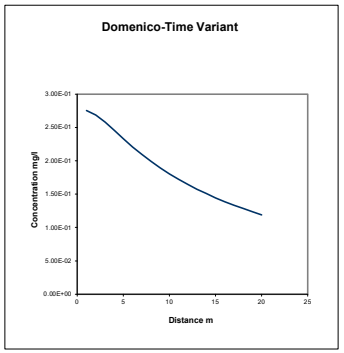
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.035	-1.70E-02	9.83E-01	-1.30E+45	2	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	2.75E-01
2	2	0.035	-3.40E-02	9.67E-01	-1.30E+45	2	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	2.68E-01
3	3	0.035	-5.10E-02	9.50E-01	-1.30E+45	2	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.97	2.58E-01
4	4	0.035	-6.80E-02	9.34E-01	-1.30E+45	2	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.939	2.46E-01
5	5	0.035	-8.50E-02	9.18E-01	-1.30E+45	2	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.906	2.33E-01
6	6	0.035	-1.02E-01	9.03E-01	-1.30E+45	2	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.874	2.21E-01
7	7	0.035	-1.19E-01	8.88E-01	-1.30E+45	2	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.844	2.10E-01
8	8	0.035	-1.36E-01	8.73E-01	-1.30E+45	2	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.815	1.99E-01
9	9	0.035	-1.53E-01	8.58E-01	-1.30E+45	2	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.789	1.89E-01
10	10	0.035	-1.70E-01	8.44E-01	-1.30E+45	2	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.764	1.81E-01
11	11	0.035	-1.87E-01	8.29E-01	-1.30E+45	2	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.742	1.72E-01
12	12	0.035	-2.04E-01	8.15E-01	-1.30E+45	2	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	1.65E-01
13	13	0.035	-2.21E-01	8.02E-01	-1.30E+45	2	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.702	1.58E-01
14	14	0.035	-2.38E-01	7.88E-01	-1.30E+45	2	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.684	1.51E-01
15	15	0.035	-2.55E-01	7.75E-01	-1.30E+45	2	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.667	1.45E-01
16	16	0.035	-2.72E-01	7.62E-01	-1.30E+45	2	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.651	1.39E-01
17	17	0.035	-2.89E-01	7.49E-01	-1.30E+45	2	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.637	1.34E-01
18	18	0.035	-3.06E-01	7.36E-01	-1.30E+45	2	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.623	1.28E-01
19	19	0.035	-3.23E-01	7.24E-01	-1.30E+45	2	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.61	1.24E-01
20	20	0.035	-3.40E-01	7.12E-01	-1.30E+45	2	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.598	1.19E-01



Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.035	-1.70E-02	9.83E-01	-1.30E+45	2	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	2.75E-01
2	2	0.035	-3.40E-02	9.67E-01	-1.30E+45	2	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	2.71E-01
3	3	0.035	-5.10E-02	9.50E-01	-1.30E+45	2	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	2.66E-01
4	4	0.035	-6.80E-02	9.34E-01	-1.30E+45	2	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	2.62E-01
5	5	0.035	-8.50E-02	9.18E-01	-1.30E+45	2	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.999	2.57E-01
6	6	0.035	-1.02E-01	9.03E-01	-1.30E+45	2	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.998	2.52E-01
7	7	0.035	-1.19E-01	8.88E-01	-1.30E+45	2	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.995	2.47E-01
8	8	0.035	-1.36E-01	8.73E-01	-1.30E+45	2	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	2.42E-01
9	9	0.035	-1.53E-01	8.58E-01	-1.30E+45	2	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.988	2.37E-01
10	10	0.035	-1.70E-01	8.44E-01	-1.30E+45	2	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.982	2.32E-01
11	11	0.035	-1.87E-01	8.29E-01	-1.30E+45	2	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.976	2.27E-01
12	12	0.035	-2.04E-01	8.15E-01	-1.30E+45	2	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.97	2.21E-01
13	13	0.035	-2.21E-01	8.02E-01	-1.30E+45	2	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.962	2.16E-01
14	14	0.035	-2.38E-01	7.88E-01	-1.30E+45	2	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	2.11E-01
15	15	0.035	-2.55E-01	7.75E-01	-1.30E+45	2	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.947	2.06E-01
16	16	0.035	-2.72E-01	7.62E-01	-1.30E+45	2	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.939	2.00E-01
17	17	0.035	-2.89E-01	7.49E-01	-1.30E+45	2	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.931	1.95E-01
18	18	0.035	-3.06E-01	7.36E-01	-1.30E+45	2	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.923	1.90E-01
19	19	0.035	-3.23E-01	7.24E-01	-1.30E+45	2	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.915	1.85E-01
20	20	0.035	-3.40E-01	7.12E-01	-1.30E+45	2	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.906	1.81E-01



Date:	27/04/2022
Version:	1

Hydrogeological risk assessment for land contamination

Remedial Targets Worksheet , Release 3.2

First released: 2006. Version 3.2: January 2013

This worksheet has been produced in combination with the document 'Remedial Targets Methodology: Hydrogeological risk assessment for land contamination (Environment Agency 2006).

Users of this worksheet should always refer to the User Manual to the Remedial Targets Methodology and to relevant guidance on UK legislation and policy, in order to understand how this procedure should be applied in an appropriate context.

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The calculation of equations in this worksheet has been independently checked by Entec (UK) Ltd on behalf of the Environment Agency.

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IMPORTANT: To enable MS Excel worksheet, click Tools, Add -Ins, Analysis Tool Pak and Analysis Tool Pak-VBA (to calculate error functions

Details to be completed for each assessment				
Site Name:	Glan Llyn			
Site Address:	Llanwern			
Completed by:	Ross Cameron			
Date:	27-Apr-22		Version:	1
Contaminant	Benzo(a)pyrene			
Target Concentration (C_T)	0.00000017	mg/l	Origin of C_T:	Proposed Water Framework Directive EQS

This worksheet can be used to determine remedial targets for soils (Worksheets Level 1 Soil, Level 2 and Level 3 Soil) or to determine remedial targets for groundwater (Level 3 Groundwater). For Level 3, parameter values must be entered separately dependent on whether the assessment is for soil or groundwater. For soil, remedial targets are calculated as either mg/kg (for comparision with soil measurements) or mg/l (for comparison with leaching tests or pore water concentrations).
Site details entered on this page are automatically copied to Level 1, 2 and 3 Worksheets.
Worksheet options are identified by brown background and employ a pull-down menus. Data entry are identified as blue background.
Data origin / justification should be noted in cells coloured yellow and fully documented in subsequent reports.
Data carried forward from an earlier worksheet are identified by a light green background
It is recommended that a copy of the original worksheet is saved (all data fields in the original copy are blank).

The spreadsheet also includes a porosity calculation worksheet, a soil impact calculation worksheet and a worksheet that performs some simple hydrogeological calculations.

Remedial Targets Worksheet , Release 3.2

Level 1 - Soil

Environment Agency

Select the method of calculating the soil water Partition Co-efficient by using the pull down menu below

User specified value for partition coefficient

Contaminant		**Benzo(a)pyrene**		
Target concentration	C_T	**0.00000017**	**mg/l**	

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**
Standard entry				
Water filled soil porosity	θ_W	5.00E-01	fraction	0.5
Air filled soil porosity	θa	3.70E-01	fraction	0.0037
Bulk density of soil zone material	ρ	1.36E+00	g/cm^3	1.36
Henry's Law constant	H	1.00E+00	dimensionless	*1*
Entry if specify partition coefficient (option)				
Soil water partition coefficient	Kd	1.34E+02	l/kg	*1.34E+02*
Entry for non-polar organic chemicals (option)				
Fraction of organic carbon (in soil)	foc		fraction	
Organic carbon partition coefficient	Koc		l/kg	
Entry for ionic organic chemicals (option)				
Sorption coefficient for neutral species	$K_{oc,n}$		l/kg	
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg	
pH value	pH		pH units	
Acid dissociation constant	pKa			
Fraction of organic carbon (in soil)	foc		fraction	

This sheet calculates the Level 1 remedial target for soils(mg/kg) based on a selected target concentration and theoretical calculation of soil water partitioning. Three options are included for determining the partition coefficient. The measured soil concentration as mg/kg should be compared with the Level 1 remedial target to determine the need for further action.

Soil water partition coefficient used in Level Assessment	**Kd**	**1.34E+02**	**l/kg**	*Specified value*

Level 1 Remedial Target

Level 1 Remedial Target	**2.29E-05**	**mg/kg**	**(for comparison with soil analyses)**
	or		
	0.00000017	**mg/l**	**(for comparison with leachate test results)**

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 2 - Soil

Contaminant		**Benzo(a)pyrene**	from Level 1	This sheet calculates the Level 2 remedial target for soils (mg/kg) or for pore water (mg/l).
Target concentration	**C_T**	**0.00000017** mg/l	from Level 1	

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 2 remedial target to determine the need for further action. Equations presented in 'Hydrogeological risk assessment for land contamiantion' (Environment Agency 2006)

Input Parameters	**Variable**	**Value**	**Unit**	**Source of parameter value**	
Standard entry					
Infiltration	Inf	0.00E+00	m/d		
Area of contaminant source	A	0.00E+00	m^2		Not used in calculation
Entry for groundwater flow below site					
Length of contaminant source in direction of groundwater flow	L	0.00E+00	m		
Saturated aquifer thickness	da	0.00E+00	m		
Hydraulic Conductivity of aquifer in which dilution occurs	K	0.00E+00	m/d		
Hydraulic gradient of water table	i	0.00E+00	fraction		
Width of contaminant source perpendicular to groundwater flow	w	0.00E+00	m		Not used in calculation
Background concentration of contaminant in groundwater beneath site	Cu	0.00E+00	mg/l		
Define mixing zone depth by specifying or calculating depth (using pull down list)		**Specify**			
Enter mixing zone thickness	Mz	0.00E+00	m		
Calculated mixing zone thickness	Mz		m		

Calculated Parameters

Dilution Factor	**DF**	**#DIV/0!**		
Level 2 Remedial Target		**#DIV/0!**	**mg/l**	**For comparison with measured pore water concentration. This assumes Level 1 Remedial Target is based on Target Concentra**
		or		
		#DIV/0!	**mg/kg**	**For comparison with measured soil concentration. This assumes Level 1 Remedial Target calculated from soil-water**

Additional option

Calculation of impact on receptor

Concentration of contaminant in contaminated discharge (entering receptor)	Cc	0.00E+00	mg/l	
Calculated concentration within receptor (dilution only)		#DIV/0!	mg/l	0

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27-Apr-22
Version:	1

Remedial Targets Worksheet , Release 3.2

Level 3 - Soil

See Note

Environment Agency

Input Parameters	Variable	Value	Unit	Source
Contaminant		Benzo(a)pyrene		from Level 1
Target Concentration	C_T	0.00000017	mg/l	from Level 1
Dilution Factor	DF	#DIV/0!		from Level 2

Select analytical solution (click on brown cell below, then on pull-down menu)

Ogata Banks — Equations in HRA publication

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to pollutants in all phases (e.g. field derived value, l

	Variable	Value	Unit	Source of parameter value
Enter source concentration		Soil concentration as mg/kg		
Enter soil concentration		0	mg/kg	
Half life for degradation of contaminant in water	$t_{1/2}$	1.00E+100	days	
Calculated decay rate	λ	6.93E-101	$days^{-1}$	calculated
Width of plume in aquifer at source	Sz	0.00E+00	m	from Level 2
Plume thickness in aquifer at source	Sy	0.00E+00	m	from Level 2
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Effective porosity of aquifer	n	0.00E+00	fraction	
Hydraulic gradient	i	#DIV/0!	fraction	from Level 2 (adjusted)
Hydraulic conductivity of saturated aquifer	K	0.00E+00	m/d	from Level 2
Distance to compliance point	x	0.00E+00	m	
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+99	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	0.00E+00	l/kg	*see options*
Longitudinal dispersivity	ax	0.000	m	*see options*
Transverse dispersivity	az	0.000	m	*see options*
Vertical dispersivity	ay	0.000	m	*see options*

Parameter values should be checked against Level 1 and 2

Calculated Parameters	Variable		
Groundwater flow velocity	v	#DIV/0!	m/d
Retardation factor	Rf	#DIV/0!	fraction
Decay rate used	λ	6.93E-101	d^{-1}
Hydraulic gradient used in aquifer flow down-gradient	i	#DIV/0!	fraction
Rate of contaminant flow due to retardation	u	#DIV/0!	m/d
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	#DIV/0!	fraction
Attenuation factor (C_0/C_{ED})	**AF**	**#DIV/0!**	**fraction**
Calculated soil leachate concentration	Co	0.00E+00	mg/l

Remedial Targets

Level 3 Remedial Target		**#DIV/0!**	**mg/l**	For comparison with measured pore water concentration.
Ogata Banks		**or**		This assumes Level 1 Remedial Target is based on Target Concentration.
		#DIV/0!	**mg/kg**	For comparison with measured soil concentration. This
Distance to compliance point		**0**	**m**	assumes Level 1 Remedial Target calculated from soil-water partitioning equation.
Ratio of Compliance Point to Source Concentration	C_{ED}/C_0	**#DIV/0!**	**fraction**	Ogata Banks

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99

Enter method of defining partition co-efficient (using pull down list)

Calculate for ionic organic chemicals (acids)

Entry if specify partition coefficient (option)

Soil water partition coefficient — Kd — l/kg

Entry for non-polar organic chemicals (option)

Fraction of organic carbon in aquifer — foc — fraction
Organic carbon partition coefficient — Koc — l/kg

Entry for ionic organic chemicals (option)

Sorption coefficient for related species	$K_{oc,n}$	0.00E+00	l/kg
Sorption coefficient for ionised species	$K_{oc,i}$	0.00E+00	l/kg
pH value	pH	0.00E+00	
Acid dissociation constant	pKa	0.00E+00	
Fraction of organic carbon in aquifer	foc	0.00E+00	fraction
Soil water partition coefficient	Kd	0.00E+00	l/kg

Define dispersivity (click brown cell and use pull down list)

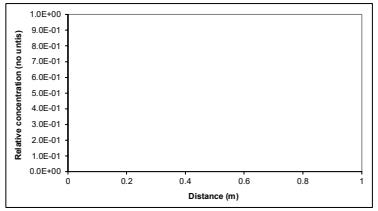
User defined values for dispersivity

		Enter value	Calc value	Xu & Eckstein	
Longitudinal dispersivity	**ax**	0.00E+00	0.00E+00	#NUM!	m
Transverse dispersivity	**az**	0.00E+00	0.00E+00	#NUM!	m
Vertical dispersivity	**ay**	0.00E+00	0.00E+00	#NUM!	m

Note values of dispersivity must be > 0

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed

Note
This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O_2, NO_3, SO_4 etc than an alternative solution should be used



Note: 'Relative concentration' is the ratio of calculated concentation at a given position compared to the source concentration. The calculations assume plume disperses from the top of the aquifer. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

This sheet calculates the Level 3 remedial target for soils(mg/kg) or for pore water (mg/l), based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.By setting a long travel time (e.g. 9E99) it will give the steady state solution, which should always be used when calculating remedial targets.

The measured soil concentration as mg/kg or pore water concentration should be compared with the Level 3 remedial target to determine the need for further action.

Note if contaminant is not subject to first order degradation, then set half life as 9.9E+99.

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	########
Version:	1

Calculated (relative) concentrations for distance-concentration graph

Ogata Banks
From calculation sheet

Distance	Relative concentration (No units)	Concentration mg/l
0	1.0E+00	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!
0.0	#DIV/0!	#DIV/0!

Remedial Targets Worksheet , Release 3.2

Calculation of contaminant concentration in groundwater from a soil source

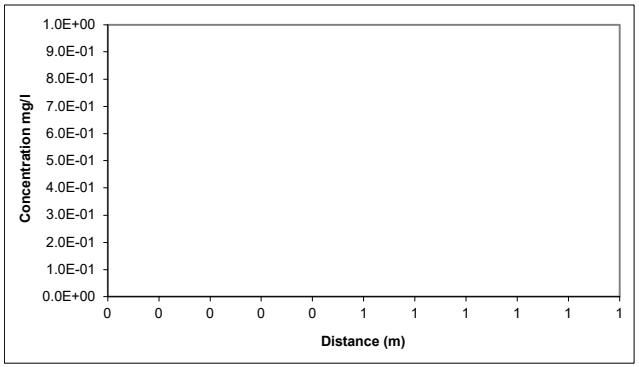
Only input required is Soil Contaminant Concentration

	Input Parameters			
	Soil contaminant concentration	C_0	0.00E+00	mg/kg
Level 1 Parameters				
	Water filled soil porosity	θ_W	5.00E-01	fraction
	Air filled soil porosity	θa	3.70E-01	fraction
	Bulk density	ρ	1.36E+00	g/cm^3
	Henry's Law constant	H	1.00E+00	dimensionless
	Soil water partition coefficient used in Level Assessment	Kd	1.34E+02	l/kg
	Factor (partitioning between soil and water)		1.35E+02	dimensionless
Level 2 Parameters	**Dilution Factor**	DF	#DIV/0!	
Level 3 Parameters	**Attenuation factor (C_O/C_{ED})**	AF	#DIV/0!	

Predicted concentrations at compliance point

Level 1	C	0.00E+00	mg/l	No dilution or attenuation
Level 2	C	#DIV/0!	mg/l	Dilution taken into account
Level 3	C	#DIV/0!	mg/l	Dilution and attenuation taken into account

Predicted concentrations between source and compliance point - Level 3



Distance m	Concentration mg/l
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
0.00	#DIV/0!
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R&D Publication 20 Remedial Targets Worksheet, Release 3.2

Level 3 - Groundwater

See Note

Input Parameters (using pull down menu)

	Variable	Value	Unit	Source
Contaminant		Benzo(a)pyrene		from Level 1
Target Concentration	C_T	1.70E-07	mg/l	from Level 1

Select analytical solution (click on brown cell below, then on pull-down menu)

Domenico - Steady state — Equations in HRA publication

Approach for simulating vertical dispersion: Simulate vertical dispersion in 1 direction

Select nature of decay rate (click on brown cell below, then on pull-down menu)

Approach for simulating degradation of pollutants: Apply degradation rate to dissolved pollutants only

				Source of parameter value
Initial contaminant concentration in groundwater at plume core	C_0	1.13E-03	mg/l	*Based on 95 percentile soil conc of 11.55mg/kg*
Half life for degradation of contaminant in water	$t_{1/2}$	3.65E+04	days	*10 year half life estimation*
Calculated decay rate	λ	1.90E-05	$days^{-1}$	
Width of plume in aquifer at source (perpendicular to flow)	Sz	5.00E+02	m	*Site data*
Plume thickness at source	Sy	1.50E+00	m	*Thickness of re-engineered MG*
Saturated aquifer thickness	da	2.00E+00	m	*Based upon proposed total MG and cappi*
Bulk density of aquifer materials	ρ	1.36E+00	g/cm^3	*Site data*
Effective porosity of aquifer	n	8.00E-02	fraction	*Estimate*
Hydraulic gradient	i	1.00E-02	fraction	*Estimate*
Hydraulic conductivity of aquifer	K	8.64E-03	m/d	*Proposed best achievable*
Distance to compliance point	x	2.00E+01	m	*Site data*
Distance (lateral) to compliance point perpendicular to flow direction	z		m	
Distance (depth) to compliance point perpendicular to flow direction	y		m	
Time since pollutant entered groundwater	t	1.00E+100	days	*time variant options only*
Parameters values determined from options				
Partition coefficient	Kd	1.02E+04	l/kg	*see options*
Longitudinal dispersivity	ax	2.00E+00	m	*see options*
Transverse dispersivity	az	2.00E-01	m	*see options*
Vertical dispersivity	ay	2.00E-02	m	*see options*

Calculated Parameters

	Variable		
Groundwater flow velocity	v	1.08E-03	m/d
Retardation factor	Rf	1.73E+05	fraction
Decay rate used	λ	1.10E-10	d^{-1}
Rate of contaminant flow due to retardation	u	6.24E-09	m/d
Contaminant concentration at distance x, assuming one-way vertical dispersion	C_{ED}	7.29E-04	mg/l
Attenuation factor (one way vertical dispersion, CO/CED)	**AF**	**1.55E+00**	

Remedial Targets

Remedial Target		**2.64E-07**	**mg/l**	For comparison with measured groundwater concentration.
Domenico - Steady state				
Distance to compliance point		**20**	**m**	
Concentration of contaminant at compliance point	C_{ED}/C_0	**7.29E-04**	**mg/l**	Domenico - Steady state

Care should be used when calculating remedial targets using the time variant options as this may result in an overestimate of the remedial target.
The recommended value for time when calculating the remedial target is 9.9E+99.

Select Method for deriving Partition Co-efficient (using pull down menu)

User specified value for partition coefficient

Entry if specify partition coefficient (option)			
Soil water partition coefficient	Kd	1.02E+04	l/kg
Entry for non-polar organic chemicals (option)			
Fraction of organic carbon in aquifer	foc		fraction
Organic carbon partition coefficient	Koc		l/kg
Entry for ionic organic chemicals (option)			
Sorption coefficient for related species	$K_{oc,n}$		l/kg
Sorption coefficient for ionised species	$K_{oc,i}$		l/kg
pH value	pH		
acid dissociation constant	pKa		
Fraction of organic carbon in aquifer	foc		fraction
Soil water partition coefficient	Kd	1.02E+04	l/kg

Define dispersivity (click brown cell and use pull down list)

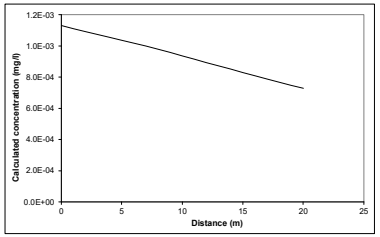
Dispersivities 10%, 1%, 0.1% of pathway length

		Enter value	Calc value Xu & Eckstein		
Longitudinal dispersivity	**ax**	0.00E+00	2.00E+00	1.57E+00	m
Transverse dispersivity	**az**	0.00E+00	2.00E-01	1.57E-01	m
Vertical dispersivity	**ay**	0.00E+00	2.00E-02	1.57E-02	

Note values of dispersivity must be > 0

For calculated value, assumes ax = 0.1 *x, az = 0.01 * x, ay = 0.001 * x

Xu & Eckstein (1995) report ax = $0.83(\log_{10}x)^{2.414}$; az = ax/10, ay = ax/100 are assumed



Note graph assumes plume disperses vertically in one direction only. An alternative solution assuming the centre of the plume is located at the mid-depth of the aquifer is presented in the calculation sheets.

Note

This sheet calculates the Level 3 remedial target for groundwater, based on the distance to the receptor or compliance located down hydraulic gradient of the source Three solution methods are included, the preferred option is Ogata Banks.

By setting a long travel time it will give the steady state solution, which should be used to calculate remedial targets.

The measured groundwater concentration should be compared with the Level 3 remedial target to determine the need for further action.
Note if contaminant is not subject to first order degradation, then set half life as 9.0E+99.

This worksheet should be used if pollutant transport and degradation is best described by a first order reaction. If degradation is best desribed by an electron limited degradation such as oxidation by O2, NO3, SO4 etc than an alternative solution should be used

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	#######
Version:	1

Calculated concentrations for distance-concentration graph

Domenico - Steady state
From calculation sheet

Distance	Concentration
	mg/l
0	1.1E-03
1.0	1.11E-03
2.0	1.09E-03
3.0	1.07E-03
4.0	1.06E-03
5.0	1.04E-03
6.0	1.02E-03
7.0	9.99E-04
8.0	9.78E-04
9.0	9.58E-04
10.0	9.36E-04
11.0	9.15E-04
12.0	8.93E-04
13.0	8.72E-04
14.0	8.50E-04
15.0	8.29E-04
16.0	8.08E-04
17.0	7.88E-04
18.0	7.68E-04
19.0	7.48E-04
20.0	7.29E-04

Porosity Calculator

These results are not carried through to any of the other worksheets

DRY BULK DENSITY DATA

Variable	Value	Unit	justification
Natural Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Dry Bulk Density	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

WET BULK DENSITY DATA

Variable	Value	Unit	
Moisture Content	0.00	% wt	
Particle Density	2.78	tonnes/m^3	(Change this number only if you have specific information)
Actual (wet) Bulk Density (i.e. at natural MC)	0.00	tonnes/m^3	
Calculated Parameters			
Voids Ratio	#DIV/0!	fraction	
dry bulk density	0.00	tonnes/m^3	
Initial Saturation	#DIV/0!	%	
Total porosity	**1.000**	**fraction**	
Air Filled Porosity	**#DIV/0!**	**fraction**	
Water Filled Porosity	**#DIV/0!**	**fraction**	

#DIV/0!

Analytical solutions provided by David Hall, Golder Associates (UK) Ltd

Simple hydrogeological calculations

(These are not specific to, or required in, the Remedial Targets Methodology)

Parameter	symbol		unit	justification
Hydraulic conductivity	K	0.00E+00	m/d	
Hydraulic gradient	i	0.00E+00	unitless	
Effective porosity of aquifer	n	0.00E+00	fraction	
Thickness of saturated aquifer	b	0.00E+00	m	
Width of aquifer perpendicular to flow	w	0.00E+00	m	
Distance to receptor	x	0.00E+00	m	
Bulk density of aquifer materials	ρ	0.00E+00	g/cm^3	
Soil-water partition co-efficient	Kd	0.00E+00	l/kg	
Retardation factor of pollutant	R	#DIV/0!		

Groundwater flow velocity	v(GW)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for groundwater to reach receptor	t(GW)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years
Rate of groundwater flow through aquifer	Q	0.00E+00	m^3/s	0.00E+00	m^3/day	0.00E+00	m^3/year

Contaminant flow velocity	v(contam)	#DIV/0!	m/s	#DIV/0!	m/day	#DIV/0!	m/year
Time for contaminant to reach receptor	t(contam)	#DIV/0!	seconds	#DIV/0!	days	#DIV/0!	years

Level 1 Calculation Sheet

Contaminant **Benzo(a)pyrene**

Parameter	Value	Units
(carried over from input sheet)		
C_T	1.70E-07	mg/l
Kd	1.34E+02	l/kg
foc		fraction
koc		l/kg
θ_W	5.00E-01	fraction
θa	3.70E-01	fraction
ρ	1.36E+00	g/cm3
H	1.00E+00	dimensionless
Koc,n		l/kg
Koc,i		l/kg
pH		pH units
pKa		
foc (ionic)		fraction

Calculations (Refer toTable 4.3, R&D Publication 20)

Selected option User specified value for partition coefficient

calc calc Calc Kd l/kg

Calculation of partition coefficient for ionic organic chemical

Partition coefficient used in Level 1 Assessment 1.34E+02 l/kg

Calculated Remedial Target 2.29E-05 mg/kg for Benzo(a)pyrene

Factor (partitioning between soil and water) 1.35E+02

Site being assessed:	Glan Llyn
Completed by:	Ross Cameron
Date:	27/04/2022
Version:	1

Level 2 Calculation Sheet

Contaminant **Benzo(a)pyrene**

Site assessed:	Glan Llyn
Date:	27/04/2022
Version:	1

Parameter	Value	Units		
(carried over from input sheet)				
Mz	0.00E+00	m		
L	0.00E+00	m		
da	0.00E+00	m		Calculated
Inf	0.00E+00	m/d		Dilution Factor
K	0.00E+00	m/d		
i	0.00E+00		Calculation based on target concentration	#DIV/0!
		m3/d		
A	0.00E+00	m2	Calculation based on observed contaminant concentration	#DIV/0!
		m3/d		
Cc	0.00E+00	mg/l		
C_T	1.70E-07	mg/l		
Cu	0.00E+00	mg/l		
w	0.00E+00	m		

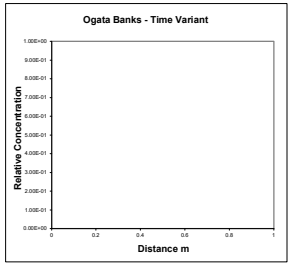
Contaminant **Benzo(a)pyrene**

OGATA BANKS SOLUTION

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	1.700E-07	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

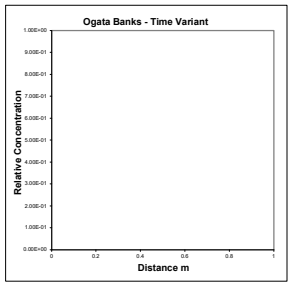
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) -USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Relative Concentration
1	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.13	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

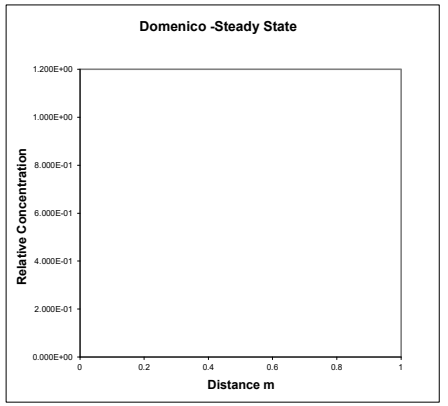
Contaminant enzo(a)pyrene

DOMENICO (STEADY STATE)

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	1.700E-07	mg/l
DF	#DIV/0!	
λ	6.931E-101	days^{-1}
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



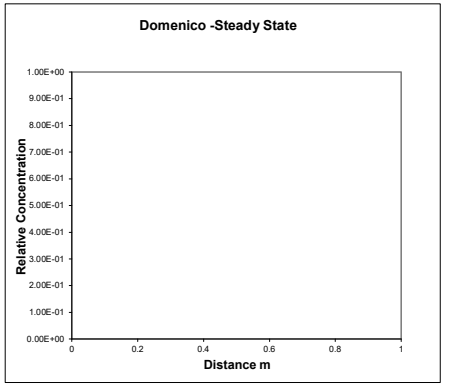
Calc **Value**

v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Relative Concentration
1	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.25	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	######	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

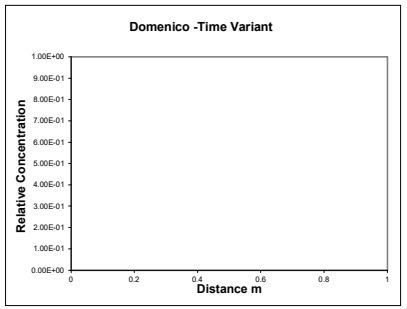
DOMENICO (TIME VARIANT)

Contaminant Benzo(a)pyrene

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.00000017	mg/l
DF	#DIV/0!	
λ	6.931E-101	$days^{-1}$
Sz	0.000E+00	m
Sy	0.000E+00	m
Kd	0.000E+00	l/kg
ρ	0.000E+00	g/cm3
n	0.000E+00	
i	#DIV/0!	
K	0.000E+00	m/d
x	0.000E+00	m
z	0.000E+00	m
y	0.000E+00	m
t	1.000E+99	days
ax	0.000E+00	m
az	0.000E+00	m
ay	0.000E+00	m

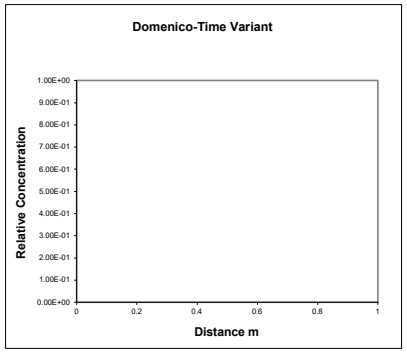
	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Calc	Value	
v	#DIV/0!	m/d
Rc	#DIV/0!	
u	#DIV/0!	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Relative Concentration
	m														
1	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
2	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
3	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
4	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
5	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
6	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
7	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
8	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
9	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
10	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
11	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
12	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
13	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
14	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
15	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
16	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
17	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
18	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
19	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
20	0	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Date:	27/04/2022
Version:	1

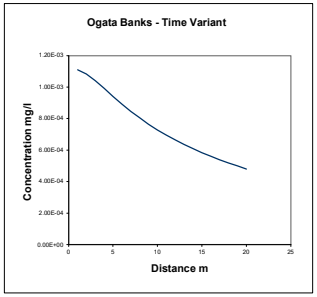
OGATA BANKS SOLUTION

Contaminant **Benzo(a)pyrene**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.00000017	mg/l
Co	1.13E-03	mg/l
λ	1.10E-10	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	1.02E+04	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	0.00014	-1.7E-02	9.8E-01	-3.0E+45	2.000	5.2E-01	1.7E+00	3.0E+45	0.000	2.8E+02	1	-2.8E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	1.11E-03
2	0.00014	-3.4E-02	9.7E-01	-3.0E+45	2.000	1.0E+00	2.8E+00	3.0E+45	0.000	2.0E+02	1	-2.0E+02	-1	1.9E+00	0.992	-1.9E+00	-0.99199	1.08E-03
3	0.00014	-5.1E-02	9.5E-01	-3.0E+45	2.000	1.6E+00	4.7E+00	3.0E+45	0.000	1.6E+02	1	-1.6E+02	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	1.04E-03
4	0.00014	-6.8E-02	9.3E-01	-3.0E+45	2.000	2.1E+00	7.9E+00	3.0E+45	0.000	1.4E+02	1	-1.4E+02	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	9.92E-04
5	0.00014	-8.5E-02	9.2E-01	-3.0E+45	2.000	2.6E+00	1.3E+01	3.0E+45	0.000	1.3E+02	1	-1.3E+02	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	9.41E-04
6	0.00014	-1.0E-01	9.0E-01	-3.0E+45	2.000	3.1E+00	2.2E+01	3.0E+45	0.000	1.1E+02	1	-1.1E+02	-1	1.1E+00	0.8742	-1.1E+00	-0.87421	8.92E-04
7	0.00014	-1.2E-01	8.9E-01	-3.0E+45	2.000	3.6E+00	3.7E+01	3.0E+45	0.000	1.1E+02	1	-1.1E+02	-1	1.0E+00	0.8436	-1.0E+00	-0.84362	8.46E-04
8	0.00014	-1.4E-01	8.7E-01	-3.0E+45	2.000	4.1E+00	6.3E+01	3.0E+45	0.000	9.9E+01	1	-9.9E+01	-1	9.4E-01	0.8151	-9.4E-01	-0.8151	8.04E-04
9	0.00014	-1.5E-01	8.6E-01	-3.0E+45	2.000	4.7E+00	1.0E+02	3.0E+45	0.000	9.3E+01	1	-9.3E+01	-1	8.8E-01	0.7887	-8.8E-01	-0.7887	7.65E-04
10	0.00014	-1.7E-01	8.4E-01	-3.0E+45	2.000	5.2E+00	1.8E+02	3.0E+45	0.000	8.8E+01	1	-8.8E+01	-1	8.4E-01	0.7643	-8.4E-01	-0.76432	7.29E-04
11	0.00014	-1.9E-01	8.3E-01	-3.0E+45	2.000	5.7E+00	3.0E+02	3.0E+45	0.000	8.4E+01	1	-8.4E+01	-1	8.0E-01	0.7418	-8.0E-01	-0.7418	6.95E-04
12	0.00014	-2.0E-01	8.2E-01	-3.0E+45	2.000	6.2E+00	4.9E+02	3.0E+45	0.000	8.1E+01	1	-8.1E+01	-1	7.7E-01	0.721	-7.7E-01	-0.72098	6.64E-04
13	0.00014	-2.2E-01	8.0E-01	-3.0E+45	2.000	6.7E+00	8.3E+02	3.0E+45	0.000	7.8E+01	1	-7.8E+01	-1	7.4E-01	0.7017	-7.4E-01	-0.70169	6.36E-04
14	0.00014	-2.4E-01	7.9E-01	-3.0E+45	2.000	7.2E+00	1.4E+03	3.0E+45	0.000	7.5E+01	1	-7.5E+01	-1	7.1E-01	0.6838	-7.1E-01	-0.68377	6.09E-04
15	0.00014	-2.6E-01	7.7E-01	-3.0E+45	2.000	7.8E+00	2.3E+03	3.0E+45	0.000	7.2E+01	1	-7.2E+01	-1	6.8E-01	0.6671	-6.8E-01	-0.66708	5.84E-04
16	0.00014	-2.7E-01	7.6E-01	-3.0E+45	2.000	8.3E+00	3.9E+03	3.0E+45	0.000	7.0E+01	1	-7.0E+01	-1	6.6E-01	0.6515	-6.6E-01	-0.6515	5.61E-04
17	0.00014	-2.9E-01	7.5E-01	-3.0E+45	2.000	8.8E+00	6.6E+03	3.0E+45	0.000	6.8E+01	1	-6.8E+01	-1	6.4E-01	0.6369	-6.4E-01	-0.63692	5.39E-04
18	0.00014	-3.1E-01	7.4E-01	-3.0E+45	2.000	9.3E+00	1.1E+04	3.0E+45	0.000	6.6E+01	1	-6.6E+01	-1	6.3E-01	0.6232	-6.3E-01	-0.62324	5.19E-04
19	0.00014	-3.2E-01	7.2E-01	-3.0E+45	2.000	9.8E+00	1.8E+04	3.0E+45	0.000	6.4E+01	1	-6.4E+01	-1	6.1E-01	0.6104	-6.1E-01	-0.61038	4.99E-04
20	0.00014	-3.4E-01	7.1E-01	-3.0E+45	2.000	1.0E+01	3.1E+04	3.0E+45	0.000	6.3E+01	1	-6.3E+01	-1	5.9E-01	0.5983	-5.9E-01	-0.59826	4.81E-04



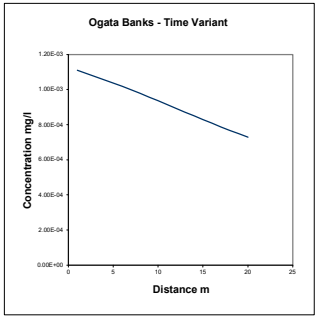
Vertical dispersion option Simulate vertical dispersion in 1 direction

Calc **Value**

v	1.08E-03	m/d
Rc	1.73E+05	
u	6.24E-09	m/d

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4	EXP	Term 5	ERFC	Term 6a	ERF	Term 6b	ERF	Term 7a	ERF	Term 7b	ERF	Concentration
1	0.00014	-1.7E-02	9.8E-01	-3.0E+45	2.000	5.2E-01	1.7E+00	3.0E+45	0.000	2.8E+02	1	-2.8E+02	-1	5.3E+00	1	-5.3E+00	-1	1.11E-03
2	0.00014	-3.4E-02	9.7E-01	-3.0E+45	2.000	1.0E+00	2.8E+00	3.0E+45	0.000	2.0E+02	1	-2.0E+02	-1	3.8E+00	1	-3.8E+00	-1	1.09E-03
3	0.00014	-5.1E-02	9.5E-01	-3.0E+45	2.000	1.6E+00	4.7E+00	3.0E+45	0.000	1.6E+02	1	-1.6E+02	-1	3.1E+00	1	-3.1E+00	-0.99999	1.07E-03
4	0.00014	-6.8E-02	9.3E-01	-3.0E+45	2.000	2.1E+00	7.9E+00	3.0E+45	0.000	1.4E+02	1	-1.4E+02	-1	2.7E+00	0.9998	-2.7E+00	-0.99982	1.06E-03
5	0.00014	-8.5E-02	9.2E-01	-3.0E+45	2.000	2.6E+00	1.3E+01	3.0E+45	0.000	1.3E+02	1	-1.3E+02	-1	2.4E+00	0.9992	-2.4E+00	-0.9992	1.04E-03
6	0.00014	-1.0E-01	9.0E-01	-3.0E+45	2.000	3.1E+00	2.2E+01	3.0E+45	0.000	1.1E+02	1	-1.1E+02	-1	2.2E+00	0.9978	-2.2E+00	-0.9978	1.02E-03
7	0.00014	-1.2E-01	8.9E-01	-3.0E+45	2.000	3.6E+00	3.7E+01	3.0E+45	0.000	1.1E+02	1	-1.1E+02	-1	2.0E+00	0.9954	-2.0E+00	-0.99541	9.99E-04
8	0.00014	-1.4E-01	8.7E-01	-3.0E+45	2.000	4.1E+00	6.3E+01	3.0E+45	0.000	9.9E+01	1	-9.9E+01	-1	1.9E+00	0.992	-1.9E+00	-0.99199	9.78E-04
9	0.00014	-1.5E-01	8.6E-01	-3.0E+45	2.000	4.7E+00	1.0E+02	3.0E+45	0.000	9.3E+01	1	-9.3E+01	-1	1.8E+00	0.9876	-1.8E+00	-0.98758	9.58E-04
10	0.00014	-1.7E-01	8.4E-01	-3.0E+45	2.000	5.2E+00	1.8E+02	3.0E+45	0.000	8.8E+01	1	-8.8E+01	-1	1.7E+00	0.9823	-1.7E+00	-0.98229	9.36E-04
11	0.00014	-1.9E-01	8.3E-01	-3.0E+45	2.000	5.7E+00	3.0E+02	3.0E+45	0.000	8.4E+01	1	-8.4E+01	-1	1.6E+00	0.9763	-1.6E+00	-0.97626	9.15E-04
12	0.00014	-2.0E-01	8.2E-01	-3.0E+45	2.000	6.2E+00	4.9E+02	3.0E+45	0.000	8.1E+01	1	-8.1E+01	-1	1.5E+00	0.9696	-1.5E+00	-0.96962	8.93E-04
13	0.00014	-2.2E-01	8.0E-01	-3.0E+45	2.000	6.7E+00	8.3E+02	3.0E+45	0.000	7.8E+01	1	-7.8E+01	-1	1.5E+00	0.9625	-1.5E+00	-0.96249	8.72E-04
14	0.00014	-2.4E-01	7.9E-01	-3.0E+45	2.000	7.2E+00	1.4E+03	3.0E+45	0.000	7.5E+01	1	-7.5E+01	-1	1.4E+00	0.955	-1.4E+00	-0.95498	8.50E-04
15	0.00014	-2.6E-01	7.7E-01	-3.0E+45	2.000	7.8E+00	2.3E+03	3.0E+45	0.000	7.2E+01	1	-7.2E+01	-1	1.4E+00	0.9472	-1.4E+00	-0.94719	8.29E-04
16	0.00014	-2.7E-01	7.6E-01	-3.0E+45	2.000	8.3E+00	3.9E+03	3.0E+45	0.000	7.0E+01	1	-7.0E+01	-1	1.3E+00	0.9392	-1.3E+00	-0.93921	8.08E-04
17	0.00014	-2.9E-01	7.5E-01	-3.0E+45	2.000	8.8E+00	6.6E+03	3.0E+45	0.000	6.8E+01	1	-6.8E+01	-1	1.3E+00	0.9311	-1.3E+00	-0.93109	7.88E-04
18	0.00014	-3.1E-01	7.4E-01	-3.0E+45	2.000	9.3E+00	1.1E+04	3.0E+45	0.000	6.6E+01	1	-6.6E+01	-1	1.3E+00	0.9229	-1.3E+00	-0.9229	7.68E-04
19	0.00014	-3.2E-01	7.2E-01	-3.0E+45	2.000	9.8E+00	1.8E+04	3.0E+45	0.000	6.4E+01	1	-6.4E+01	-1	1.2E+00	0.9147	-1.2E+00	-0.91468	7.48E-04
20	0.00014	-3.4E-01	7.1E-01	-3.0E+45	2.000	1.0E+01	3.1E+04	3.0E+45	0.000	6.3E+01	1	-6.3E+01	-1	1.2E+00	0.9065	-1.2E+00	-0.90647	7.29E-04



Date:	27/04/2022
Version:	1

DOMENICO (STEADY STATE)

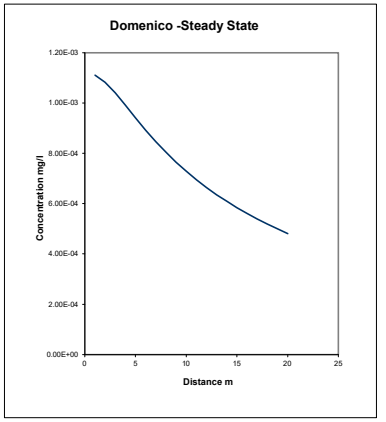
Contaminant **enzo(a)pyrene**

Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

Input	Value	Units
C_T	0.00000017	mg/l
Co	1.13E-03	mg/l
λ	1.10E-10	days^{-1}
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	1.02E+04	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion optio Simulate vertical dispersion in 1 direction

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.00028	-1.70E-02	9.83E-01	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	1.11E-03
2	2	0.00028	-3.40E-02	9.67E-01	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	1.08E-03
3	3	0.00028	-5.10E-02	9.50E-01	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	1.04E-03
4	4	0.00028	-6.80E-02	9.34E-01	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	9.92E-04
5	5	0.00028	-8.50E-02	9.18E-01	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	9.41E-04
6	6	0.00028	-1.02E-01	9.03E-01	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.8742	8.92E-04
7	7	0.00028	-1.19E-01	8.88E-01	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.8436	8.46E-04
8	8	0.00028	-1.36E-01	8.73E-01	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.8151	8.04E-04
9	9	0.00028	-1.53E-01	8.58E-01	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.7887	7.65E-04
10	10	0.00028	-1.70E-01	8.44E-01	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.7643	7.29E-04
11	11	0.00028	-1.87E-01	8.29E-01	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.7418	6.95E-04
12	12	0.00028	-2.04E-01	8.15E-01	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	6.64E-04
13	13	0.00028	-2.21E-01	8.02E-01	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.7017	6.36E-04
14	14	0.00028	-2.38E-01	7.88E-01	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.6838	6.09E-04
15	15	0.00028	-2.55E-01	7.75E-01	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.6671	5.84E-04
16	16	0.00028	-2.72E-01	7.62E-01	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.6515	5.61E-04
17	17	0.00028	-2.89E-01	7.49E-01	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.6369	5.39E-04
18	18	0.00028	-3.06E-01	7.36E-01	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.6232	5.19E-04
19	19	0.00028	-3.23E-01	7.24E-01	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.6104	4.99E-04
20	20	0.00028	-3.40E-01	7.12E-01	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.5983	4.81E-04



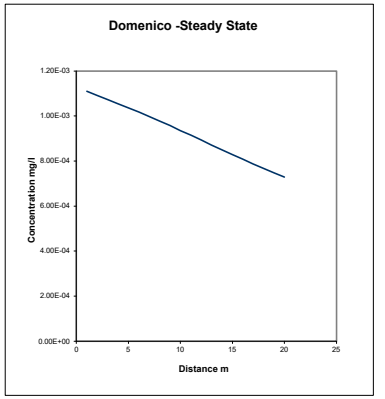
Calc **Value**

v	1.08E-03	m/d
Rc	1.73E+05	
u	6.24E-09	m/d

DOMENICO (STEADY STATE)

Calculations for source located at top of aquifer (ie vertical dispersion in one direction) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3A	ERF	Term 3B	ERF	Term 4A	ERF	Term 4B	ERF	Concentration
1	1	0.00028	-1.70E-02	9.83E-01	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	1.11E-03
2	2	0.00028	-3.40E-02	9.67E-01	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	1.09E-03
3	3	0.00028	-5.10E-02	9.50E-01	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	1.07E-03
4	4	0.00028	-6.80E-02	9.34E-01	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-0.9998	1.06E-03
5	5	0.00028	-8.50E-02	9.18E-01	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.9992	1.04E-03
6	6	0.00028	-1.02E-01	9.03E-01	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.9978	1.02E-03
7	7	0.00028	-1.19E-01	8.88E-01	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.9954	9.99E-04
8	8	0.00028	-1.36E-01	8.73E-01	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	9.78E-04
9	9	0.00028	-1.53E-01	8.58E-01	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.9876	9.58E-04
10	10	0.00028	-1.70E-01	8.44E-01	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.9823	9.36E-04
11	11	0.00028	-1.87E-01	8.29E-01	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.9763	9.15E-04
12	12	0.00028	-2.04E-01	8.15E-01	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.9696	8.93E-04
13	13	0.00028	-2.21E-01	8.02E-01	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.9625	8.72E-04
14	14	0.00028	-2.38E-01	7.88E-01	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	8.50E-04
15	15	0.00028	-2.55E-01	7.75E-01	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.9472	8.29E-04
16	16	0.00028	-2.72E-01	7.62E-01	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.9392	8.08E-04
17	17	0.00028	-2.89E-01	7.49E-01	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.9311	7.88E-04
18	18	0.00028	-3.06E-01	7.36E-01	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.9229	7.68E-04
19	19	0.00028	-3.23E-01	7.24E-01	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.9147	7.48E-04
20	20	0.00028	-3.40E-01	7.12E-01	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.9065	7.29E-04



Date:	27/04/2022
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DOMENICO (TIME VARIANT)

Contaminant **Benzo(a)pyrene**

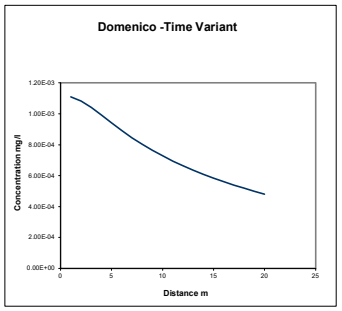
Input	Value	Units
C_T	0.00000017	mg/l
Co	1.13E-03	mg/l
λ	1.10E-10	$days^{-1}$
Sz	5.00E+02	m
Sy	1.50E+00	m
Kd	1.02E+04	l/kg
ρ	1.36E+00	g/cm3
n	8.00E-02	
i	1.00E-02	
K	8.64E-03	m/d
x	2.00E+01	m
z	0.00E+00	m
y	0.00E+00	m
t	1.00E+100	days
ax	2.00E+00	m
az	2.00E-01	m
ay	2.00E-02	m

Vertical dispersion option: Simulate vertical dispersion in 1 direction

Calc	Value	
v	1.08E-03	m/d
Rc	1.73E+05	
u	6.24E-09	m/d

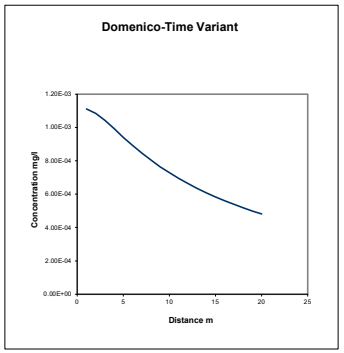
Calculations for source located in centre of aquifer (ie vertical dispersion in two directions)

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.00014	-1.70E-02	9.83E-01	-2.98E+45	2	2.80E+02	1	-2.80E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	1.11E-03
2	2	0.00014	-3.40E-02	9.67E-01	-2.98E+45	2	1.98E+02	1	-1.98E+02	-1	1.88E+00	0.992	-1.88E+00	-0.992	1.08E-03
3	3	0.00014	-5.10E-02	9.50E-01	-2.98E+45	2	1.61E+02	1	-1.61E+02	-1	1.53E+00	0.9696	-1.53E+00	-0.97	1.04E-03
4	4	0.00014	-6.80E-02	9.34E-01	-2.98E+45	2	1.40E+02	1	-1.40E+02	-1	1.33E+00	0.9392	-1.33E+00	-0.939	9.92E-04
5	5	0.00014	-8.50E-02	9.18E-01	-2.98E+45	2	1.25E+02	1	-1.25E+02	-1	1.19E+00	0.9065	-1.19E+00	-0.906	9.41E-04
6	6	0.00014	-1.02E-01	9.03E-01	-2.98E+45	2	1.14E+02	1	-1.14E+02	-1	1.08E+00	0.8742	-1.08E+00	-0.874	8.92E-04
7	7	0.00014	-1.19E-01	8.88E-01	-2.98E+45	2	1.06E+02	1	-1.06E+02	-1	1.00E+00	0.8436	-1.00E+00	-0.844	8.46E-04
8	8	0.00014	-1.36E-01	8.73E-01	-2.98E+45	2	9.88E+01	1	-9.88E+01	-1	9.38E-01	0.8151	-9.38E-01	-0.815	8.04E-04
9	9	0.00014	-1.53E-01	8.58E-01	-2.98E+45	2	9.32E+01	1	-9.32E+01	-1	8.84E-01	0.7887	-8.84E-01	-0.789	7.65E-04
10	10	0.00014	-1.70E-01	8.44E-01	-2.98E+45	2	8.84E+01	1	-8.84E+01	-1	8.39E-01	0.7643	-8.39E-01	-0.764	7.29E-04
11	11	0.00014	-1.87E-01	8.29E-01	-2.98E+45	2	8.43E+01	1	-8.43E+01	-1	8.00E-01	0.7418	-8.00E-01	-0.742	6.95E-04
12	12	0.00014	-2.04E-01	8.15E-01	-2.98E+45	2	8.07E+01	1	-8.07E+01	-1	7.65E-01	0.721	-7.65E-01	-0.721	6.64E-04
13	13	0.00014	-2.21E-01	8.02E-01	-2.98E+45	2	7.75E+01	1	-7.75E+01	-1	7.35E-01	0.7017	-7.35E-01	-0.702	6.36E-04
14	14	0.00014	-2.38E-01	7.88E-01	-2.98E+45	2	7.47E+01	1	-7.47E+01	-1	7.09E-01	0.6838	-7.09E-01	-0.684	6.09E-04
15	15	0.00014	-2.55E-01	7.75E-01	-2.98E+45	2	7.22E+01	1	-7.22E+01	-1	6.85E-01	0.6671	-6.85E-01	-0.667	5.84E-04
16	16	0.00014	-2.72E-01	7.62E-01	-2.98E+45	2	6.99E+01	1	-6.99E+01	-1	6.63E-01	0.6515	-6.63E-01	-0.651	5.61E-04
17	17	0.00014	-2.89E-01	7.49E-01	-2.98E+45	2	6.78E+01	1	-6.78E+01	-1	6.43E-01	0.6369	-6.43E-01	-0.637	5.39E-04
18	18	0.00014	-3.06E-01	7.36E-01	-2.98E+45	2	6.59E+01	1	-6.59E+01	-1	6.25E-01	0.6232	-6.25E-01	-0.623	5.19E-04
19	19	0.00014	-3.23E-01	7.24E-01	-2.98E+45	2	6.41E+01	1	-6.41E+01	-1	6.08E-01	0.6104	-6.08E-01	-0.61	4.99E-04
20	20	0.00014	-3.40E-01	7.12E-01	-2.98E+45	2	6.25E+01	1	-6.25E+01	-1	5.93E-01	0.5983	-5.93E-01	-0.598	4.81E-04



Calculations for source located at top of aquifer (ie vertical dispersion in one direction only) - USED FOR LEVEL ASSESSMENT

	X	Term 1	Term 2	EXP	Term 3	ERFC	Term 4A	ERF	Term 4B	ERF	Term 5A	ERF	Term 5B	ERF	Concentration
	m														
1	1	0.00014	-1.70E-02	9.83E-01	-2.98E+45	2	2.80E+02	1	-2.80E+02	-1	5.30E+00	1	-5.30E+00	-1	1.11E-03
2	2	0.00014	-3.40E-02	9.67E-01	-2.98E+45	2	1.98E+02	1	-1.98E+02	-1	3.75E+00	1	-3.75E+00	-1	1.09E-03
3	3	0.00014	-5.10E-02	9.50E-01	-2.98E+45	2	1.61E+02	1	-1.61E+02	-1	3.06E+00	1	-3.06E+00	-1	1.07E-03
4	4	0.00014	-6.80E-02	9.34E-01	-2.98E+45	2	1.40E+02	1	-1.40E+02	-1	2.65E+00	0.9998	-2.65E+00	-1	1.06E-03
5	5	0.00014	-8.50E-02	9.18E-01	-2.98E+45	2	1.25E+02	1	-1.25E+02	-1	2.37E+00	0.9992	-2.37E+00	-0.999	1.04E-03
6	6	0.00014	-1.02E-01	9.03E-01	-2.98E+45	2	1.14E+02	1	-1.14E+02	-1	2.17E+00	0.9978	-2.17E+00	-0.998	1.02E-03
7	7	0.00014	-1.19E-01	8.88E-01	-2.98E+45	2	1.06E+02	1	-1.06E+02	-1	2.00E+00	0.9954	-2.00E+00	-0.995	9.99E-04
8	8	0.00014	-1.36E-01	8.73E-01	-2.98E+45	2	9.88E+01	1	-9.88E+01	-1	1.88E+00	0.992	-1.88E+00	-0.992	9.78E-04
9	9	0.00014	-1.53E-01	8.58E-01	-2.98E+45	2	9.32E+01	1	-9.32E+01	-1	1.77E+00	0.9876	-1.77E+00	-0.988	9.58E-04
10	10	0.00014	-1.70E-01	8.44E-01	-2.98E+45	2	8.84E+01	1	-8.84E+01	-1	1.68E+00	0.9823	-1.68E+00	-0.982	9.36E-04
11	11	0.00014	-1.87E-01	8.29E-01	-2.98E+45	2	8.43E+01	1	-8.43E+01	-1	1.60E+00	0.9763	-1.60E+00	-0.976	9.15E-04
12	12	0.00014	-2.04E-01	8.15E-01	-2.98E+45	2	8.07E+01	1	-8.07E+01	-1	1.53E+00	0.9696	-1.53E+00	-0.97	8.93E-04
13	13	0.00014	-2.21E-01	8.02E-01	-2.98E+45	2	7.75E+01	1	-7.75E+01	-1	1.47E+00	0.9625	-1.47E+00	-0.962	8.72E-04
14	14	0.00014	-2.38E-01	7.88E-01	-2.98E+45	2	7.47E+01	1	-7.47E+01	-1	1.42E+00	0.955	-1.42E+00	-0.955	8.50E-04
15	15	0.00014	-2.55E-01	7.75E-01	-2.98E+45	2	7.22E+01	1	-7.22E+01	-1	1.37E+00	0.9472	-1.37E+00	-0.947	8.29E-04
16	16	0.00014	-2.72E-01	7.62E-01	-2.98E+45	2	6.99E+01	1	-6.99E+01	-1	1.33E+00	0.9392	-1.33E+00	-0.939	8.08E-04
17	17	0.00014	-2.89E-01	7.49E-01	-2.98E+45	2	6.78E+01	1	-6.78E+01	-1	1.29E+00	0.9311	-1.29E+00	-0.931	7.88E-04
18	18	0.00014	-3.06E-01	7.36E-01	-2.98E+45	2	6.59E+01	1	-6.59E+01	-1	1.25E+00	0.9229	-1.25E+00	-0.923	7.68E-04
19	19	0.00014	-3.23E-01	7.24E-01	-2.98E+45	2	6.41E+01	1	-6.41E+01	-1	1.22E+00	0.9147	-1.22E+00	-0.915	7.48E-04
20	20	0.00014	-3.40E-01	7.12E-01	-2.98E+45	2	6.25E+01	1	-6.25E+01	-1	1.19E+00	0.9065	-1.19E+00	-0.906	7.29E-04



Date:	27/04/2022
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Appendix L: Dilution Calculation Excel File

Formulas

$$EQS = \frac{C_{gw} + Q_{gw}}{Q}$$

$$C_{gw} = \frac{(EQS * Q)}{Q_{gw}}$$

Where:
Cgw = (total rainfall - ET - RO) x permeable surface area (m3/d)
Qol = (total rainfall - I) x impermeable surface area (m3/d)
RO = runoff: 5 x permeable surface area
Qr = Qgw + Qol = ROpot (m3/d)
Cgw = concentration in groundwater (mg/l)
EQS = chemical-specific (mg/l)

Dilution factor = final volume / initial volume
Dilution factor RESI 162.3
Dilution factor COMM 642.5

Cgw (total rainfall - ET - RO)	0.013 m/a		
Qol (total rainfall - I)	0.858 m/a		
RO (runoff)	0.524 m/a		
Residential Area	**Qgw**	**Qol**	**Qr**
Permeable area	676,000.00 m2	8686.6	m3/a
Impermeable area	1,014,000.00 m2	869707.8	m3/a
			1409882.5 m3/a
Celtic Business Park	**Qgw**	**Qol**	**Qr**
Permeable area	45,000.00 m2	578.3	m3/a
Impermeable area	405,000.00 m2	347368.5	m3/a
			371533.5 m3/a

Calculation Assumptions:
No infiltration occurs across the impermeable area
Runoff from the permeable area contributes to Qtot

Statistical Assumptions:
Less than values have had the < removed and concentrations are assumed to be at LOD

Travel time calculation for water entering MG to discharge to reen			
Distance (m)	100	10	1
Hydraulic gradient (-)	0.013333333	0.013333333	0.013333333
MG k (m/s)	0.0000001	0.0000001	0.0000001
Darcy flux (m/sec)	1.33333E-09	1.33333E-09	1.33333E-09
Time (seconds)	1.125E+11	7.50E+09	7.50E+08
Time (years)	3567	238	24

0.042048

$$Cs = Cl \times \left[\frac{Kdc + (\theta w + \theta a \times H)}{Pc} \right]$$

Where:
Cl Leachate Concentration (mg/l)
Cs Soil Concentration (mg/kg)
Kd Partition Coefficient (l/kg)
θw Water Filled Porosity (fraction)
θa Air Filled Porosity (fraction)
H Henry's Law (dimensionless)
Pc Contaminated Soil Bulk Density (g/cm3)

Leachate Samples

Determinand	EQS (mg/l)	Reference	Calculated Cgw (mg/l) Celtic Business Park	Calculated Cgw (mg/l) Residential Area	# samples above Cgw Celtic Business Park	# samples above Cgw Residential Area	% samples above Cgw Celtic Business Park	% samples above Cgw Residential Area	Comparison to Cgw (mg/l) Celtic Business Park	Comparison to Cgw (mg/l) Residential Area	Max Sampled Value (< removed sheet) mg/l	Comparison to Cgw (mg/l) Celtic Business Park	Comparison to Cgw (mg/l) Residential Area	Average Sampled Value (< removed sheet) mg/l
Metals														
Arsenic	0.05	1	**32.12588**	**8.11527**	0	0	0	0	ok	ok	**0.04900**	ok	ok	**0.01044**
Cadmium	0.00025	1	**0.16083**	**0.04058**	0	0	0	0	ok	ok	**0.00464**	ok	ok	**0.00022**
Chromium	0.0047	1	**3.01981**	**0.76284**	0	0	0	0	ok	ok	**0.11500**	ok	ok	**0.00709**
Copper	0.001	1 (d)	**0.64251**	**0.16231**	0	1	0	0.9	ok	Max Exceed	**0.34000**	ok	ok	**0.01811**
Iron	1	1	**642.91362**	**162.30945**	no sample	no sample	no sample	no sample	n/a	n/a	**no sample**	n/a	n/a	**no sample**
Lead	0.0012	1 (d)	**0.77102**	**0.19477**	0	0	0	0	ok	ok	**0.00864**	ok	ok	**0.00065**
Manganese	0.123	1 (d)	**79.82918**	**19.96367**	no sample	no sample	no sample	no sample	n/a	n/a	**no sample**	n/a	n/a	**no sample**
Mercury	0.00007	1	**0.04498**	**0.01136**	0	0	0	0	ok	ok	**0.00007**	ok	ok	**0.00002**
Nickel	0.004	1 (d)	**2.57005**	**0.64922**	0	0	0	0	ok	ok	**0.01640**	ok	ok	**0.00434**
Selenium	0.01	8	**6.42514**	**1.62305**	0	0	0	0	ok	ok	**0.10500**	ok	ok	**0.01052**
Vanadium	0.02	3	**12.85027**	**3.24611**	0	0	0	0	ok	ok	**0.77900**	ok	ok	**0.22426**
Zinc	0.0109	1 (d)	**7.00340**	**1.76913**	0	0	0	0	ok	ok	**0.45200**	ok	ok	**0.00785**
Other Inorganics														
Ammoniacal Nitrogen	0.3	5	**192.75409**	**48.69163**	no sample	no sample	no sample	no sample	n/a	n/a	**no sample**	n/a	n/a	**no sample**
Cyanide	0.001	1	**0.64251**	**0.16231**	no sample	no sample	no sample	no sample	n/a	n/a	**no sample**	n/a	n/a	**no sample**

Solid Samples

Determinand	Calculated Cmg (mg/kg) Celtic Business Park	Calculated Cmg (mg/kg) Residential Area	# samples above Cmg Celtic Business Park	# samples above Cmg Residential Area	% samples above Cmg (>33% samples highlighted purple) Celtic Business Park	% samples above Cmg (>33% samples highlighted purple) Residential Area	Comparison to Cmg (mg/kg) Celtic Business Park	Comparison to Cmg (mg/kg) Residential Area	Max Sampled Value (< removed sheet) mg/kg	Comparison to Cmg (mg/kg) Celtic Business Park	Comparison to Cmg (mg/kg) Residential Area	Average Sampled Value (< removed sheet) mg/kg
Metals												
Arsenic	**4328.686**	**1093.470**	0	0	0	0	ok	ok	**88.5**	ok	ok	**11.1**
Cadmium	**124.760**	**31.516**	0	0	0	0	ok	ok	**15.1**	ok	ok	**1.3**
Chromium	**16115.995**	**4071.064**	0	0	0	0	ok	ok	**622.0**	ok	ok	**148.4**
Copper	**770.811**	**194.710**	1	6	0.4	2.1	Max Exceed	Max Exceed	**1070.0**	ok	ok	**38.1**
Iron	**520673.281**	**131527.344**	no sample	no sample	no sample	no sample	no sample	no sample	**no sample**	n/a	n/a	**no sample**
Lead	**39398.452**	**9752.891**	0	0	0	0	ok	ok	**1300.0**	ok	ok	**99.9**
Manganese	**96930.188**	**14381.142**	no sample	no sample	no sample	no sample	no sample	no sample	**no sample**	n/a	n/a	**no sample**
Mercury	**224.896**	**56.811**	0	0	0	0	ok	ok	**4.2**	ok	ok	**0.4**
Nickel	**19867.740**	**4969.270**	0	0	0	0	ok	ok	**77.3**	ok	ok	**24.6**
Selenium	**1199.434**	**302.989**	0	0	0	0	ok	ok	**33.8**	ok	ok	**5.9**
Vanadium	**2744.228**	**693.220**	0	7	0	2.9	ok	Max Exceed	**890.0**	ok	ok	**213.1**
Zinc	**239023.127**	**59369.222**	0	0	0	0	ok	ok	**5700.0**	ok	ok	**219.3**
Other Inorganics												
Ammoniacal Nitrogen	**263.929**	**66.671**	no sample	no sample	no sample	no sample	no sample	no sample	**no sample**	n/a	n/a	**no sample**
Cyanide	**3.450**	**0.871**	no sample	no sample	no sample	no sample	no sample	no sample	**no sample**	n/a	n/a	**no sample**
Organics												
Benzene	**6.499**	**1.642**	0	0	0	0	ok	ok	**0.04**	ok	ok	**0.04**
Toluene	**219.488**	**55.446**	0	0	0	0	ok	ok	**0.03**	ok	ok	**0.01**
Ethylbenzene	**137.241**	**34.668**	0	0	0	0	ok	ok	**0.01**	ok	ok	**0.01**
Xylene[7]	**126.713**	**32.009**	0	0	0	0	ok	ok	**0.03**	ok	ok	**0.01**
Phenol	**5.215**	**1.317**	no sample	no sample	no sample	no sample	no sample	no sample	**no sample**	n/a	n/a	**no sample**
TPH Aliphatic >C5-C6	**124.795**	**31.517**	0	0	0	0	ok	ok	**0.10**	ok	ok	**0.04**
TPH Aliphatic >C6-C8	**813.844**	**155.663**	0	0	0	0	ok	ok	**0.18**	ok	ok	**0.04**
TPH Aliphatic >C8-C10	**4864.648**	**1228.182**	0	0	0	0	ok	ok	**0.14**	ok	ok	**0.04**
TPH Aliphatic >C10-C12	**38931.728**	**9733.595**	0	0	0	0	ok	ok	**0.53**	ok	ok	**0.05**
TPH Aliphatic >C12-C16	**768731.693**	**194169.411**	0	0	0	0	ok	ok	**37.2**	ok	ok	**3.5**
TPH Aliphatic >C16-C21	**96776235.072**	**24446857.131**	0	0	0	0	ok	ok	**184.0**	ok	ok	**20.7**
TPH Aliphatic >C21-C35	**96776235.072**	**24446857.131**	0	0	0	0	ok	ok	**5630.0**	ok	ok	**236.8**
TPH Aromatic >C5-C7	**96776235.072**	**24446857.131**	0	0	0	0	ok	ok	**2460.0**	ok	ok	**67.2**
TPH Aromatic >C7-C8	**14.542**	**3.674**	0	0	0	0	ok	ok	**0.04**	ok	ok	**0.04**
TPH Aromatic >C8-C10	**302.994**	**76.431**	0	0	0	0	ok	ok	**0.04**	ok	ok	**0.04**
TPH Aromatic >C10-C12	**245.454**	**62.004**	0	0	0	0	ok	ok	**0.10**	ok	ok	**0.04**
TPH Aromatic >C12-C16	**387.630**	**97.919**	0	0	0	0	ok	ok	**0.35**	ok	ok	**0.04**
TPH Aromatic >C16-C21	**771.676**	**194.792**	1	1	0	0	Max Exceed	Max Exceed	**786.0**	ok	ok	**5.3**
TPH Aromatic >C21-C35	**2433.262**	**614.667**	1	1	0	0	Max Exceed	Max Exceed	**7750.0**	ok	ok	**44.1**
TPH Aromatic >C5-C35	**19311.736**	**4878.340**	0	1	0	0	ok	Max Exceed	**6665.0**	ok	ok	**110.3**
TPH Aromatic >C35-C44	**19311.736**	**4878.340**	0	1	0	0	ok	ok	**725.0**	ok	ok	**45.5**
TPH Aromatic >C40-C44	**19311.735**	**4878.340**	0	0	0	0	ok	ok	**253.0**	ok	ok	**18.0**
Acenaphthene	**28.584**	**7.221**	0	1	0	0	ok	Max Exceed	**24.9**	ok	ok	**0.15**
Acenaphthylene	**50.812**	**12.836**	0	0	0	0	ok	ok	**2.1**	ok	ok	**0.09**
Anthracene	**58.337**	**14.737**	0	0	0	0	ok	ok	**5.3**	ok	ok	**0.27**
Benzo(a)anthracene	**1036.999**	**261.998**	0	0	0	0	ok	ok	**37.6**	ok	ok	**1.02**
Benzo(a)pyrene	**58.698**	**14.826**	0	1	0.0	0.4	ok	Max Exceed	**42.5**	ok	ok	**1.15**
Benzo(b)fluoranthene	**5.837**	**1.475**	9	66	3.7	27.2	Max Exceed	Max Exceed	**54.5**	ok	Av Exceed	**1.60**
Benzo(k)fluoranthene	**8.634**	**2.181**	1	9	0.4	3.7	Max Exceed	Max Exceed	**19.6**	ok	ok	**0.57**
Benzo(g,h,i)perylene	**22.710**	**5.737**	1	3	0.4	1.2	Max Exceed	Max Exceed	**26.0**	ok	ok	**0.85**
Chrysene	**1061.153**	**268.058**	0	0	0	0	ok	ok	**30.4**	ok	ok	**0.98**
Di-benz(a,h)anthracene	**1431.448**	**361.598**	0	0	0	0	ok	ok	**8.4**	ok	ok	**0.23**
Indeno(1,2,3-cd)pyrene	**43.273**	**10.931**	0	1	0	0.4	ok	Max Exceed	**24.7**	ok	ok	**0.72**
Fluoranthene	**11.594**	**2.860**	4	28	1.6	11.5	Max Exceed	Max Exceed	**40.7**	ok	ok	**1.61**
Fluorene	**46.344**	**11.707**	0	1	0	0.4	ok	Max Exceed	**30.7**	ok	ok	**0.23**
Naphthalene	**46.901**	**11.848**	0	0	0	0	ok	ok	**5.3**	ok	ok	**0.28**
Phenanthrene	**46.344**	**11.707**	0	1	0	0.4	ok	Max Exceed	**19.6**	ok	ok	**0.86**
Pyrene	**130.571**	**32.994**	0	0	0	0	ok	ok	**32.9**	ok	ok	**1.36**
Tetrachloroethene (PCE)	**35.96033**	**9.08384**										
Trichloroethene (TCE)	**21.68023**	**5.47467**										
1,1-Dichloroethene (1,1-DCE)	**56.60009**	**14.29775**										
cis-1,2-Dichloroethene (1,2-DCE)	**49.35446**	**12.46744**										
trans-1,2-Dichloroethene	**49.31514**	**12.20489**										
Vinyl Chloride (VC)	**0.50188**	**0.12678**										

Conversion from mg/l to mg/kg

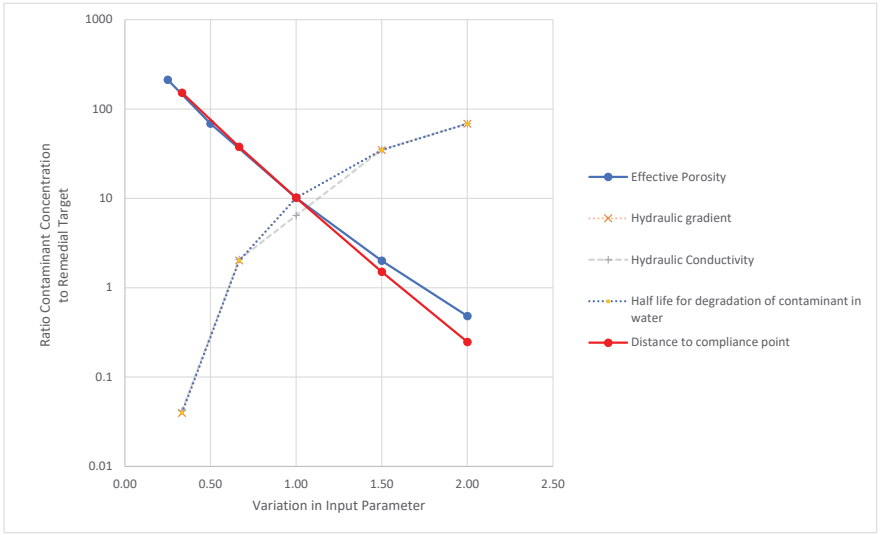
Determinand	Henrys Law Coefficient	Henrys Law ref	foc	koc	koc ref	Kd (average value)	Kd ref	Air Filled Porosity	Water Filled Porosity	Dry Bulk Density	Cgw (mg/kg) Celtic Business Park	Cgw (mg/kg) Residential Area	WQS (mg/kg)
Metals													
Arsenic	1	-				134	11	0.00368553	0.50	1.36	4328.69	1093.47	6.74
Cadmium	1	-				776	11	0.00368553	0.50	1.36	124.76	31.52	0.19
Chromium	1	-				5336	11	0.00368553	0.50	1.36	16116.00	4071.06	25.09
Copper	1	-				1199	11	0.00368553	0.50	1.36	770.81	194.71	1.20
Iron	1	-				810	18	0.00368553	0.50	1.36	520673.28	131527.34	810.37
Lead	1	-				34077	11	0.00368553	0.50	1.36	39890.65	8752.89	41.80
Manganese	1	-				720	18	0.00368553	0.50	1.36	56930.19	14381.14	88.61
Mercury	1	-				5000	11	0.00368553	0.50	1.36	224.90	56.81	0.35
Nickel	1	-				7652	11	0.00368553	0.50	1.36	19807.74	4969.27	30.61
Selenium	1	-				186	11	0.00368553	0.50	1.36	1199.43	302.99	1.87
Vanadium	1	-				213	11	0.00368553	0.50	1.36	2744.23	693.22	4.27
Zinc	1	-				33658	11	0.00368553	0.50	1.36	239023.13	59369.22	366.79
Other Inorganics											0.00	0.00	0.00
Ammoniacal Nitrogen	1	-					19	0.00368553	0.50	1.36	263.93	66.67	0.41
Cyanide	1	-					20	0.00368553	0.50	1.36	3.45	0.87	0.01
Organics											0.00	0.00	0.00
Benzene	0.182000	12	0.0239	794	14	19.8	Soc*Soc	0.00368553	0.50	1.36	6.50	1.64	0.01
Toluene	0.231000	12	0.0239	178	14	4.249188458	Soc*Soc	0.00368553	0.50	1.36	219.49	55.44	0.32
Ethylbenzene	0.3	12	0.0239	432	14	10.31283716	Soc*Soc	0.00368553	0.50	1.36	137.24	34.67	0.21
Xylene[7]	0.22	12	0.0239	260	14	6.2046797	Soc*Soc	0.00368553	0.50	1.36	126.71	32.01	0.19
Phenol	0.000068	12	0.0239	28.8	14	0.687509144	Soc*Soc	0.00368553	0.50	1.36	5.21	1.32	0.01
TPH Aliphatic >C5-C6	33.000000	13	0.0239	794	14	19.8	Soc*Soc	0.00368553	0.50	1.36	124.76	31.52	0.31
TPH Aliphatic >C6-C8	50	13	0.0239	3681	14	95.6	Soc*Soc	0.00368553	0.50	1.36	813.84	155.66	1.10
TPH Aliphatic >C8-C10	90	13	0.0239	31623	14	754.1	Soc*Soc	0.00368553	0.50	1.36	4654.05	1228.18	7.84
TPH Aliphatic >C10-C12	120	13	0.0239	251189	14	5996.3	Soc*Soc	0.00368553	0.50	1.36	38531.73	9733.59	60.41
TPH Aliphatic >C12-C16	326	13	0.0239	5011872	14	119642.8	Soc*Soc	0.00368553	0.50	1.36	768731.69	194169.41	1198.55
TPH Aliphatic >C16-C21	4900	13	0.0239	6309573447	14	15062116.1	Soc*Soc	0.00368553	0.50	1.36	96776235.07	24446857.13	########
TPH Aliphatic >C21-C35	4900	13	0.0239	6309573447	14	15062116.1	Soc*Soc	0.00368553	0.50	1.36	96776235.07	24446857.13	########
TPH Aromatic >C5-C7	4900	13	0.0239	6309573447	14	15062116.1	Soc*Soc	0.00368553	0.50	1.36	96776235.07	24446857.13	########
TPH Aromatic >C7-C8	0.23	13	0.0239	79	15	1.9	Soc*Soc	0.00368553	0.50	1.36	14.54	3.67	0.02
TPH Aromatic >C8-C10	0.27	13	0.0239	251	14	6.1	Soc*Soc	0.00368553	0.50	1.36	302.94	76.43	0.46
TPH Aromatic >C10-C12	0.48	13	0.0239	1585	14	37.9	Soc*Soc	0.00368553	0.50	1.36	245.45	62.00	0.38
TPH Aromatic >C12-C16	0.14	13	0.0239	2512	14	60.0	Soc*Soc	0.00368553	0.50	1.36	387.63	97.92	0.60
TPH Aromatic >C16-C21	0.55	13	0.0239	5012	14	119.8	Soc*Soc	0.00368553	0.50	1.36	771.68	194.79	1.20
TPH Aromatic >C21-C35	0.01	13	0.0239	15849	14	378.9	Soc*Soc	0.00368553	0.50	1.36	2433.26	614.67	3.79
TPH Aromatic >C5-C35	0.00067	13	0.0239	125893	14	3005.5	Soc*Soc	0.00368553	0.50	1.36	19311.74	4878.34	30.05
TPH Aromatic >C35-C44	0.00067	13	0.0239	125893	14	3005.5	Soc*Soc	0.00368553	0.50	1.36	19311.74	4878.34	30.05
TPH Aromatic >C40-C44	0.00067	13	0.0239	125893	14	3005.5	Soc*Soc	0.00368553	0.50	1.36	19311.74	4878.34	30.05
											0.00	0.00	0.00
Acenaphthene	0.0049	12	0.0239	18621	15	444.5	Soc*Soc	0.00368553	0.50	1.36	28.58	7.22	0.04
Acenaphthylene	0.0034	12	0.0239	33113	15	790.8	Soc*Soc	0.00368553	0.50	1.36	50.81	12.84	0.08
Anthracene	0.0016	12	0.0239	38019	15	907.8	Soc*Soc	0.00368553	0.50	1.36	58.34	14.74	0.09
Benzo(a)anthracene	0.00024	12	0.0239	676083	15	16139.5	Soc*Soc	0.00368553	0.50	1.36	1037.00	261.99	1.61
Benzo(a)pyrene	0.000019	12	0.0239	426580	15	10183.2	Soc*Soc	0.00368553	0.50	1.36	58.69	14.83	0.09
Benzo(b)fluoranthene	0.0002	12	0.0239	2238721	15	53442.8	Soc*Soc	0.00368553	0.50	1.36	5.84	1.47	0.01
Benzo(k)fluoranthene	0.000034	12	0.0239	3311311	15	79047.1	Soc*Soc	0.00368553	0.50	1.36	8.63	2.18	0.01
Benzo(g,h,i)perylene	0.00003	12	0.0239	8709636	15	207915.1	Soc*Soc	0.00368553	0.50	1.36	22.71	5.74	0.04
Chrysene	0.00026	12	0.0239	691831	15	16515.5	Soc*Soc	0.00368553	0.50	1.36	1061.15	268.06	1.65
Di-benz(a,h)anthracene	0.0000006	12	0.0239	933254	15	22278.5	Soc*Soc	0.00368553	0.50	1.36	1431.45	361.60	2.23
Indeno(1,2,3-cd)pyrene	0.000098	12	0.0239	16595869	15	396174.6	Soc*Soc	0.00368553	0.50	1.36	43.27	10.93	0.07
Fluoranthene	0.00042	12	0.0239	117490	15	2804.7	Soc*Soc	0.00368553	0.50	1.36	11.35	2.87	0.02
Fluorene	0.0032	12	0.0239	30200	15	720.9	Soc*Soc	0.00368553	0.50	1.36	46.34	11.71	0.07
Naphthalene	0.017	12	0.0239	1514	15	36.1	Soc*Soc	0.00368553	0.50	1.36	46.90	11.85	0.07
Phenanthrene	0.0013	12	0.0239	30200	15	720.9	Soc*Soc	0.00368553	0.50	1.36	46.34	11.71	0.07
Pyrene	0.00037	12	0.0239	85114	15	2031.8	Soc*Soc	0.00368553	0.50	1.36	130.57	32.99	0.20
											0.00	0.00	0.00
Tetrachloroethene (PCE)	0.865	17	0.0239	219	15	5.2	Soc*Soc	0.00368553	0.50	1.36	35.96	9.08	0.06
Trichloroethene (TCE)	0.42	17	0.0239	126	15	3.0	Soc*Soc	0.00368553	0.50	1.36	21.69	5.48	0.03
1,1-Dichloroethene (1,1-DCE)	1.336	17	0.0239	107.5	15	2.6	Soc*Soc	0.00368553	0.50	1.36	56.60	14.30	0.09
cis-1,2-Dichloroethene (1,2-DCE)	0.2772	17	0.0239	48.97	15	1.2	Soc*Soc	0.00368553	0.50	1.36	49.35	12.47	0.08
trans-1,2-Dichloroethene	0.4071	17	0.0239	47.6	15	1.1	Soc*Soc	0.00368553	0.50	1.36	49.32	12.25	0.08
Vinyl Chloride (VC)	0.78	17	0.0239	50	15	1.2	Soc*Soc	0.00368553	0.50	1.36	0.50	0.13	0.00

Appendix M: Sensitivity Analyses Outputs

Ammoniacal Nitrogen Sensitivity Analysis

			Sensitive?
Initial contaminant concentration in groundwater at plume core	254.78	mg/l	
Half life for degradation of contaminant in water	2190	days	Yes
Calculated decay rate	0.000317	days-1	
Width of plume in aquifer at source (perpendicular to flow)	500	m	No
Plume thickness at source	1.5	m	No
Saturated aquifer thickness	2	m	No
Bulk density of aquifer materials	1.36	g/cm3	No
Effective porosity of aquifer	0.08	fraction	Yes
Hydraulic gradient	0.01	fraction	Yes
Hydraulic conductivity of aquifer	0.00864	m/d	Yes
Distance to compliance point	20	m	Yes
Soil water partition coefficient	213	l/kg	
Remedial Target	169.00	mg/l	

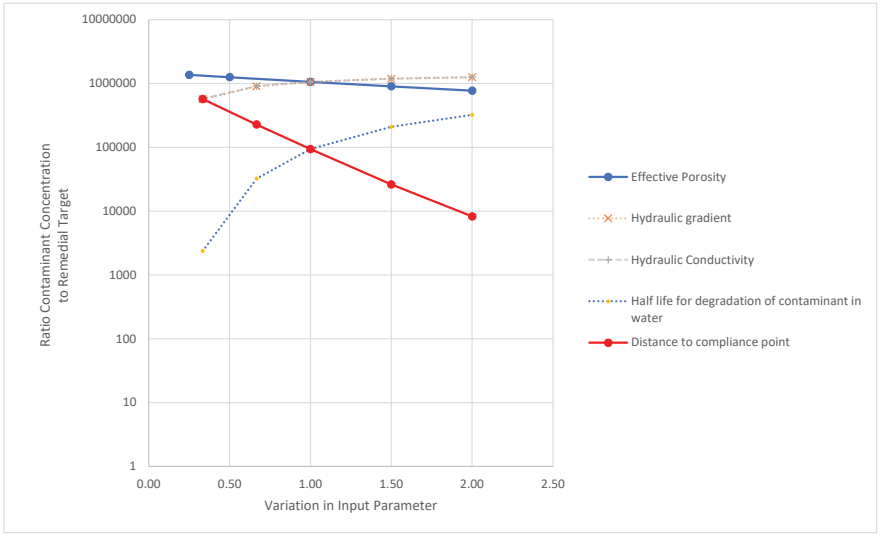
				Remedial Target	Ratio
Effective porosity of aquifer	0.02	fraction	0.25	1.200000	212.3167
	0.04	fraction	0.50	3.720000	68.48925
	0.08	fraction	1.00	25.10000	10.1506
	0.12	fraction	1.50	127.000000	2.006142
	0.16	fraction	2.00	529.000000	0.481626
Hydraulic gradient	0.00333	fraction	0.33	6410.000000	0.039747
	0.00667	fraction	0.67	126.000000	2.022063
	0.01000	fraction	1.00	25.10000	10.1506
	0.01500	fraction	1.50	7.340000	34.71117
	0.02000	fraction	2.00	3.720000	68.48925
Hydraulic conductivity of aquifer	0.0029	m/d	0.33	6070.000000	0.041974
	0.0058	m/d	0.67	123.000000	2.071382
	0.0086	m/d	1.00	39.559576	6.440413
	0.0130	m/d	1.50	7.280000	34.99725
	0.0173	m/d	2.00	3.710000	68.67385
Half life for degradation of contaminant in water	730	days	0.33	6370.000000	0.039997
	1460	days	0.67	127.000000	2.006142
	2190	days	1.00	25.100000	10.1506
	3285	days	1.50	7.340000	34.71117
	4380	days	2.00	3.720000	68.48925
Distance to compliance point	6.666667	m	0.33	1.68	151.6548
	13.33333	m	0.67	6.75	37.74519
	20	m	1.00	25.1	10.1506
	30	m	1.50	169	1.507574
	40	m	2.00	1030	0.247359



Benzo(b)fluoranthene Sensitivity Analysis

			Sensitive?
Initial contaminant concentration in groundwater at plume core	0.28	mg/l	
Half life for degradation of contaminant in water	3650	days	Yes
Calculated decay rate	0.000019	days-1	
Width of plume in aquifer at source (perpendicular to flow)	500	m	No
Plume thickness at source	1.5	m	No
Saturated aquifer thickness	2	m	No
Bulk density of aquifer materials	1.36	g/cm3	No
Effective porosity of aquifer	0.08	fraction	Yes
Hydraulic gradient	0.01	fraction	Yes
Hydraulic conductivity of aquifer	0.00864	m/d	Yes
Distance to compliance point	20	m	Yes
Soil water partition coefficient	53442	l/kg	
Remedial Target	0.00	mg/l	

				Remedial Target	Ratio
Effective porosity of aquifer	0.02	fraction	0.25	0.000000	1365854
	0.04	fraction	0.50	0.000000	1255605
	0.08	fraction	1.00	0.00000	1060606
	0.12	fraction	1.50	0.000000	903225.8
	0.16	fraction	2.00	0.000000	771349.9
Hydraulic gradient	0.00333	fraction	0.33	0.000000	570264.8
	0.00667	fraction	0.67	0.000000	903225.8
	0.01000	fraction	1.00	0.00000	1060606
	0.01500	fraction	1.50	0.000000	1186441
	0.02000	fraction	2.00	0.000000	1255605
Hydraulic conductivity of aquifer	0.0029	m/d	0.33	0.000000	573770.5
	0.0058	m/d	0.67	0.000000	906148.9
	0.0086	m/d	1.00	0.000000	1060606
	0.0130	m/d	1.50	0.000000	1186441
	0.0173	m/d	2.00	0.000000	1255605
Half life for degradation of contaminant in water	1216.667	days	0.33	0.000118	2372.881
	2433.333	days	0.67	0.000009	32332.56
	3650	days	1.00	0.000003	93645.48
	5475	days	1.50	0.000001	208955.2
	7300	days	2.00	0.000001	322580.6
Distance to compliance point	6.666667	m	0.33	4.92E-07	569105.7
	13.33333	m	0.67	1.23E-06	227642.3
	20	m	1.00	2.99E-06	93645.48
	30	m	1.50	1.07E-05	26168.22
	40	m	2.00	3.39E-05	8259.587



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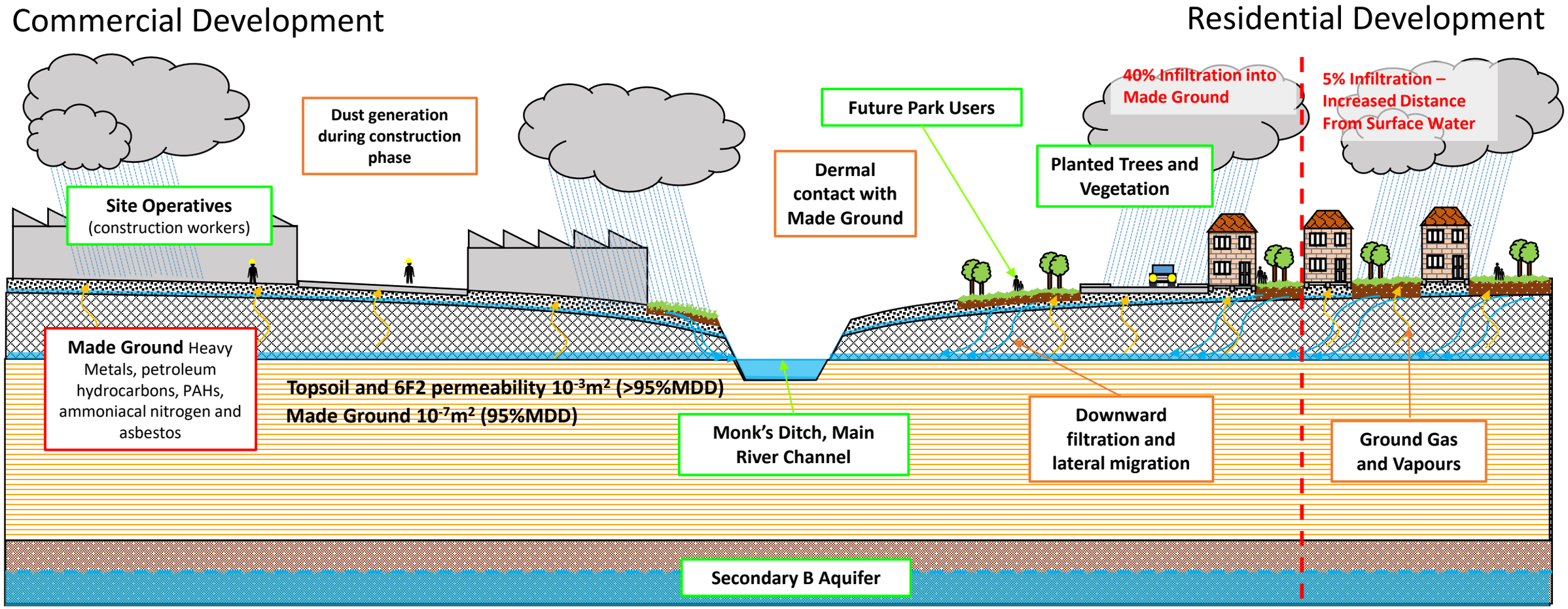
Seven House, 18 High Street, Longbridge, Birmingham B31 2UQ

Appendix C - CSM



Area covered by landscaping = 23.8%

Conceptual Site Model

Source	Pathways	Receptor	Mitigation
Made Ground – Contaminants within Soil **Inorganic substances (heavy metals/ asbestos)**	Direct Contact – dermal contact, absorption through skin, ingestion. Inhalation of vapours (VOCs) from soil derived gas via Made Ground. Inhalation of contaminants in soils/dust.	Human Health -End Users -Adjacent residents	- Made Ground to be placed below clean cover to break pathways.
Organic substances (ammoniacal nitrogen, petroleum hydrocarbons, PAHs, VOCs, SVOCs)	Direct contact – contaminants in soils, perched water and groundwater.	Growth Inhibition -Planted Trees and Vegetation	- Material to be placed below clean cover to break pathways.
	Potential migration of leachable contaminants through shallow groundwater	Controlled Waters – Secondary B Aquifer, Hough Drain, Forebridge Drain and River Sow.	- Reduced permeability of Made Ground through engineering. Rainwater landing on hard standing intercepted by drainage network. No downward migration through cohesive Tidal Flat deposits to aquifer.

Legend

- Sewage Material Placement
- Approximate Depth of Groundwater
- Topsoil Clean Cover (imported)
- Construction Material including 6F2 (to be placed)
- Imported General Fill (already placed)
- Tidal Flat Deposits
- Bedrock

Project ID:	P16-669
Project Title:	Glan Llyn
Location:	Llanwern
Client:	St. Modwen Developments

Title:	Conceptual Site Model
Scale:	Not to scale
Engineer:	RT
Contractor:	
Date:	October, 2021

Appendix D – Chemical Screening

ALS

SDG(s): 201212-45
Customer: Rodgers Leask Almondsbury (12763)

Client Reference / Location: Llanwern
Order no: 108281

All results expressed on a dry weight basis

Analysis / Test	Method	Units	LOD	Re-use Screening Criteria 40% Infiltration of Incident Rainfall for Residential Areas	Re-use Screening Criteria 40% Infiltration of Incident Rainfall for Commercial Areas	MAX	2BSE-1	2BSE-2	2BSE-3	2BSE-4	2BSE-5	2BSE-6	2BSE-7	2BSE-8	2BSE-9	2BSE-10	2BSE-11	2BSE-12	2BSE-13	2BSE-14	2BSE-22	2BSE-23	2BSE-24	2BSE-25	2BSE-26	2BSE-27	2BSE-28	2BSE-29	2BSE-30	2BSE-31	2BSE-32	2BSE-33	2BSE-34	2BSE-35	M33-1	M33-2
Depth							0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.50-0.50	1.40-1.40
AGS Id																																				
Sample Type							SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Sampled Date							10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	10/12/2020	10/12/2020
Sample Received Date							12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020	12/12/2020
Final Instruction Date							05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021
Report Completed Date							19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
SDG							201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45	201212-45
Lab Sample Number							23419848	23419856	23419865	23419873	23419881	23419682	23419690	23419695	23419701	23419706	23419712	23419718	23419728	23419733	23419739	23419751	23419758	23419763	23419769	23419775	23419781	23419786	23419792	23419798	23419803	23419821	23419826	23419833	23419813	23419841
Sample Temperature							10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Sample Time																																				
Sample Description																																				
Colour	PM024	No units					Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Black	Black	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Black	Dark Brown	Dark Brown
Description	PM024	No units					Loamy Sand	Sandy Loam	Loamy Sand	Stone/Soil	Loamy Sand	Loamy Sand	Loamy Sand	Sandy Clay Loam	Loamy Sand	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Loamy Sand	Loamy Sand	Sandy Loam	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Loam	Loamy Sand	Loamy Sand	Sand	Sand
Inclusion 1)	PM024	No units					Stones	Stones	Stones	None	Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Inclusion 2)	PM024	No units					None	Vegetation	None	Stones	None	None	Stones	Vegetation	None	None	Vegetation	Vegetation	Vegetation	Crushed Brick	None	Vegetation	Vegetation	None	None	Vegetation	None	Vegetation	Vegetation	None	None	None	Crushed Brick	None	None	Brick
Moisture Content Ratio (% of as received sample)	PM024	%					7.9	13	12	10	10	11	12	7.3	13	11	10	5.7	7.8	16	15	15	17	14	12	16	15	17	15	14	13	16	12	14	3.6	5.3
Asbestos																																				
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001	0.02	0.03		-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Date of Analysis	TM048	No units					21/12/2020	-	21/12/20	-	21/12/2020	-	21/12/2020	-	21/12/20	-	21/12/2020	-	21/12/20	-	21/12/20	-	21/12/2020	-	21/12/20	-	21/12/20	-	21/12/20	-	21/12/2020	-	21/12/20	-	21/12/2020	-
Analysed By	TM048	No units					Marcin Magdziarek	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Marcin Magdziarek	-
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001				-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Additional Asbestos Components (Using TM048)	TM304	No units					-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Analysts Comments	TM304	No units					-	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos Quantification - Total - %	TM304	%	<0.001				-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysotile (White) Asbestos	TM048	No units					Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Amosite (Brown) Asbestos	TM048	No units					Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Crocidolite (Blue) Asbestos	TM048	No units					Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Anthophyllite	TM048	No units					Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Tremolite	TM048	No units					Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Fibrous Actinolite	TM048	No units					Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Non-Asbestos Fibre	TM048	No units					Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Comments	TM048	No units					-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carbon																																				
Soil Organic Matter (SOM)	TM132	%	<0.35				13.6	18.1	22.8	16.8	23.3	30	32.9	19.5	60.7	28.6	45	31.2	34.3	27.8	21	20.3	33.4	20.5	7.55	26.5	32.1	35	34.8	26.2	25.2	39.7	24.3	22.4	<0.35	0.359
Inorganics																																				
pH	TM133	pH Units	<1				11.9	10.9	11.3	11.4	11.6	11.7	11.6	11.2	11.6	11.4	11.3	11.6	11.6	11.5	11.8	10.7	10.6	11.3	11.4	11.5	11.3	11.5	10.6	10.9	11.6	11.5	11.6	11.4	9.26	12.8
Cyanide, Total	TM153	mg/kg	<1	2.313	9.14	273	2.44	<1	<1	<1	2.96	<1	1.03	<1	<1	<1	<1	<1	<1	<1	2.13	<1	<1	1.38	<1	<1	1.18	<1	<1	<1	1.28	<1	<1	<1	<1	<1
Exchangeable Ammonia as N	TM024	mg/kg	<12	176.983	699.276	1260	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
Metals - (Solids)																																				
Arsenic	TM181	mg/kg	<0.6	2902.688	11468.786	282	7.61	6.63	5.83	6.09	7.19	1.2	4.84	56.8	1.06	13.6	6.63	10.1	5.12	10.3	6.88	8.11	8.88	7.36	<6	1.52	9.27	1.33	7.87	8.96	6.41	1.39	9.12	1.63	2.71	2.96
Cadmium	TM181	mg/kg	<0.02	83.661	330.551	38.2	1.42	0.534	0.495	0.341	1.07	<0.02	0.725	0.217	<0.02	0.977	0.825	0.45	0.557	1.38	1.21	2.07	0.647	0.793	0.253	<0.02	1.18	<0.02	1.16	0.894	0.626	<0.02	<0.2	<0.02	0.245	0.606
Chromium	TM181	mg/kg	<0.9	10806.907	42699.08	1290	416	174	187	358	227	133	200	227	3.97	195	282	253	144	118	318	129	209	217	348	129	216	<0.9	208	209	376	53.2	230	109	4.13	958
Copper	TM181	mg/kg	<1.4	516.883	2042.252	560	25.7	19.6	14.6	20.1	<14	5.49	13.1	75.6	<1.4	19.2	21.5	23.9	15.1	24	16.2	20.3	23.4	20.2	15.5	8.73	20.6	<1.4	22.4	18.1	18.8	4.52	51.1	11.3	8.69	23.7
Iron	TM181	mg/kg	<1000	349148.01	1379515.806	467000	170000	116000	101000	130000	168000	102000	78100	106000	94500	78500	90100	92900	82200	72200	173000	94500	93600	138000	113000	115000	96000	111000	99500	90100	122000	110000	136000	129000	7440	144000
Lead	TM181	mg/kg	<0.7	18032.071	71246.366	7150	179	83.8	65.1	54.2	273	<0.7	83	156	<0.7	157	112	82.8	61	185	246	114	105	190	58.3	<0.7	186	<0.7	181	132	99.4	<0.7	75.2	<0.7	12.1	6.65
Manganese	TM181	mg/kg	<0.13	38175.69	150835.652	348000	27700	16100	15400	23800	19100	20100	15700	16500	18600	13400	15900	15400	11100	8640	23700	9910	11500	18900	23500	19200	14000	15500	13300	13700	25100	13500	18700	13600	171	40200
Mercury	TM181	mg/kg	<0.14	150.809	595.859	22.9	<1.4	<0.14	<0.14	<0.14	<1.4	0.512	<0.14	<0.14	0.499	<1.4	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<1.4	0.504	<1.4	0.624	<1.4	<1.4	<1.4	0.536	<1.4	0.661	<0.14	<0.14
Nickel	TM181	mg/kg	<0.2	13188.601	52109.372	496	21.6	12	10	9.43	18.1	<0.2	8.15	16.9	<0.2	25.2	12.3	15.9	9.87	19	24.1	16.3	25.7	13.3	14.6	<0.2	21.1	<0.2	22.1	18.9	21	<0.2	41.8	<0.2	2.17	2.61
Selenium	TM181	mg/kg	<1	804.305	3177.881	207	11.4	3.21	3.83	5.94	<10	<1	3.43	1.3	<1	<10	3.94	3.74	2.52	<1	11.8	1.87	<10	3.1	13.7	<1	<10	<1	<10	<10	13.8	<1	<10	<1	<1	7.37
Vanadium	TM181	mg/kg	<0.2	1840.198	7270.791	2050	872	330	281	699	701	144	494	301	9.96	304	329	373	258	154	587	178	228	578	698	146	305	3.89	272	329	597	87.9	413	150	4.53	685
Zinc	TM181	mg/kg	<1.9	157599.516	622690.141	22900	491	352	235	199	631	<1.9	293	471	<1.9	433	357	316	300	536	580	370	302	566	171	<1.9	539	<1.9	512	372	282	<1.9	231	<1.9	13.2	66.7
Phenols																																				
Phenol	TM062 (S)	mg/kg	<0.01	3.497	13.816	1.7	<0.01	<0.02	<0.01	<0.01	0.0111	<0.01	0.0114	0.0108	0.0115	0.0113	0.0111	<0.01	0.0109	0.0119	<0.01	0.0118	0.0121	<0.01	0.0114	<0.01	<0.01	<0.01	0.0236	0.0117	<0.01	0.0119	0.0113	0.0232	<0.01	<0.01
Cresols	TM062 (S)	mg/kg	<0.01				0.0109	<0.02	<0.01	<0.01	<0.01	0.0112	0.0114	0.0108	<0.01	0.0113	<0.01	<0.01	<0.01	<0.01	0.0117	<0.01	<0.01	<0.01	<0.01	0.0119	<0.01	<0.01	0.0118	<0.01	<0.01	<0.01	<0.01	0.0116	<0.01	<0.01
Xylenols	TM062 (S)	mg/kg	<0.015				<0.015	<0.03	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0222	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035				<0.035	<0.07	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Gasoline Range Organics (GRO)																																				
Total Aliphatics >C5-C10	TM089	µg/kg	<50				59.7	84	89.3	<50	179	59.4	<50	<50	131	71.2	<50	75.3	64	134	59.7	<50	50.8	111	156	97.6	180	72.6	117	95.9	95.8	124	65.5	121	<50	<50
Total Aromatics >EC5-EC10	TM089	µg/kg	<50				<50	<50	<50	<50	75.5	<50	<50	<50	<50	<50	<50	<50	<50	64.3	<50	<50	<50	58	50.2	<50	88.9	<50	<50	<50	<50	<50	<50	61.5	<50	<50
GRO >C5-C10	TM089	µg/kg	<20				59.7	84	89.3	<20	254	59.4	<20	<20	131	71.2	<20	75.3	64	199	59.7	<20	50.8	169	206	97.6	269	72.6	117	95.9	95.8	124	65.5	182	<20	<20
TPH Criteria Working Group (TPH CWG)																																				
GRO Surrogate % recovery**	TM089	%					56.5	16.8	19.2	39.4	32.6	30.4	21.2	24.4	27.2	27.3	23.3	20.1	35.4	19.2	45.7	20.5	23.1	42.7	34.8	29.2	31.4	23.2	34.6	41.2	20.4	16.4	22.5	20	86.5	96.3
Aliphatics >C5-C6	TM089	µg/kg	<10	83664	330563	866	<10	10.4	10.2	<10	12.2	<10	<10	<10	17.3	<10	<10	<10	<10	14.3	<10	<10	<10	<10	14.8	10.7	21.1	<10	13	10.5	11.4	13	<10	11.6	<10	<10
Aliphatics >C6-C8	TM089	µg/kg	<10	411626	1626370	3980	25	38	38.4	15.5	53.3	28	23.9	19.4	57.5	33.9	20	36.1	30.4	59.5	25.7	16.5	25.4	39.4	65	41.7	72.5	38.7	50.7	39.8	41	53.3	31.6	51	<10	<10
Aliphatics >C8-C10	TM089	µg/kg	<10	3254980	12860726	119000	34.8	35.7	40.7	18.9	113	31.4	20.5	21.6	56.4	37.3	20	39.3	33.6	60.7	33.9	16.5	25.4	71.9	76.4	45.2	86.6	33.9	53.1	45.6	43.3	58.1	33.9	58	<10	<10
Aliphatics >C10-C12	TM414	µg/kg	<1000	25838230	102089217	1470000	<1000	1080	<1000	<1000	1780	<1000	1040	<1000	1150	2310	<1000	<1000	1250	<1000	<1000	<1000	1830	1610	<1000	<1000	<1000	<1000	<1000	<1000	2740	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	TM414	µg/kg	<1000	515488601	2036742733	5890000	13500	7750	3690	1440	8340	7520	5010	3680	6070	8350	2850	5340	4800	1870	10900	2950	5380	7330	2070	5540	4770	3620	3790	4260	9510	3590	3480	3750	<1000	<1000
Aliphatics >C16-C21	TM414	µg/kg	<1000	64895263780	2.56407E+11	4610000	71200	34500	15100	9260	39800	64000	23500	15700	20800	35300	17700	46700	36100	13100	54700	12900	13600	32200	14100	33700	31800	16800	18500	18600	35700	20800	19900	25700	<1000	<1000
Aliphatics >C21-C35	TM414	µg/kg	<1000	64895263780	2.56407E+11	10000000	91800	38800	32800	23600	67100	53300	42000	36300	42000	65900	38900	56400	41000	20600	73800	21100	42700	51500	38800	41900	48400	33800	34200	44100	47600	32800	31800	40400	19500	5250
Aliphatics >C35-C44	TM414	µg/kg	<1000	64895263780	2.56407E+11	2370000	30600	8880	8690	5780	21700	10100	9500	10300	11800	17700	6050	13400	10700	4210	30300	4020	15100	20300	8330	6550	13600	6310	7820	5610	13400	6860	8540	8930	2530	<1000
Total Aliphatics >C10-C44	TM414	µg/kg	<5000				208000	91000	60800	40100	139000	136000	81000	67000	81800	130000	65800	122000	93800	40100	170000	41600	78600	113000	63400	88300	99100	61000	65200	73400	109000	64700	64700	79200	22600	5580
Total Aliphatics & Aromatics >C10-C44	TM414	µg/kg	<10000				475000	171000	139000	91100	406000	202000	238000	199000	240000	370000	175000	326000	212000	183000	428000	115000	189000	403000	227000	156000	303000	174000	256000	178000	302000	208000	169000	242000	32100	<10000
Aromatics >EC5-EC7	TM089	µg/kg	<10	9752	38530	2980	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10.7	<10	<10	<10	<10	<10	<10	11.7	<10	<10	<10	<10	<10	<10	10.4	<10	<10
Aromatics >EC7-EC8	TM089	µg/kg	<10	202890	801639	1860	<10	<10	<10	<10	<10	10.1	<10	<10	11.5	<10	<10	<10	<10	13.1	<10	<10	<10	10.4	<10	11.9	18.7	<10	14.2	<10	<10	<10	<10	12.8	<10	<10
Aromatics >EC8-EC10	TM089	µg/kg	<10	164594	650327	79600	23.9	24.2	27.1	12.2	75.5	20.2	13.7	14	38	24.9	13.3	26.5	22.8	40.5	22.2	11.8	16.9	47.6	50.2	29.8	58.5	21.8	35.4	30.4	28.5	39.1	22.6	38.3	<10	<10
Aromatics > EC10-EC12	TM414	µg/kg	<1000	259933	1027020	6920000	8450	1810	2160	<1000	8960	2600	3760	2600	2600	7320	2970	5250	3250	3050	7510	3710	3270	9660	2580	2850	4940	2670	2810	2970	6950	3220	2930	5320	<1000	<1000
Aromatics > EC12-EC16	TM414	µg/kg	<1000	517061	2042955	5300000	10800	6510	4610	1990	14600	4830	8790	5860	6970	12700	5260	7630	5640	4870	9290	5120	6540	15200	3330	6040	8870	5870	9380	5020	12400	6410	4840	8680	<1000	<1000
Aromatics > EC16-EC21	TM414	µg/kg	<1000	1631673	6446891	13600000	66100	23800	19300	11400	66500	18300	39100	32300	38900	60600	25300	49900	31000	34300	70200	21800	26500	76400	51600	18200	52800	28000	51800	25100	49900	31000	23200	39900	<1000	<1000
Aromatics > EC21-EC35	TM414	µg/kg	<1000	12949875	51166143	11200000	153000	44800	48800	33500	157000	37800	94300	81500	99500	139000	68300	123000	70100	89500	150000	39900	67300	163000	92100	37700	121000	69400	114000	65500	109000	91100	64500	97600	8390	<1000
Aromatics >EC35-EC44	TM414	µg/kg	<1000	12949875	51166143	1420000	29000	2790	3730	3290	20700	2990	11100	9430	10600	21100	7230	17600	8240	11000	21400	2470	6550	26700	13900	2950	15500	7000	12900	6000	14900	11200	8900	11600	<1000	<1000
Aromatics > EC40-EC44	TM414	µg/kg	<1000	12949875	51166143	285000	6240	<1000	<1000	<1000	4660	<1000	2000	1190	1360	4190	1190	2320	1090	1970	3880	<1000	<1000	3390	2090	<1000	1670	<1000	2300	<1000	1520	1440	<1000	1950	<1000	<1000
Total Aromatics > EC10-EC44	TM414	µg/kg	<5000				267000	79700	78600	51000	268000	66600	157000	132000	159000	241000	109000	203000	118000	143000	258000	73000	110000	290000	163000	67800	204000	113000	191000	105000	193000	143000	104000	163000	9480	<5000
Total Aliphatics & Aromatics >C5-C44	TM414	µg/kg	<10000				475000	171000	140000	91200	407000	202000	238000	199000	241000	370000	175000	326000	212000	183000	428000	115000	189000	404000	227000	156000	303000	174000	256000	178000	302000	208000	169000	242000	32100	<10000
Polyaromatic Hydrocarbons (PAHs)																																				
Naphthalene-d8 % recovery**	TM218	%					78.1	80.9	79.4	81	77.8	81.3	83	79.5	79.4	78.8	83.4	78.1	87.2	85.7	82.4	81.5	80.2	80	83.7	80.6	81.5	78.7	84.3	82.3	80.9	79	77.3	80.5	81.4	84.2
Acenaphthene-d10 % recovery**	TM218	%					85.5	86.4	83.6	79.4	88	83	83.3	82.9	81	83.6	83.4	82.5	88.4	85.1	83.9	84.8	85.2	80.9	85.3	83	87.1	85.4	86.6	80.1	85.7	84.8	83	80.7	86	84.4
Phenanthrene-d10 % recovery**	TM218	%					87	91.3	90.5	80.5	86.5	84.4	87.9	87.5	84	80.9	85.5	86.6	87.4	87.7	86	88.6	92.7	83.4	87.5	89.8	87.3	91	89.4	82.5	82.9	88.9	91	78.9	93.1	85.3
Chrysene-d12 % recovery**	TM218	%					84.3	86.8	84.9	80.8	84.7	85	81.3	85.1	81.8	91.6	84.2	84.6	85.6	88.7	84.2	88.5	85.8	85.8	89	86.6	82.7	80.1	90.7	82.1	92.2	85.5	86.1	77.7	83.2	86.1
Perylene-d12 % recovery**	TM218	%					72.2	72.9	71.6	79.5	72	82.8	70.6	71.8	79.6	87	81.4	71.4	78.6	86.8	83.8	91	72.3	83.6	89	73.4	70	70.2	90.7	83.6	82.3	72.5	73	76.2	74.4	90.6
Naphthalene	TM218	µg/kg	<9	31450	124264	4480000	3510	1090	1250	1070	6030	1840	2730	2040	1810	3160	1930	2960	2800	2180	4160	1590	1160	3260	1580	1710	2160	2070	1740	3390	3130	1880	1950	3280	10.4	<9
Acenaphthylene	TM218	µg/kg	<12	19168	75733	616000	1730	445	498	337	2700	550	1170	922	833	1350	498	1040	10600	706	1570	592	444	1090	735	434	1100	652	683	905	1250	531	711	9850	<12	<12
Acenaphthene	TM218	µg/kg	<8	34073	134627	1130000	128	95.2	72.2	86.3	264	92.5	495	107	109	153	80.3	153	859	109	147	89.7	60.7	124	109	88.3	108	98.7	146	135	160	90	104	649	<8	<8
Fluorene	TM218	µg/kg	<10	31077	122786	751000	692	196	291	231	1570	305	929	837	495	914	375	657	19100	625	677	272	285	850	667	403	708	428	699	673	1030	398	441	13100	<10	<10
Phenanthrene	TM218	µg/kg	<15	31077	122786	3100000	10700	2170	3230	2730	11400	3590	8050	8180	4600	6900	2700	5740	99500	4460	6880	2520	2470	5250	8850	3510	7230	3730	6450	5050	8790	3310	4120	67700	24.7	22.8
Anthracene	TM218	µg/kg	<16	39119	154563	577000	4050	633	1030	744	4340	819	2510	2380	1350	2540	813	1710	27900	1510	2030	674	781	2130	1870	779	1920	994	2010	1410	2010	858	1320	19900	<16	<16
Fluoranthene	TM218	µg/kg	<17	7614	30083	2360000	23000	3510	6010	4920	19000	6440	13100	11800	9200	13000	4040	10600	90900	7490	12700	3960	3980	8170	12300	4250	11300	6260	10500	8270	12400	5870	7470	76100	<17	39
Pyrene	TM218	µg/kg	<15	87557	345946	1540000	15900	2730	4590	4580	14800	4630	9830	8810	6810	9720	3010	8050	61100	5320	9440	2920	2940	6090	9340	3070	8180	4810	7860	6220	9260	4900	6200	50200	15.9	31.5
Benz(a)anthracene	TM218	µg/kg	<14	695380	2747512	693000	8400	1560	2440	2530	8900	2920	4840	4270	4120	6290	1920	4250	29700	3290	5750	1810	1560	3890	4870	1720	3920	2460	4720	3800	4960	3890	2990	25700	<14	20.4
Chrysene	TM218	µg/kg	<10	711578	2811508	565000	8480	1620	2450	2370	8880	2250	4590	4330	3690	5560	1710	4360	21000	2880	4790	1460	1570	3480	4240	1830	3860	2490	3560	3630	4590	4070	2890	22100	15.2	23.1
Benzo(b)fluoranthene	TM218	µg/kg	<15	3914	15466	772000	10200	2010	3100	3070	11100	3810	5770	5410	5600	7290	2760	5660	35000	4340	7110	2350	1980	4850	6350	2200	4790	3230	4580	5310	5310	6040	3700	29800	19.2	40.4
Benzo(k)fluoranthene	TM218	µg/kg	<14	5790	22876	265000	3940	755	1080	1200	3710	1320	1870	1630	1920	2640	950	1640	11500	1380	2670	710	717	1620	2060	748	1830	1120	1490	1930	1660	1920	1170	10100	<14	<14
Benzo(a)pyrene	TM218	µg/kg	<15	39489	156023	555000	5920	1120	1750	1920	6270	2330	3430	3270	3300	4930	1630	3100	20700	2610	4340	1410	1090	2710	4010	1190	2800	1850	2570	3440	3840	3290	2100	18900	<15	19.3
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<18	29018	114651	429000	4950	944	1450	1440	5290	1940	2680	2700	2750	3360	1310	2550	17200	2060	3790	1200	892	2150	3240	1000	2340	1400	2010	2650	2640	1660	1670	15600	<18	20.6
Dibenzo(a,h)anthracene	TM218	µg/kg	<23	959886	3792598	72700	896	177	265	268	1000	338	485	455	504	781	211	487	2740	354	625	197	167	419	484	197	414	259	373	557	592	406	304	2600	<23	<23
Benzo(g,h,i)perylene	TM218	µg/kg	<24	15229	60170	370000	3660	752	1160	1260	4060	1600	2170	2210	2180	3290	1060	1970	13700	1710	2810	886	699	1650	2660	806	1920	1120	1570	2270	2630	1260	1360	12000	<24	<24
PAH, Total Detected USEPA 16	TM218	µg/kg	<118				106000	19800	30700	28700	109000	34800	64600	59400	49300	71900	25000	54900	464000	41000	69500	22600	20800	47700	63400	23900	54600	33000	51000	49600	64200	40400	38500	377000	<118	217
Volatile Organic Compounds (VOCs)																																				
Dibromofluoromethane**	TM116	%					102	93.2	102	103	106	98.9	94	92.8	97.4	95.7	95.5	93.1	98.2	94	105	94.8	96	109	99.3	94.4	96.5	103	91.6	94.8	94.5	95.7	97.2	104	102	91.9
Toluene-d8**	TM116	%					93.6	86.1	101	90.4	88.9	91.9	90.4	86.1	88	97.6	95.1	91.2	90.7	91.3	93.1	92.3	91.4	91.8	88.4	89.5	87.9	101	95.7	92.3	88.3	88	88.6	94.5	93.6	95.8
4-Bromofluorobenzene**	TM116	%					94.4	76.2	95.7	87.9	86.7	88.3	76.2	77.5	73.7	83.5	79.5	85.4	83	83.2	83.4	80.1	80.8	90.9	81.8	82.2	78.1	94.3	78.4	83.4	78.4	80.6	78.9	90.9	88.8	100
Methyl Tertiary Butyl Ether	TM116	µg/kg	<10				<200	<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200	<10	<200
Benzene	TM116	µg/kg	<9	4358	17220	6060	<180	<180	<1800	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<1800	<180	<180	<180	<180	<180	<180	<9	<180
Toluene	TM116	µg/kg	<7	147182	581530	4510	<140	<140	<1400	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<1400	<140	<140	<140	<140	<140	<140	<7	<140
Ethylbenzene	TM116	µg/kg	<4	92030	363617	4400	<80	<80	<800	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<800	<80	<80	<80	<80	<80	<80	<4	<80
p/m-Xylene	TM116	µg/kg	<10				<200	<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200	<10	<200
o-Xylene	TM116	µg/kg	<10				<200	<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200	<10	<200
Naphthalene	TM116	µg/kg	<13				468	<260	429	306	2730	<260	394	<260	342	499	<260	516	555	486	236	480	<260	1280	594	577	783	511	422	<260	564	2330	533	389	<13	<13
Sum of Detected Xylenes	TM116	mg/kg	<0.02	84.97	335.724	23.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.02	<0.4
Sum of BTEX	TM116	µg/kg	<40				<800	<800	<8000	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<8000	<800	<800	<800	<800	<800	<800	<40	<800
Subcontracted: Inorganics																																				
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5				5.04	5.93	4.17	3.13	1.06	9.48	7.59	7.12	8.46	8.62	8.43	7.47	6.93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5				4.41	5.32	3.56	2.78	0.95	8.27	6.6	6.19	7.31	7.43	7.21	6.62	5.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5				4.68	5.62	3.81	2.88	0.78	9.1	7.22	6.71	8.07	8.24	8.02	7.11	6.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5				3.8	4.81	2.91	2.3	<0.5	7.64	5.98	5.61	6.66	6.79	6.53	6.04	5.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	SUB	%	<0.5				1.58	0.95	0.92	1.18	1.38	1.38	0.94	0.98	1.12	1.07	1.26	1.11	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	SUB	%	<0.5				11.1	9.39	13.9	10.1	8.35	11.5	12.2	12.3	12.6	12.8	13.4	10.4	12.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Water Total M(ar)	SUB	%	<0.5				12.5	10.2	14.7	11.1	9.61	12.8	13	13.1	13.6	13.8	14.4	11.4	13.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

3162

N33-1	N33-2	2BN-1	2BN-2	2BN-3	2BN-4	2BN-5	2BN-6	2BN-7	2BN-8	2BN-9	2BN-10	2BN2-1
0.30-0.30	1.60-1.60	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
10/12/2020	10/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020
12/12/2020	12/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020
05/01/2021	05/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201212-45	201212-45	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62
23419678	23419744	23432757	23432763	23432768	23432776	23432780	23432790	23432795	23432801	23432805	23432810	23432817
10.2	10.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Sand	Sandy Clay Loam	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Loamy Sand	Loamy Sand	Sandy Clay Loam	Loamy Sand	Sandy Clay Loam
Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	None	Vegetation	Stones	None	Stones
Vegetation	None	Vegetation	N/A	Stones	N/A	Vegetation	Vegetation	Stones	Stones	Vegetation	Stones	None
9.9	9.8	9.6	13	13	15	6	8.5	13	17	3.9	16	9.2
<0.001	-											
21/12/2020	-	22/12/2020	-	22/12/2020	-	21/12/20	-	21/12/20	-	22/12/2020	-	22/12/2020
Marcin Magdziarek	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Barbara Urbanek-Walsh
<0.001	-											
None	-											
N/A	-											
<0.001	-											
Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Trace
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Trace	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Loose fibres in soil	-	Loose fibres in soil	-	-	-	-	-	-	-	-	-	Loose fibres in soil.
3.09	<0.35	30.5	29.8	21.4	48.6	22.6	25.3	55.2	31.7	51.4	14.9	33.4
11.4	8.54	8.77	10.3	11.3	10.9	9.99	9.51	10.1	11.2	10.9	10.2	10.4
<1	<1	<1	<1	1.09	1.26	<1	1.02	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
9.86	44.9	17.8	10.5	7.02	9.62	9.86	7.62	8.69	10.3	12.8	12.6	8.61
0.618	<0.2	1.79	1.48	0.726	1.68	0.621	1.14	1.72	1.89	1.67	1.11	1.44
201	<9	117	97.7	300	191	45.9	84.7	122	141	149	144	176
20.2	<14	26.6	24.9	20.5	26.1	22.3	19.1	22.1	22.3	26.9	44.6	21.5
133000	443000	71900	77800	105000	81400	57500	76600	65200	93400	76700	116000	98600
42	16.5	196	172	201	197	141	126	214	311	257	120	185
18200	16400	17600	7790	13000	13100	398	5980	7630	14400	10500	11200	12200
<0.14	1.56	<0.14	<0.14	0.17	<0.14	0.167	<0.14	<0.14	0.195	<0.14	<0.14	<0.14
14.2	18.5	18.8	21.7	16.9	18.5	22.1	22.4	18.1	18.7	19.8	29.1	15.3
3.76	<10	5.76	<1	4.53	3.46	<1	<1	1.74	5.25	2.66	<1	3.56
252	31.9	214	-	457	253	84.1	153	206	425	211	218	323
164	48	730	614	880	730	493	505	760	1430	688	458	802
<0.01	<0.01	<0.01	<0.01	0.0115	0.0117	<0.01	<0.01	<0.01	0.0121	<0.01	<0.01	0.011
0.0222	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011
<0.015	<0.015	<0.015	<0.015	<0.015	0.105	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	0.117	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	110	<50	<50	<50	<50	130	57.5	<50	<50	<50	113
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	110	<20	<20	<20	<20	130	57.5	<20	<20	<20	113
74	94.9	48.4	29	18.7	20.2	73.3	28.7	28.6	20.1	17.3	48.6	33.3
<10	<10	11.1	<10	<10	<10	<10	23	16.1	12.1	<10	<10	45.1
11.1	<10	46.6	<10	<10	<10	<10	48.1	23	12.1	<10	<10	35.2
16.7	<10	52.2	<10	<10	<10	<10	59	18.4	10.9	<10	<10	33
<1000	<1000	1490	1420	<1000	<1000	1180	1560	1060	<1000	<1000	<1000	<1000
3150	<1000	3740	4650	4330	3740	2500	3790	3070	4140	3310	1350	4270
11500	<1000	10100	16100	21300	9870	9670	12000	8860	20900	11200	5830	35600
67700	7910	25900	37300	50400	29700	26200	33800	23000	48700	40900	18100	46300
37100	2030	6690	10300	12500	6010	7680	8050	5490	12200	30300	4170	10900
120000	9940	48000	69700	89300	50200	47200	59200	41500	86700	86500	29600	97600
160000	14500	273000	335000	304000	344000	254000	363000	307000	260000	230000	128000	316000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
11.1	<10	34.4	<10	<10	<10	<10	39.3	11.5	<10	<10	<10	22
<1000	<1000	5660	7630	4930	4820	3660	6590	4760	3510	2830	2560	6560
1730	<1000	8490	11500	8730	10600	8010	14800	9090	6050	6370	3550	10400
6440	<1000	51400	57300	54600	75700	54300	82100	73700	40800	34800	25400	55500
28700	3440	139000	166000	126000	180000	119000	171000	159000	110000	88900	59800	132000
3740	<1000	19800	23400	20100	22800	21500	29300	19800	12200	10400	7040	14200
<1000	<1000	2560	4170	3520	2790	2860	4020	2250	2390	1530	1170	2750
40900	<5000	225000	265000	214000	294000	207000	304000	266000	173000	143000	98400	218000
160000	<10000	273000	335000	304000	344000	254000	363000	307000	260000	230000	128000	316000
82.4	79.6	80.6	80	82.3	86	80.2	80.9	81.4	81.7	83	80.6	80.6
82.1	83.5	83.4	81.4	83.3	86.5	82.1	83.7	81.9	81.2	87.5	80.8	81.8
83.4	90.5	83.8	86.3	87.8	83.8	84.4	85.1	89.4	86.4	87.5	83.8	85.4
84.7	84.5	89.9	92.5	78.4	87.6	89.4	92.3	77.2	77.6	98.4	78.7	75.6
86.1	76.3	83.6	87.7	80.1	85.4	87.6	85	81.4	78.8	91	82.9	78.3
414	<9	2870	2390	2730	2240	2420	2790	4060	2300	2250	1940	2700
177	<12	1410	653	786	813	614	718	1110	674	1050	476	843
108	<8	157	115	117	98.8	107	157	177	121	153	87	141
120	<10	814	590	528	534	436	537	826	489	755	330	724
1210	<15	8900	4230	3500	4920	3050	3550	5670	3390	5460	2100	5010
326	<16	2060	1350	1150	1510	1030	1090	1590	1070	1910	576	1440
2430	<17	16800	7570	7560	9390	6300	6070	11800	6870	11000	3960	8500
1990	<15	11800	5410	6210	7100	4920	4310	8310	5380	8580	3010	6280
1150	<14	7070	3420	3670	4240	3120	2920	5240	3180	5110	1880	3880
1050	<10	6730	2990	3260	3970	2690	2650	4040	2600	4960	1410	3490
1750	<15	8310	4410	3500	4430	3870	3960	4740	3330	6520	1880	5870
568	<14	3090	1640	1620	1480	1330	1240	1680	1220	2240	750	1910
1050	<15	6250	2670	3210	3450	2470	2460	4610	2800	4200	1640	3460
886	<18	5090	2080	2450	2360	1950	1810	3700	2140	3010	1310	2780
132	<23	1110	304	536	562	305	423	849	467	704	276	504
798	<24	4720	1750	2170	2380	1560	1730	3210	1930	2840	1100	2250
14200	<118	87200	41600	43000	49500	36200	36400	61600	38000	60700	22700	49800
82	108	103	95.7	95.9	108	116	101	103	97.3	83.5	97.3	98.5
84.5	96.2	93.2	90.2	92.3	94.7	97.7	91	92.2	88.6	87.1	97.3	95.2
74.3	104	86.1	78.1	83.6	87.1	98.2	76.3	78.9	72.3	69.8	80.8	78.4
<10	<10	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<9	<9	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<7	<7	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<4	<4	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<10	<10	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<10	<10	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
34	<13	<2600	835	623	612	<2600	<2600	764	708	<2600	316	<2600
<0.02	<0.02	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<40	<40	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

2BN2-2	2BN2-3	2BN2-4	2BN2-5	2BN2-6	2BN2-7	2BN2-12	2BN2-13	2BN2-14	2BN2-15	2BN2-16	2BN2-17	2BN2-18
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020
15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62
23432823	23432829	23432837	23432845	23432860	23432866	23432871	23432875	23432880	23432885	23432889	23432897	23432910
8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	None	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	None	None	None	None	Vegetation	Vegetation
12	8.8	8.4	7.7	9.5	9	9.7	12	12	7.3	11	9.8	9.3
-	22/12/2020	-	22/12/2020	-	22/12/2020	-	22/12/2020	-	22/12/2020	-	22/12/2020	-
-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Marcin Magdziarek	-
-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	Loose fibres in soil.	-	-	-	-	-	-	-	-	-
27.4	31	22.1	36.4	28.1	43.8	24.1	36.4	16	21.2	26.2	18.1	25
11.5	10.6	10.9	10.7	11.4	10.8	10.5	11.2	11.1	11	11.1	11.4	11.2
<1	<1	1.44	1.56	2.05	<1	1.54	<1	<1	<1	<1	<1	1.28
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
7.33	10.7	6.21	10.3	8.06	14.6	8.2	34.3	8.02	4.28	7.71	5.41	7.22
0.873	0.323	0.741	1.21	1.03	3.98	1.28	1.42	2.25	<0.02	1.58	0.999	0.792
191	119	191	222	187	193	174	259	206	300	137	226	164
18.4	21.4	18.3	35.4	20.1	30.4	19.8	25.4	24	21	20.5	21.8	18.2
81400	132000	80100	125000	113000	161000	112000	115000	95400	102000	64700	91300	83200
86.3	163	78.9	183	178	492	187	169	250	77.6	166	108	89.8
12700	11800	12700	17200	15100	12100	12500	17500	16000	12900	9600	15600	11900
<0.14	0.3	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	0.153	<0.14	<0.14	<0.14
12.1	11.9	11	24	13.1	31	15	17	65	4.2	15	13.8	12.4
4.53	<1	3.55	3.91	1.6	<10	1.13	3.83	3.85	<1	2.22	3.98	1.97
246	319	231	300	200	313	174	277	202	263	143	702	229
360	764	337	800	858	1870	934	682	959	361	669	442	366
<0.01	0.011	<0.01	0.0108	0.0222	0.011	<0.01	0.0113	0.0114	0.0108	0.0112	0.0111	0.011
<0.01	<0.01	<0.01	0.0108	0.0222	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	0.0777	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	0.122	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	<50	129	65.5	58.2	104	<50	<50	64.7	<50	<50	61.6
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	<20	129	65.5	58.2	104	<20	<20	64.7	<20	<20	61.6
31.2	30.5	33.2	37.7	34.3	44.7	16.9	13.2	34.6	34.5	13.1	58.7	38.5
11.3	<10	<10	37.9	17.8	20.9	54.4	<10	12.5	20.5	13.4	<10	24.2
11.3	<10	<10	47.7	25.5	20.9	28.9	<10	11.4	24.8	10.1	<10	22
<10	<10	<10	43.3	22.2	16.5	21.1	<10	<10	19.4	<10	<10	15.4
<1000	<1000	1510	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
4690	1700	6580	8150	4050	3940	2350	4340	2620	3090	2600	5160	3180
26400	11300	27600	38300	25700	25700	12100	23500	18000	19700	16800	26700	20500
44700	22700	47300	47400	48000	55700	25700	41800	30900	36400	31000	48300	33800
9930	5400	12900	16900	9350	12100	5210	10300	7450	9280	7030	11500	7890
86200	41300	95800	112000	87400	97700	45700	80300	59700	68900	57700	92600	65700
232000	209000	441000	670000	348000	420000	261000	365000	193000	236000	336000	365000	380000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	29.2	14.4	11	14.4	<10	<10	12.9	<10	<10	11
3680	4120	6280	20200	6240	7620	4790	5530	2820	4760	4580	8610	5770
6250	5860	12500	16400	11400	10800	7980	9940	6280	6060	7750	12400	11700
32200	39400	79200	119000	64400	74400	51800	64900	33800	36100	56500	59100	87900
93300	102000	209000	354000	156000	205000	135000	182000	80300	107000	182000	163000	188000
9900	16600	38200	48900	22900	24600	16100	22600	9750	12800	26800	28900	21000
1540	1780	7300	8070	3340	2960	3000	4090	1840	1760	4490	5660	2940
145000	168000	345000	559000	261000	322000	216000	285000	133000	167000	278000	272000	314000
232000	209000	441000	671000	348000	420000	262000	365000	193000	236000	336000	365000	380000
78.2	77.6	86.4	74.2	78.6	79	76.2	80.7	82.3	79.4	81.9	82	81.8
80.7	81	87.3	75.5	84.7	86.5	81.7	80.5	85.2	82.1	85.7	83.2	85
86	90.1	91.1	76	93.6	83	90.5	83.5	87.9	85.9	86.5	82	88
76.1	84.2	78.4	70.3	81.1	72.5	80.9	83.4	92.6	76	90.8	85.7	78.5
79	71.7	78.5	70.4	70.4	81.5	70.9	80.7	84.5	79.9	83.3	85.2	78.2
2870	2310	3060	10100	5580	18100	2750	2240	2230	3410	2580	2310	1660
792	766	1640	5900	1970	19700	1000	600	643	854	857	712	632
143	139	279	308	410	28900	129	107	108	175	156	125	144
616	640	1740	2760	1590	69100	667	540	447	1070	691	528	579
4480	4000	11900	20900	11200	325000	4980	4070	3290	5950	4760	3560	3540
1390	1850	3280	13600	4630	108000	1910	1090	953	1430	1630	1140	986
8310	6800	22100	76300	19300	347000	8700	6830	6050	8230	8220	6360	5990
6300	5380	16100	56200	15300	218000	6380	4910	4870	6120	6100	4890	4680
3810	2980	8580	40900	8440	112000	3640	3260	3010	3640	3730	3180	2680
3340	3030	6780	36100	8400	90400	3720	2810	2600	3090	3210	2610	2480
5790	3640	11000	49000	10700	136000	5320	4300	3170	5210	3870	3550	3850
1650	1090	3720	15600	2980	41500	1390	1400	1210	1620	1540	1160	1230
3350	2310	6380	27900	6350	79400	3060	2580	2440	3010	3000	2680	2220
2800	1750	4890	21700	5210	65400	2580	2140	1780	2380	2220	2100	1800
492	368	907	4550	1050	11700	507	304	396	461	517	448	264
2200	1530	3950	16600	4200	50900	2040	1570	1700	2020	1970	1940	1430
48300	38600	106000	399000	107000	1720000	48800	38700	34900	48700	45000	37300	34200
105	104	98.3	98.8	103	106	103	94.5	106	95.4	96.8	118	99.2
91.9	92.6	93.8	94.4	94.3	96.1	94.6	94.9	94.1	91.3	94.8	89.6	93.3
81.8	82.8	79.8	76.9	85	84.8	85.1	83.8	87.6	84.7	80.9	93.6	79.4
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959	841	<2600	2800	1170	<2600	4710	3520	538	810	3420	1140	5390
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<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800
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2BN2-19	2BN2-20	2BN2-21	2BN2-22	2BN2-23	2BN2-24	2BN2-25	2BN2-26	2BN2-27	2BN2-28	2BSE-15	2BSE-16	2BSE-17
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	14/12/2020	11/12/2020	11/12/2020	11/12/2020
15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62
23432918	23432941	23432949	23432955	23432959	23432963	23432967	23432973	23432977	23432981	23432722	23432786	23432853
8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	None	None	None	None	None	None
4.8	10	8.3	6.7	7.5	9.3	8.1	14	12	12	7.6	18	8.5
22/12/2020	-	22/12/2020	-	22/12/20	-	22/12/2020	-	22/12/2020	-	22/12/20	-	22/12/2020
Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Marcin Magdziarek
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
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13.8	33.1	30.3	21.7	24.3	30	40.5	43.1	29	27.6	40.9	22.6	21.9
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0.0825	1.25	0.985	1.28	1.87	2.03	2.54	3.21	2.84	2.35	<0.2	0.361	0.731
214	211	148	272	152	134	171	146	210	85.2	35.8	206	450
34.3	19.3	25.8	26.6	25.7	22.3	75.8	38.9	19.8	20.6	<14	30.5	31.8
163000	87600	117000	124000	99600	105000	111000	112000	92500	80200	13100	114000	121000
128	152	182	206	258	297	358	403	346	286	7.14	85.6	78.7
12000	15300	12000	17900	8990	11100	10500	9600	12800	10900	23700	15800	21900
0.387	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4
20	12.2	14.9	13.5	16.5	18.9	16.8	23.3	14.8	15.3	<2	13.7	15.4
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570	603	844	1000	1210	1360	1600	1650	1490	1330	21.1	377	218
0.0105	0.0222	<0.1	0.0107	0.0108	<0.01	0.0109	<0.01	0.0113	0.0114	<0.01	<0.01	0.0109
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32.7	19.2	40.5	23.1	28.5	17.1	28.5	42.7	17.7	32.5	51.1	29.9	88.5
10.5	21.1	20.7	12.9	16.2	17.6	14.1	24.4	<10	14.8	17.3	19.5	12
13.7	25.5	29.5	11.8	18.4	19.8	15.2	34.8	<10	13.7	67.1	32.9	14.2
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24000	29400	46700	33000	28300	20300	28400	14100	22800	17700	27700	8380	9860
40100	41100	49400	54000	42800	52700	58400	39500	46900	49800	45200	21700	25800
14900	14200	14600	9930	9960	11000	16500	7290	13900	17100	32100	7520	2950
85000	91400	119000	102000	86800	87300	109000	63200	88400	88500	112000	40700	39900
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5660	20700	19000	7980	6160	10600	8210	5180	6700	5090	3810	2720	7750
30400	13800	14100	13300	9610	62900	10400	7980	9340	6980	8140	5770	3160
243000	122000	88800	75700	51100	415000	60400	50500	69900	44100	30000	41600	21300
352000	280000	248000	213000	141000	562000	167000	145000	186000	130000	70800	84900	48900
45100	38300	32700	27700	20900	107000	21400	17400	23400	16800	8460	10700	6710
8280	6170	4700	5000	4140	12600	3340	3160	3480	1820	2940	1350	1110
676000	475000	403000	338000	229000	1160000	267000	226000	295000	202000	121000	146000	87900
761000	566000	522000	440000	316000	1250000	376000	290000	384000	291000	234000	186000	128000
87.7	78.4	76.4	77.8	77.1	75.8	77.3	80.1	83.7	77.3	78.6	81.2	78.1
90.4	83.1	84.3	79.1	84.7	78.9	80.9	82.9	83.7	80.2	81	82.7	83.9
93	88.5	93.5	80.7	92	77.4	83.9	82.8	82.4	84.1	85.2	86.2	82.5
80.3	73.1	83.7	70.6	79.8	88.8	91.7	88	83.4	87.8	74.1	76.6	78.6
82.5	77.5	73.7	74.1	70.2	84.9	88.2	83	80.6	81	77.4	82.6	71.9
3190	20000	7870	7510	5410	6180	6090	3190	2620	2600	3370	2950	6850
7570	2790	2120	2180	1970	3890	1740	1030	762	936	963	1220	940
710	539	293	481	410	484	297	205	151	204	149	176	77.2
12200	3210	1840	1920	1410	3950	1200	667	465	1110	576	1310	695
64800	18600	13400	13300	10800	29300	8210	4450	2900	6590	5500	10200	3990
18700	6570	5270	4810	3550	7850	2810	1580	957	1870	1400	2490	2200
84800	27900	24600	23000	19800	37000	16000	9380	6430	10400	9240	13600	6800
56600	21100	17800	18400	15500	27700	12500	7390	5020	7880	7250	9440	4990
30900	13500	10100	11000	8450	14400	7760	4580	3200	4630	4120	5370	3160
22900	10700	8490	9330	8200	13000	7080	4370	2780	4720	3290	4870	3450
31100	16500	12000	16900	10500	17100	9910	6310	4210	5730	5930	7130	4750
10800	6480	3510	4670	3310	5480	3350	1940	1410	1760	1920	2260	1450
19300	10800	7630	9670	6830	12400	6640	3820	2860	3600	3510	3980	2740
14400	8620	6050	8020	5860	9280	5070	2720	2220	2590	2890	3400	2230
2760	1640	1260	1380	1100	1900	1170	618	498	621	442	570	476
10400	6730	4980	6290	4410	8800	4690	2670	2150	2570	2320	2580	1900
391000	176000	127000	139000	107000	199000	94600	54900	38600	57800	52900	71500	46700
98.1	98.5	94	96.9	94.9	96.5	95.5	116	97.7	102	104	97.3	108
93.5	94.2	94.4	95.7	97.4	95	91.5	89.9	95	91.7	97	91.1	97.6
80	82.1	79.9	85.6	76.4	83.4	74.1	82.9	85.6	81.3	86.7	77.5	92.4
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598	8040	2120	6570	5320	1210	703	897	757	571	<260	<2600	791
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-	-	-	-	-	-	-	-	-	-	2.93	1.97	2.65
-	-	-	-	-	-	-	-	-	-	3.15	2.11	3.07
-	-	-	-	-	-	-	-	-	-	2.44	1.53	2.16
-	-	-	-	-	-	-	-	-	-	1.43	0.89	1.33
-	-	-	-	-	-	-	-	-	-	11.6	12.5	15.8
-	-	-	-	-	-	-	-	-	-	12.9	13.2	16.9

2BSE-18	2BSE-19	2BSE-20	2BSE-21	2BSE-36	2BSE-37	2BSE-38	2BSE-39	2BSE-40	2BSE-41	2BSE-42	AT6-1	AT6-2
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.20-0.20	1.70-1.70
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	16/12/2020	16/12/2020
15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	17/12/2020	17/12/2020
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201215-62	201217-34	201217-34
23432930	23432986	23432990	23432994	23433001	23433006	23432728	23432735	23432740	23432745	23432753	23450096	23450104
8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	6.1	6.1
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sand	Sandy Silt Loam	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	None	None	None	None	Vegetation	Vegetation	None	Vegetation	Vegetation	Vegetation	None	None
13	8.3	11	7.7	13	8.2	15	8	8	4	5.3	17	6.4
-	22/12/2020	-	22/12/20	-	22/12/2020	-	22/12/2020	-	22/12/2020	-	-	30/12/2020
-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	-	Christian Hallam
-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-
26.7	13	15.7	12.9	37.9	15.6	20	23.6	14.1	19.3	20.9	5.91	0.833
11.8	8.89	10.8	10.6	11.6	10.5	9.77	11.2	8.98	10.3	11.4	12.1	12.1
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5	7.95	8.28	6.24	7.11	6.2	21.1	5.1	8.35	12.6	6.88	9.79	<6
<0.02	1.23	0.307	0.299	0.383	0.339	10.4	0.256	1.01	1.4	0.442	4.58	<0.2
300	226	240	452	285	309	55.4	331	66.3	68.8	252	408	1200
17.8	23.2	19.1	31.5	19.4	17.7	44.2	18.8	15.9	26.5	19.6	43	<14
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21600	9480	14400	24000	18500	17300	5230	21200	6350	6700	18900	28700	53700
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9.33	19.3	12.8	10.3	11.7	9.94	40.5	12	20.8	29.1	11.9	29.1	7.29
4.29	2.6	1.18	5.76	6.55	3.84	<10	5.68	<1	<10	3.69	13.7	33.8
376	169	303	569	437	302	112	591	98.4	134	248	1470	911
117	240	268	201	167	242	4980	148	222	453	197	2530	33.2
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26.5	<10	<10	<10	<10	16.3	<10	27.2	<10	<10	14.8	<10	<10
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79.4	77.4	84.3	84.9	81.9	85.4	80.6	80.9	77.3	88.4	86.5	82.5	84.1
82.5	82.4	80.5	81.3	82.2	87.5	83.2	83.1	83.3	85.8	85.3	82.4	87
87.1	83.9	83.8	81.4	86.8	92.1	88.6	85.2	91.2	88.3	89.9	86.8	84.6
75	90.1	82.5	80.6	77.4	76.4	74.7	76.7	83.4	83.6	89.6	84.8	90.6
78	86.6	84.1	84.1	79.2	80.1	73.4	78.9	75.1	85.8	90.7	86.6	93.7
5580	945	1050	3440	2860	4240	11300	4720	418	854	2630	47	31.7
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156	55.4	49.6	82.3	118	237	142	138	28.9	49.4	71.6	42.1	11.3
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7790	2870	2340	5540	5450	12600	9610	5870	1490	2290	4380	854	460
4350	1840	1470	3160	3230	6610	5930	3230	833	1480	2850	465	241
3480	1760	1380	3270	2910	5730	5100	2910	747	1300	2390	505	280
5870	2110	2090	4380	4580	8530	8520	4590	1010	2010	3740	767	415
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2730	1090	968	2200	2200	4100	3880	2260	511	1010	1900	405	270
484	240	204	451	387	713	740	341	99.1	214	412	75.2	40.7
2370	1040	867	1880	1920	3070	3260	1840	389	873	1620	389	245
59700	21900	18900	43900	42200	91200	82500	47600	11100	18400	36500	5820	3020
97.7	109	97.6	93.3	98.8	99.1	105	99.4	106	107	95	102	108
91.5	96.1	94.9	91.9	93.4	94.6	99.3	93.8	96.8	96.5	91.8	98.1	98.8
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4.76	0.93	3.35	2.82	-	-	-	-	-	-	-	-	-
5.4	0.94	3.5	3	-	-	-	-	-	-	-	-	-
4.18	0.52	3.04	2.4	-	-	-	-	-	-	-	-	-
1.36	1.02	0.59	0.87	-	-	-	-	-	-	-	-	-
14.7	12	7.35	10.6	-	-	-	-	-	-	-	-	-
15.9	13	7.9	11.4	-	-	-	-	-	-	-	-	-

AU7-1	AV7-1	AW7-1	AW7-2	SPFO-1	SPFO-2	SPFO-3	SPFO-4	SPFO-5	SPFO-6	SPFO-7	SPFO-8	SPFO-9
0.50-0.50	0.30-0.30	0.40-0.40	2.00-2.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
16/12/2020	16/12/2020	16/12/2020	16/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020	15/12/2020
17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201217-34	201217-34	201217-34	201217-34	201217-34	201217-34	201217-34	201217-34	201217-34	201217-34	201217-34	201217-34	201217-34
23450074	23450081	23450088	23450092	23450052	23450108	23450112	23450117	23450122	23450127	23450131	23450139	23450148
6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Loam	Loamy Sand	N/A	Sandy Loam	Loamy Sand	Sandy Silt Loam	Sandy Clay Loam	Loamy Sand	Sandy Loam	Loamy Sand	Loamy Sand	Sandy Loam
Vegetation	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	None	Stones	None	None	Vegetation	None	Vegetation	Vegetation	Vegetation	None	Vegetation	None
13	20	16	22	9	8.8	11	14	9.6	7.4	11	7.1	8.1
-	30/12/2020	-	30/12/2020	30/12/2020	-	30/12/2020	-	30/12/2020	-	22/12/20	-	23/12/2020
-	Christian Hallam	-	Christian Hallam	Christian Hallam	-	Christian Hallam	-	Christian Hallam	-	Andrzej Ferfecki	-	Marcin Magdziarek
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
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-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-
6.5	8.96	14.4	20.9	46.5	74.8	48.3	28.1	5.81	2.45	40.9	50.9	8.88
11.4	11.6	9.36	10.8	9.04	8.43	9.77	8.29	8.14	9.02	8.92	8.8	9.07
8.68	10.8	5.07	4.16	2.31	1.24	<1	20.4	<1	2.79	7.22	1.98	1.29
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9.82	10.4	5.34	4.41	0.319	0.706	0.39	14.2	0.699	0.597	1.34	0.507	2.68
273	91.7	59.3	35.4	181	98.7	84.5	15.3	10.2	19.2	66	52.3	49.3
56.5	60	48.1	33.5	10.8	19.6	15.7	42	29.6	14.7	21	15.5	23.1
255000	327000	226000	222000	45800	77900	63100	259000	55300	27400	131000	40000	32600
1320	1270	695	423	67.5	119	92.4	2640	209	127	376	65.5	146
23300	16700	10800	7420	8870	7400	6110	8860	1920	2680	4880	7930	2750
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45.5	60.2	46.4	50.5	8.2	17.3	17.7	48.3	24.8	12.4	17.2	11.8	14.5
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5510	5830	3100	1720	168	282	290	6490	305	382	911	215	268
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31.1	25	21.4	34.6	47.2	71.3	33.6	<10	13.3	<10	53.1	88.3	10.9
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195000	44800	102000	264000	934000	1460000	1110000	5670000	552000	144000	6260000	1710000	4020000
83	83.2	82.7	84.6	70.1	75.2	79.9	82.5	76.8	82.4	83.3	75	87
85.6	83.3	88	83.9	70.7	74.6	93.7	82.5	76.2	83.9	81.5	84	86
87.1	84.9	85.4	85.9	70.9	73.2	85.9	77.5	77	85.5	80.6	87.8	85
89.3	86.4	89.2	88.9	70.3	68.4	84.6	72	76.2	74.2	78.5	89.3	90
81.4	77.3	90.3	81.8	70.7	68	88.6	73	78.5	72.1	79.8	74.8	88
61.2	61.5	40.1	31.6	6380	13500	2250	24900	170	19.4	5280	8480	18900
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716	151	991	386	24300	31400	8610	63100	250	48.9	16300	31700	51100
650	118	1050	401	19500	24400	6470	48600	218	45.2	12700	25100	41300
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616	121	987	337	15700	19500	5250	42800	216	47.2	10400	20100	31800
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112	108	116	107	92.1	92.2	95.5	110	107	107	106	98.2	92.3
97.3	98.4	97.5	97.7	89.5	93.6	94.6	97.1	97.4	98.6	93.1	94.3	91.5
96.1	97.9	97.8	95.7	71.2	78.3	81	91.4	94.4	95.8	76.3	77.7	75.2
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<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800
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-	-	-	-	14.5	14.4	7.64	3.79	1.16	<0.5	-	-	-
-	-	-	-	16.5	16	8.41	4.46	1.21	<0.5	-	-	-
-	-	-	-	13.8	13.6	7.02	3.22	0.59	<0.5	-	-	-
-	-	-	-	0.77	0.99	0.94	1.04	1.68	<0.5	-	-	-
-	-	-	-	14.1	12.3	12.1	17.6	16.3	7.14	-	-	-
-	-	-	-	14.8	13.2	12.9	18.4	17.7	7.14	-	-	-

SPFO-10	SPFO-11	SPFO-12	SPFO-13	U37-1	U37-2	V35-1	V35-2	V37-1	V37-2	W37-1	W37-2	R37-1
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.30-0.30	1.50-1.50	0.20-0.20	1.50-1.50	0.50-0.50	1.50-1.50	0.50-0.50	1.50-1.50	0.30-0.30
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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08/01/2021	08/01/2021	08/01/2021	08/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201217-34	201217-34	201217-34	201217-34	201208-47	201208-47	201208-47	201208-47	201208-47	201208-47	201208-47	201208-47	201209-50
23450057	23450061	23450065	23450069	23383659	23383668	23383674	23383679	23383638	23383648	23383621	23383628	23390903
6.1	6.1	6.1	6.1	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.4
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Loamy Sand	Loamy Sand	Stone/Soil	Sandy Silt Loam	Silt Loam	Loamy Sand	Sandy Silt Loam	Sand	Silty Clay Loam	Loamy Sand	Loamy Sand	Loamy Sand
Vegetation	Vegetation	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	Stones	Vegetation	Stones	Vegetation	Oil/Petroleum	None	None	None	None	Vegetation	Oil/Petroleum	None
17	11	3.5	7.6	4.5	8.8	4.8	5.4	4.3	24	15	18	12
-	30/12/2020	-	30/12/2020	11/12/2020	-	11/12/2020	-	-	14/12/2020	11/12/2020	-	-
-	Christian Hallam	-	Christian Hallam	Barbara Urbanek-Walsh	-	James Richards	-	-	Marcin Magdziarek	James Richards	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
15	5.45	2.17	2.22	0.572	1.48	2	1.28	1.53	5.64	5.07	2.43	4.22
8.27	8.62	8.77	8.64	8.23	7.83	10.8	11.5	9.1	7.91	8.46	7.95	8.98
25.9	<1	3.45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	46.1	<12	<12	<12
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12	0.404	0.597	0.429	0.191	0.032	0.622	0.274	<0.02	<0.02	<0.02	0.0515	0.825
<9	7.62	12.3	89	23	3.47	50.3	225	<0.9	10.1	99.7	389	256
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267000	37300	38100	24600	32300	7080	77700	95700	35900	25200	71600	133000	91900
2250	147	189	61.1	15.9	1.62	76.5	24.9	17.5	18.7	36	63.3	113
6480	1290	3240	1590	1480	965	7650	20200	639	537	923	419	7340
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42.6	22.1	14.7	38.7	31	4.3	8.31	7.37	7.92	24.9	79.2	274	386
<10	<1	1.35	<1	<1	<1	<1	6.21	<1	<1	<1	<1	<1
307	26.7	41.5	52	33.5	5.23	147	262	16.7	27.5	110	269	160
5490	152	574	224	81.2	15	270	136	37.1	63.4	101	48.8	431
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83.8	79.8	83.7	85.6	94	87.3	87.8	83.4	87.9	88.1	85.2	86.4	103
80.7	76.1	85.2	84	90.2	92.7	90	93.4	90.7	92.8	89.3	91.6	102
81	76.7	87.3	84.1	96.8	97.1	94.4	98.8	91.9	96	88.8	95.4	103
77.6	70.7	81.9	83.1	97.4	81.5	86.9	88.3	81.6	88.5	78.6	86.6	114
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98.3	95.8	98.6	98.1	95.8	96.2	91.9	94.2	96.9	95.8	96.6	97	97.4
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R37-2	S36-1	S36-2	S36-3	S37-1	S37-2	T34-1	T34-2	T35-1	T35-2	T35-3	T37-1	T37-2	N37-1	N37-2	O37-1	O37-2	O37-3	P36-1	P36-2	P36-3	P37-1	P37-2	P37-3	Q37-1	Q37-2	Q37-3	R36-1	R36-2	R36-3	S35-1	S35-2	S35-3	M36-1	M36-2	M36-3	M37-1	M37-2	N34-1
0.60-0.60	0.10-0.10	1.20-1.20	2.10-2.10	0.30-0.30	0.80-0.80	0.50-0.50	1.80-1.80	0.20-0.20	1.20-1.20	2.20-2.20	0.40-0.40	1.10-1.10	0.30-0.30	1.50-1.50	0.50-0.50	1.40-1.40	2.90-2.90	0.10-0.10	1.10-1.10	2.40-2.40	0.40-0.40	1.50-1.50	2.70-2.70	0.30-0.30	1.20-1.20	3.00-3.00	0.10-0.10	0.70-0.70	2.00-2.00	0.40-0.40	1.40-1.40	2.20-2.20	0.50-0.50	1.60-1.60	2.10-2.10	0.50-0.50	1.50-1.50	0.50-0.50
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6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	6.4	6.4	6.4	6.4	6.4	6.4
Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown
Loamy Sand	Loamy Sand	Sand	Sand	Loamy Sand	Loamy Sand	Sand	Sand	Sand	Loamy Sand	Sand	Sand	Sand	Loamy Sand	Sand	Clay Loam	Loamy Sand	Silt Loam	Sandy Silt Loam	Sandy Loam	Sand	Loamy Sand	Sandy Silt Loam	Stone/Soil	Loamy Sand	Sand	N/A	Stone/Soil	N/A	Loamy Sand	Loamy Sand	Loamy Sand	Sand	Loamy Sand	Sand	Sand	Silt Loam	Ballast	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
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9.7	10	5.8	9.8	7.7	9.3	7.4	6.4	5.8	8.6	9.1	5.2	10	4.4	9	10	6.2	1.4	14	5.1	4.8	2.2	13	1.6	8.5	3.9	0.03	4.6	0	2.4	1.7	1.4	11	6.5	16	11	22	6.5	5.7
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Agnieszka Chelmowska	Agnieszka Chelmowska	-	Agnieszka Chelmowska	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	-	-	Barbara Urbanek-Walsh	-	James Richards	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	James Richards	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	Marcin Magdziarek	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Loose fibres in soil.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2.05	5.22	5	12	3.38	2.83	4.33	1.37	3.19	2.91	3.52	0.896	4.4	2.52	3.48	3.05	5.59	0.562	3.84	0.822	0.533	1.46	13.1	0.476	3.28	6.43	0.767	4.74	9.53	3.98	3.03	2.45	0.691	2.64	11.2	0.743	15.6	1.54	1.14
10.3	9.35	10	12.5	10.8	10.7	7.39	12.2	11.2	11.5	11.7	9.03	11.2	12	11.8	8.71	11.3	10.6	8.68	12	12.1	9.86	11.5	10.3	9.5	8.15	10.9	12	12.4	12	12.6	12.8	12.2	12.2	12.2	12.1	8.05	12.7	9.82
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22.8	37.5	12.7	25	7.48	19.5	240	294	231	13.4	7.25	4.15	44.6	400	355	210	449	59	10.4	60.6	595	27.3	<9	263	26.3	<0.9	11.6	409	342	155	1290	603	114	340	644	229	<9	434	23.5
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17.6	53.7	27.7	9.5	27.7	14.1	49.9	4.76	151	9.35	16.1	8.1	29.7	50.1	308	93.2	510	23.4	189	27.5	27.1	144	1740	15.7	337	727	36.5	16.1	59.8	227	9.74	21.6	19.7	30.9	28.8	50.7	2870	220	5.35
4930	16500	3600	5000	3040	2650	21200	21200	12700	2660	628	443	2000	22400	28800	13200	24400	13300	2080	3160	29200	5120	5750	10200	2290	2610	1340	16700	14400	12200	29700	20800	12300	16700	29200	27300	6040	28900	1900
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12.2	70.6	15.5	5.52	12.5	18.7	18.8	2.46	21.8	16.6	31.2	7.53	25.6	8.62	19.1	25.5	273	16.6	27.9	10	21.1	30.7	102	17.4	37.3	13.2	21.7	27.9	27	8.68	5.99	9.67	12.6	5.58	10.8	53.1	36.9	60.6	37.9
3.08	<10	<1	4.61	1.64	2.34	12	1.59	<10	<1	1.77	<1	<1	6.73	14.1	7.21	10.1	<10	<1	<1	13.4	<10	<10	5.93	<10	<1	<1	<10	3.71	2.39	14.1	8.84	<10	10.5	17.4	14	<10	<10	<1
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63.6	156	112	30.2	102	68.9	117	65.4	457	64	87	37.5	89.1	295	1400	339	1990	62.2	1110	80	68.7	516	3940	62.8	1200	1580	116	75.7	186	758	28.5	94.9	38.7	74.8	108	334	5610	458	39.5
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77.8	118	79.5	106	105	122	80.2	87.2	91.2	84.5	116	91.7	89.2	85	83.2	82.7	83	79.3	86.5	80.2	83.4	79.3	82.7	81.3	85.4	78.1	81.3	79.4	79.3	78.9	80	82.1	81.9	82.5	79.8	82	78	80	80
84.1	118	80	107	104	121	85.1	88.2	90.6	87.5	120	93.7	86.3	86	82.4	83.2	83.3	81.2	85.5	80.6	83.8	78.5	82.4	81.8	85.6	89.2	81	79.8	81	86.2	82.6	85	85.6	83.2	79.4	81.1	79.7	80.7	79.8
85.8	116	80.5	110	105	118	85.6	93.2	87.2	84	122	105	80.8	84.7	80.5	80.6	80.6	83.3	83	84.6	80.9	79.3	79.6	83.7	84.1	87.7	83.7	81.2	84	90.2	87.2	87	91.1	84.1	78.7	84.5	69	83.2	80.2
83.7	117	74	129	108	108	81.9	103	81.5	78	118	130	77.9	83.6	79.4	79.3	80.8	74.1	82.6	79.7	81.2	77.8	75.4	82.7	81	88.2	81.1	81.2	80.8	90.8	79.2	89.1	87.2	91	78.3	86.9	34.1	85.8	80.6
88.6	116	79	130	101	108	86.7	104	81.1	80.5	121	117	79.2	86	80	82.6	77.5	71.5	82.5	75.8	84	75.6	71.7	85.1	78.5	75.5	80.7	77.4	75.5	93.2	79.3	91.3	89	99.6	87.9	82.3	16.7	91.3	86.8
30.8	55.1	<450	102	66.3	50	370	359	198	1160	104	<90	18.9	45	25.9	13.7	23	10.9	53.5	23.5	<9	130	18.9	<9	41.8	335	<9	80.1	36.7	219	121	51.6	52.3	69.7	211	41.4	161	13.7	57.6
18.3	62.1	<600	<60	<60	23.4	132	<60	52.9	<600	14.4	<120	<12	25.8	<12	<12	<12	<12	26.2	<12	<12	659	<12	<12	<12	<120	<12	19.1	<12	137	65.3	15.5	<12	<12	<60	<12	<12	<12	18.4
17.5	<8	<400	92.2	<40	19.9	317	355	16.6	1340	99.4	<80	<8	<8	<8	<8	<8	<8	<8	<8	<8	<40	<8	<8	<8	240	<8	<8	<8	35.8	15.1	22.5	<8	110	405	51.1	<8	31.4	<8
21.5	12.2	<500	105	<50	32.6	363	303	44.4	912	90.4	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	110	<10	<10	<10	496	<10	12	12	133	45	32.6	12.5	38.5	126	17.9	27.7	11.7	11.7
108	113	<750	441	212	287	1660	1180	400	2130	210	171	69.6	71.1	42.2	37.9	50.8	22.9	128	44.8	<15	1180	34.8	27.4	72.6	815	30.6	126	104	833	351	187	64	416	1520	276	232	1050	88.4
31	38.4	<800	232	94.9	87.8	363	332	83.5	<800	42.5	262	<16	20.3	<16	<16	<16	<16	31.4	<16	<16	1170	<16	<16	<16	<160	<16	32.2	20.2	224	94.7	32.8	<16	97.6	364	60.3	60.1	76.9	27.3
279	204	<850	875	247	488	2000	1380	508	1830	165	439	60.9	137	68.2	51.7	72.7	<17	160	41	<17	8560	26.4	31.5	64.7	350	66.2	184	138	1350	647	227	77.2	1260	4730	742	167	1990	133
393	200	<750	801	214	322	1700	1070	374	1530	133	429	42.2	116	61.8	45.6	71.2	<15	117	34.1	<15	8190	32.3	27.3	69.5	684	46.4	160	117	1190	488	196	67.8	1270	4170	652	203	1750	101
167	160	<700	518	176	264	969	594	225	<700	66.8	434	43.9	85.3	40.6	43.4	49.1	<14	83.2	18.6	<14	5230	<14	16.6	33.6	<140	29.7	114	61.8	825	432	96.1	30.8	1030	3200	429	35.3	937	73.9
221	196	<500	501	189	262	958	632	258	<500	73.6	432	48	94.6	54.3	45.3	58.7	10.1	79.7	22.9	14.4	5040	15	18.4	40	126	28.5	111	86.5	745	415	114	37.9	1010	2980	473	34.4	1000	61.7
363	401	<750	627	251	372	1670	765	380	<750	103	482	64.8	188	84.9	86.8	101	<15	143	32.8	<15	8910	22.6	29.5	76	231	38.1	172	102	1460	676	171	54.9	1850	4600	752	37.8	904	83.6
131	101	<700	383	137	112	576	431	116	<700	28.1	408	23.7	50.4	21.9	25.5	31.8	<14	26.9	<14	<14	2870	<14	<14	<14	<140	15.4	64.4	29.3	477	249	51.4	16.8	685	1850	294	<14	580	31.7
152	176	<750	407	154	188	1020	496	181	<750	60	384	30.7	90.9	34.6	49.2	51.8	<15	56.2	<15	<15	5640	<15	16.3	26.4	<150	22.3	109	50.4	994	397	72.6	27	1240	4150	458	<15	1100	65.3
228	228	<900	342	166	153	957	382	125	<900	49.7	382	27.4	96.1	45.3	41.7	49.2	<18	65.4	<18	<18	5250	<18	<18	25.5	<180	18.7	112	66.5	1790	337	72.8	23.2	1190	3510	426	<18	799	51
33.1	37.2	<1150	188	<115	34.4	144	179	<23	<1150	<23	368	<23	<23	<23	<23	<23	<23	<23	<23	<23	775	<23	<23	<23	<230	<23	<23	<23	169	85.4	<23	<23	199	627	78.7	<23	132	<23
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109	109	106	106	105	110	105	104	108	103	110	105	106	106	105	107	106	109	118	104	104	108	105	110	107	107	117	106	106	104	106	110	110	108	106	108	108	105	110
98.1	98.4	88.7	98.8	98.1	98	98	95.3	97.2	93.9	99.9	97	97.3	98.1	99.4	96.8	97.7	98.4	97.3	97.5	99.3	95.8	97.6	98.7	97.8	95.5	98.4	97.1	97.2	97.2	98.8	95.7	97.8	94.5	94.1	95	93.4	95.2	94.1
94.5	94.1	82.7	94.1	91.8	95.2	87.8	90	91	85.3	93.9	91.7	93.5	97.8	99.2	88.4	99.8	97.8	94.6	94.1	96	94.1	96.8	98.4	97.6	92.4	102	91.8	92	90.2	96.2	93.3	92.4	96.6	97.2	97.5	90.6	101	96.9
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<0.4	<0.4	<0.4	<0.4	<0.4	<0.02	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.02	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<40	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<40	<800	<800	<800	<800	<800	<800	<800

N34-2	N36-1	N36-2	O33-1	O34-1	O34-2	O35-1	O35-2	O35-3	AJ4-1	AJ4-2	AL2-1	AL2-2
1.50-1.50	0.80-0.80	1.80-1.80	0.40-0.40	0.10-0.10	1.50-1.50	0.50-0.50	1.10-1.10	2.70-2.70	0.40-0.40	1.00-1.00	0.20-0.20	1.20-1.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
10/12/2020	09/12/2020	09/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020
11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020
05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201211-37	201211-37	201211-37	201211-37	201211-37	201211-37	201211-37	201211-37	201211-37	201218-34	201218-34	201218-34	201218-34
23409554	23409621	23409629	23409576	23409561	23409568	23409642	23409650	23409542	23461553	23461557	23461544	23461548
6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	9.1	9.1	9.1	9.1
Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Loamy Sand	Ballast	Loamy Sand	Loamy Sand	Sand	Sand	Loamy Sand	Sand	Sand	Sandy Loam	Sandy Loam	Stone/Soil
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Vegetation
None	None	None	None	None	None	None	None	None	Crushed Brick	None	Stones	Stones
11	6.7	8.2	4.5	4.2	4.1	4.4	6.9	8.3	12	18	10	12
									-	-	-	-
-	17/12/2020	-	-	-	17/12/2020	18/12/2020	-	18/12/2020	-	24/12/20	-	29/12/2020
-	Barbara Urbanek-Walsh	-	-	-	Marcin Magdziarek	Christian Hallam	-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki	-	Christian Hallam
									-	-	-	-
									-	-	-	-
									-	-	-	-
									-	-	-	-
-	Not Detected	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-
1.74	1.95	0.386	4.31	0.909	0.464	<0.35	0.683	0.353	1.88	4.72	9.48	1.33
12.2	10.7	11.7	11.1	11.5	12.7	9.2	12.5	11.9	10.7	8.63	9.03	10.5
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
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35.4	8.24	<6	20.3	0.715	<6	2.47	8.69	<6	5.97	9.38	5.23	3.21
<0.2	<0.2	<0.2	2.45	0.135	<0.2	0.139	<0.2	<0.2	<0.02	<0.02	0.424	<0.02
444	356	18.3	92.7	156	1140	3.31	504	95.8	6.32	35.4	75.5	13.1
141	20.5	<14	20.5	3.67	<14	7.43	29.1	<14	3.99	13.4	10.4	<1.4
237000	98800	43100	253000	51200	227000	1530	111000	334000	39700	42400	41500	16800
35.1	52.2	<0.7	248	<0.7	19.2	8.56	29	12.8	8.89	19.4	24.3	4.52
10500	10800	4760	15000	9790	45300	111	22600	13000	5640	4890	7640	6460
<1.4	<1.4	<1.4	<1.4	<0.14	<1.4	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14
268	27.1	3.15	24.3	9.54	6.02	1.87	28.7	17.1	6.54	11.9	8.75	3.73
<10	<10	<10	<10	1.18	26.8	<1	12.6	<10	2.51	2.01	5.03	4.88
145	232	17	136	114	831	3.86	413	202	64.6	60.2	76.6	56.8
70.5	208	37.5	707	25.3	49.4	12.5	62.2	34.1	65	86.5	137	35.5
0.0112	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0112	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0322	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
187	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
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187	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
97.5	96	105	61.8	99	120	89.5	99.9	113	85.1	110	74	105
45.9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
86.2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	12.3	<10
54.9	<10	16.3	<10	<10	<10	<10	<10	<10	<10	<10	22.4	<10
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35.8	<10	10.9	<10	<10	<10	<10	<10	<10	<10	<10	14.6	<10
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80	81.5	83.4	82	83.4	82.5	81.6	83.5	80.8	80.7	81.5	80.6	84.5
80.7	80.8	83.9	82.3	82.7	82.2	81.3	82.4	80.5	83.3	84.6	81	82
82.6	80.9	85.4	82.7	81.6	82.2	82.1	81.6	80.5	84.1	85.7	79.6	83.7
81	83.4	83.7	73.6	79.4	82.3	80.1	87.4	81.3	80.3	82.8	77	79.4
85.9	86.9	89.4	75.3	77	87.7	84.4	92.5	87.9	87.8	93.6	82.4	86
44.8	37.2	<9	246	60.6	14.8	<9	13.4	<9	33.5	43.5	<180	<45
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12.4	13.9	<10	65.5	<10	<10	<10	<10	<10	<10	<10	<200	<50
90	77.3	75.9	647	76.1	87.2	17.4	108	<15	46.2	71.3	974	92.7
18.8	23.2	<16	191	17.1	<16	<16	17.2	<16	<16	<16	<320	<80
107	125	61.5	1180	87.8	121	<17	219	34.1	72.5	93.3	1380	117
87.2	102	43.5	937	61.6	99.2	<15	185	31.6	56.9	75.4	1010	93.8
52.5	72.6	<14	575	34.6	70.5	<14	134	18	54.6	60	600	<70
44.4	61.2	<10	506	40.6	79.8	<10	119	17.4	48.1	71.8	478	68.2
74.1	115	<15	631	52.2	95.2	<15	219	21	122	134	990	95.4
27.9	36.1	<14	245	15.4	27.2	<14	83.7	<14	34.4	35.2	<280	<70
51.5	67.3	<15	476	25.1	75.2	<15	156	<15	57.7	68.7	603	<75
36.8	58.7	<18	354	25.4	59.9	<18	134	<18	72.1	77.3	606	<90
<23	<23	<23	<115	<23	<23	<23	<23	<23	<23	<23	<460	<115
41	53.8	<24	363	<24	63.1	<24	136	<24	67.8	70.2	551	<120
688	860	181	6570	510	793	<118	1540	122	690	801	7200	<590
107	108	109	105	106	108	106	106	107	106	108	105	109
94.9	95.3	95.6	92.7	95.2	95.7	95.2	95.2	94.6	96.6	95.9	93.3	97.4
98.3	97.1	99.6	91.3	98.3	101	100	100	99.8	101	100	94.6	95.1
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
17.1	16.8	<13	<260	<13	<13	<13	<13	<13	<13	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AM1-1	AM1-2	AM2-1	AM2-2	AN1-1	AN1-2	AO1-1	AO1-2	AP1-1	AP1-2	AQ1-1	AR2-1	AR4-1
0.30-0.30	1.00-1.00	0.50-0.50	1.60-1.60	0.50-0.50	1.50-1.50	0.30-0.30	1.30-1.30	0.50-0.50	1.80-1.80	0.50-0.50	0.40-0.40	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	16/12/2020
18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34
23461525	23461530	23461536	23461540	23461505	23461514	23461496	23461501	23461488	23461492	23461562	23461483	23461578
9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Loamy Sand	Sandy Loam	Stone/Soil	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Silty Clay Loam
Stones	Vegetation	Stones	Vegetation	Stones	Stones	Vegetation	Stones	Vegetation	None	Vegetation	Vegetation	Stones
None	Stones	None	Stones	None	None	Stones	N/A	Stones	Stones	Stones	Stones	Vegetation
8.1	12	7	6.7	13	17	15	16	15	12	16	24	22
-	<0.001	-	-	-	<0.001	-	-	-	0.0022	-	-	-
-	04/01/2021	-	29/12/2020	-	04/01/2021	-	04/01/21	-	04/01/2021	-	04/01/21	29/12/2020
-	Marcin Magdziarek	-	Paul Poynton	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	Christian Hallam
-	<0.001	-	-	-	<0.001	-	-	-	<0.001	-	-	-
-	None	-	-	-	None	-	-	-	Chrysotile detected. Fibre bundles in soil.	-	-	-
-	-	-	-	-	-	-	-	-		-	-	-
-	<0.001	-	-	-	<0.001	-	-	-	0.0022	-	-	-
-	Detected	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Loose fibres in soil	-	-	-	Loose fibres in soil	-	-	-	Loose fibres in soil	-	-	-
5.59	4.05	6.91	9.24	1.03	7.5	6.36	4.43	4.57	18.3	3.81	8.1	2.22
8.87	10.1	9.1	9.28	8.58	9.5	8.42	11	9.08	8.77	8.56	8.04	8.36
<1	<1	<1	<1	1.06	<1	<1	<1	<1	<1	<1	28.4	6.53
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
3.84	9.05	2.57	2.58	6.38	52.6	11.3	14.1	7.89	12.6	9.02	14.6	25.9
0.851	0.802	0.171	0.0437	0.424	1.93	2.1	1.6	0.905	2.3	0.337	7.21	12.8
49.1	156	7.71	10.1	58.2	178	116	<9	75.6	<9	124	177	102
10.7	29.1	5.9	4.26	13.9	33.1	24.3	49.1	19.8	34.4	21.6	43.4	58.6
31500	108000	9870	15500	34300	257000	82200	230000	76000	334000	58400	140000	340000
28.6	92.6	14.9	5.44	38.6	78.3	183	75	86.7	169	87.7	940	1110
4800	14300	1250	2640	5520	12700	8570	3530	7620	3980	7560	11700	20600
<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<1.4	<1.4	<0.14	<1.4	<0.14	<1.4	<1.4
7.27	20.7	5.91	5.38	12.5	44.7	25.6	51	17	38.1	17.1	37.2	51.8
2.65	<10	1.35	2.38	3.53	<10	<10	<10	2.18	<10	1.81	<10	<10
68.1	210	22.1	36.9	101	296	209	51.9	130	55.9	194	257	552
140	372	52.7	29.9	185	182	707	171	398	410	412	3330	5610
<0.01	0.0114	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0131	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0117	<0.01	<0.01	0.0114	<0.01	0.0131	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	<50	<50	<50	<50	<50	69	<50	55.9	<50	59	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	<20	<20	<20	<20	<20	69	<20	55.9	<20	59	<20
93.5	71.7	98.1	86.1	80	100	89.8	79.1	79.4	109	75.7	90.9	94.8
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	19.7	<10
<10	18.2	<10	<10	<10	<10	<10	30.9	<10	26.2	<10	21	<10
<10	20.5	<10	<10	<10	<10	<10	38.1	<10	29.6	<10	18.3	<10
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6390	10500	<5000	11800	2010	<1000	3500	15700	1330	38700	2960	15100	<1000
9970	21800	11300	25400	12900	6060	21300	91900	12600	15200	26300	75700	<1000
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18400	39000	<25000	49200	18300	6950	30600	159000	15400	57200	33900	110000	<5000
324000	213000	270000	855000	38300	33700	123000	209000	38000	511000	49900	139000	<10000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	13.7	<10	<10	<10	<10	<10	25	<10	19.4	<10	11.8	<10
<1000	<1000	<5000	<1000	<1000	<1000	<1000	<1000	<1000	2250	<1000	<1000	<1000
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5240	5570	<5000	12900	1940	4510	23300	1640	3430	35900	<1000	2390	<1000
174000	123000	153000	433000	14400	19500	57700	42900	13200	315000	13400	24200	2360
126000	43500	99800	360000	3580	2670	10200	4880	4820	98400	1600	2500	<1000
17100	8830	23500	82300	<1000	<1000	1340	2900	<1000	21700	<1000	1070	<1000
305000	174000	253000	806000	20000	26800	92700	49600	22600	454000	16000	29300	<5000
324000	213000	270000	855000	38300	33700	123000	209000	38000	511000	49900	139000	<10000
81	75	79	80.5	74	79.8	84	80.5	71.4	79.9	77.1	78.8	83.9
83.5	76.8	83.5	86.5	72.3	83.1	86.2	84.3	73.6	85.5	81.9	80.4	83.9
84	73	78	89.5	70.5	86.2	89.2	87.6	68.2	80.6	90.7	83.9	84.3
86.5	70.8	72.5	85	70.9	98.5	102	100	63.4	85.7	78.3	83	77.6
81.5	70	71.5	83.5	70.6	92.4	96.6	94.2	59.8	88	72.8	76.9	75.2
<450	330	<450	<450	28.6	64.4	184	37.2	<180	1940	47.4	102	<9
<600	<240	<600	<600	20.4	86.8	318	15.9	<240	2100	27	68.3	<12
<400	<160	<400	<400	<8	<8	41.7	<8	<160	<80	9.64	18.1	16
<500	<200	<500	<500	<10	51.8	288	<10	<200	261	18.8	49.8	<10
<750	517	<750	<750	89.6	549	2230	93.1	<300	2620	183	438	99.9
<800	<320	<800	<800	25.5	339	713	23.7	<320	1030	49.3	157	24.2
<850	797	<850	<850	190	2250	4680	173	820	8430	364	859	153
<750	633	<750	<750	157	1740	3170	147	626	11200	283	663	147
<700	378	<700	<700	123	1190	2030	112	427	5860	181	440	102
<500	432	<500	<500	142	1130	1620	112	458	8000	204	509	113
<750	651	<750	<750	207	1850	2560	198	726	21600	286	725	179
<700	<280	<700	<700	68.7	549	875	53.6	<280	5830	115	217	78
<750	378	<750	<750	136	1090	1600	107	407	15000	183	389	125
<900	<360	<900	<900	115	844	1150	84	<360	20400	145	301	113
<1150	<460	<1150	<1150	<23	161	231	<23	<460	3240	29.7	73.3	<23
<1200	<480	<1200	<1200	113	744	1010	82.8	<480	23100	126	321	107
<5900	4120	<5900	<5900	1420	12600	22700	1240	3460	131000	2250	5330	1260
110	114	109	120	125	170	135	118	122	118	113	177	87.5
93.2	95.8	96	89.6	94.7	94.8	94.9	95.3	94.6	96.5	96.2	93.5	96.2
87.9	102	89.1	87.4	103	111	98.1	98.1	98.7	102	99.8	111	91.9
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	147	480	<260	<13	<13	16.2	<13	<13	84.7	<260	36.9	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AR4-2	AS3-1	AS4-1	AS4-2	AS6-1	AS6-2	AS7-1	AS7-2	AT4-1	AT4-2	AT4-3	AG1-1	AH1-1
1.30-1.30	0.50-0.50	0.50-0.50	1.60-1.60	0.30-0.30	1.60-1.60	0.40-0.40	1.50-1.50	0.20-0.20	1.50-1.50	2.60-2.60	0.50-0.50	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
16/12/2020	17/12/2020	16/12/2020	16/12/2020	16/12/2020	16/12/2020	16/12/2020	16/12/2020	17/12/2020	17/12/2020	17/12/2020	18/12/2020	18/12/2020
18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020	19/12/2020	19/12/2020
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	05/01/2021	05/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	20/01/2021	20/01/2021
201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201218-34	201219-57	201219-57
23461585	23461479	23461591	23461599	23461567	23461571	23461465	23461520	23461607	23461469	23461475	23471766	23471748
9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	5.0	5.0
Light Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown
Sand	Loamy Sand	Sand	Stone/Soil	Sand	Stone/Soil	Sandy Clay Loam	N/A	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	N/A
None	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	None	Vegetation	Stones	Stones
None	Stones	None	None	N/A	None	None	None	Stones	Stones	Stones	None	None
21	18	5.3	12	9.4	15	21	20	16	25	20	13	8.4
-	-	-	-	-	-	-	-	-	-	<0.001	-	-
-	-	29/12/2020	-	29/12/20	-	04/01/2021	-	29/12/2020	-	04/01/2021	-	-
-	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Christian Hallam	-	Marcin Magdziarek	-	-
-	-	-	-	-	-	-	-	-	-	<0.001	-	-
-	-	-	-	-	-	-	-	-	-	None	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<0.001	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
-	-	-	-	-	-	-	-	-	-	Soil containing ACM debris	-	-
1.07	6.91	0.429	0.919	3.19	2.9	6.26	80	12.7	11.3	2.69	85.5	3.57
8.27	10	9.39	12	11.6	12.2	8.73	9.49	8.83	10.5	12.5	8.93	9.5
<1	3.55	<1	1.8	<1	<1	<1	2.65	10.3	11.6	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	16.8	<12	<12	25.8	18.8	<12
3.62	12.6	1.33	3.89	<6	7.08	12.8	5.11	17.4	21	6.24	6.89	4.07
0.142	7.8	<0.02	1.12	<0.2	1.29	2.05	1.04	7.33	14.9	1.08	0.15	0.0341
9.34	196	141	96	644	683	182	120	135	141	624	16.8	18.2
7.18	36.9	<1.4	12	31.1	29.4	36.2	24.2	38.7	51.2	29.3	31.3	8.75
11500	131000	46700	78300	235000	207000	147000	81200	139000	164000	152000	35100	18700
11.6	959	16.4	65.1	70.4	31.1	172	134	1330	1890	41.7	20.6	13.5
404	17000	14900	12100	33300	43100	12200	13800	10600	12100	38300	3070	4420
<0.14	<1.4	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<0.14	<1.4	<1.4	<0.14	<0.14
11.5	26.9	3.13	7.99	23.7	21	34	10.1	24.3	36	22.5	12.1	7.57
<1	<10	5.96	4.37	14.9	15.5	<10	4.14	2.86	<10	20.3	1.26	3.05
15.1	467	655	722	566	2050	481	212	205	376	1680	34.5	47.7
27.8	3910	85.7	398	194	110	624	761	4640	7140	128	67.7	38.5
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0252	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.036	<0.01	0.0504	<0.01	<0.01
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89.2	78.6	97.6	86.5	81	104	92.7	77.1	82.4	89.4	94.2	93.5	96
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	17.6	<10	<10
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83.7	83.2	78.1	82.2	78.6	77	79.9	79.5	84.3	93.9	82.4	70.2	93.7
86.2	82.3	79.8	85	80.5	80.2	82.2	82.5	81.7	94.3	78.5	74.3	91.5
93.7	80.2	78.6	83	81.3	88.4	84	82.3	79.3	102	85.5	68.1	90.1
83.6	80	76.7	85.6	84.5	81.3	91.8	83.8	71.9	97	88.2	61.3	79.6
75.7	77.2	88.9	88.7	102	72.8	90.7	78	70	84.4	88.2	48.4	78.5
<9	179	<9	10.4	44.1	33.5	70.8	66.8	154	211	63.7	138	16.7
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<10	<100	<10	<10	29.1	27.2	18.6	25.9	<100	159	41.5	47.2	<10
<15	460	66.6	61.4	302	414	225	255	738	898	634	694	33
<16	<160	<16	<16	83.9	99	99.8	61.2	<160	<160	112	128	<16
<17	1060	110	117	577	1150	584	454	1030	1220	1170	1070	50.3
<15	978	97.3	123	552	1210	539	391	797	1030	1130	792	38.9
<14	581	73.3	77.2	520	960	478	314	542	573	773	508	36.4
<10	691	82.1	95	544	1000	504	356	646	583	816	564	35.5
<15	1070	140	135	998	1520	1070	601	1000	715	1240	800	42.5
<14	437	48.7	47.5	361	614	291	190	409	<140	472	239	18.4
<15	646	86.6	92.8	727	1210	646	367	618	518	1040	437	33.1
<18	577	85.3	79.1	656	862	593	296	594	379	796	399	35.1
<23	<230	<23	<23	79.7	117	101	61.3	<230	<230	156	96.8	<23
<24	563	77.8	73.1	581	795	603	311	587	411	743	362	29.4
<118	7240	879	912	6140	10100	5930	3820	7120	6890	9260	6370	369
109	125	106	107	112	109	108	112	117	113	114	106	106
97.7	96.3	96.8	97	97.2	96.5	97.3	97.4	94	95.8	95.6	102	103
97.4	95.9	102	93.8	95.4	92	89.7	93.3	99.6	99	97.2	87.6	94.6
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<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AH1-2	AI1-1	AJ1-1	AJ1-2	AJ6-1	AJ6-2	AJ7-1	AJ8-1	AJ8-2	AK1-1	AK1-2	AK2-1	AK2-2
1.10-1.10	0.40-0.40	0.20-0.20	1.00-1.00	0.50-0.50	1.30-1.30	0.50-0.50	0.40-0.40	1.00-1.00	0.30-0.30	1.70-1.70	0.10-0.10	1.30-1.30
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
18/12/2020	18/12/2020	18/12/2020	18/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	17/12/2020	18/12/2020	18/12/2020	18/12/2020	18/12/2020
19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020
05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
201219-57	201219-57	201219-57	201219-57	201219-57	201219-57	201219-57	201219-57	201219-57	201219-57	201219-57	201219-57	201219-57
23471754	23471742	23471733	23471738	23471776	23471781	23471789	23471798	23471807	23471725	23471729	23471714	23471720
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Stone/Soil	Sandy Silt Loam	N/A	Clay Loam	Sand	Sandy Silt Loam	Sand	Sand	Loamy Sand	N/A	Sandy Silt Loam	N/A
Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	None	None	None	Vegetation	None	Vegetation	Vegetation	Crushed Brick	None	None	Vegetation	Oil/Petroleum
21	15	7.6	4.2	23	7.7	21	5.3	8.9	7	4.3	12	5.7
-	-	-	-	-	-	-	<0.001	-	-	-	-	-
04/01/21	04/01/21	04/01/21	-	-	04/01/21	-	04/01/2021	-	04/01/21	-	04/01/21	-
Andrzej Ferfecki	Andrzej Ferfecki	Andrzej Ferfecki	-	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-
-	-	-	-	-	-	-	<0.001	-	-	-	-	-
-	-	-	-	-	-	-	None	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	<0.001	-	-	-	-	-
Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected	-
Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	-	-
8.09	>100	4.84	0.41	6.6	1.19	4.55	1.42	0.902	8.33	<0.35	21.6	2.16
8.76	11.2	9.89	11.3	8.01	8.96	9.26	8.32	8.57	9.53	10.9	9.51	10.3
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.4	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
9.53	9.15	<6	3	12.8	4.58	7.99	3.94	4.77	12.2	1.01	<6	1.47
0.906	0.744	0.885	0.0831	0.21	0.148	0.278	0.177	0.118	1.08	0.061	0.853	0.147
126	69.6	315	5.75	238	17	29.8	9.37	11.7	206	6.36	373	81.1
16.2	<14	15	3.51	13.9	6.65	11.1	9.19	11.8	28.3	2.41	<14	1.87
72200	94000	75400	7400	64100	13500	29200	11500	11400	80900	3420	90600	35000
79.2	26.1	47.5	7.89	47.2	15.1	21.3	14.7	9.07	32.6	6.2	49.8	4.29
13100	6430	14500	2430	8980	1310	2330	585	784	11900	1640	14800	8630
<1.4	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14
21.7	9.01	24.8	2.92	22.4	7.96	16.4	8.94	9.98	15.5	3.17	13.8	1.09
<10	<10	<10	2.4	3	<1	<1	<1	<1	<10	1.52	<10	3.53
160	109	236	15.9	217	40.6	40.4	12	17.1	211	5.41	277	109
193	55.7	177	26	140	35.6	94.9	35.6	16.6	144	50.8	164	39.6
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	0.026	<0.01	<0.01	<0.01	<0.01	<0.01	0.0209	<0.01	0.0106
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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125	76.9	73.2	107	77.7	122	90.8	81.5	83.3	98.5	96.6	123	96.9
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	43.3	<10
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15200	10400	103000	<5000	22800	<5000	27900	360000	8490	80300	5980	94900	131000
15200	16800	195000	<10000	36300	<10000	55000	360000	15700	80300	11400	160000	220000
83.3	90.3	93.8	86.2	93.5	92.6	89.8	88.2	93.5	93.1	92.5	85.5	91
86.5	91.6	91.7	87.5	93.1	90	91.9	89	92.9	95.1	90.7	87.9	94.4
91.7	88.5	92.5	91.2	93.7	89.5	94	94	92.6	98.3	92.7	96	101
86.1	72.7	91.3	99.3	87.1	78.8	102	103	81.2	89.4	87.6	104	93
86.1	72.2	84.5	97.8	87.2	78.1	99.8	99.4	78.8	87.2	86.6	97.3	90.8
352	222	1070	35.7	34	<45	149	<9	12.5	378	83.9	217	2870
138	91.3	664	39	29.3	<60	<120	<12	<12	371	78.6	247	1160
35.1	14	<80	<8	<8	<40	<80	<8	<8	29	<8	41.3	96.4
102	43.2	155	<10	<10	<50	<100	<10	<10	106	40.4	102	471
695	460	1400	117	116	<75	286	39.2	56.9	1040	303	714	3470
283	100	488	38.9	25.9	<80	<160	<16	<16	321	186	239	1120
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846	659	2320	354	177	<75	390	73	87	2070	633	1440	4510
629	420	1750	282	136	<70	210	75.2	100	1530	449	1170	2860
601	550	1490	261	137	<50	234	84.9	98.2	1390	398	981	2630
773	705	2100	248	186	<75	272	88.6	108	2160	424	1440	2450
307	274	1040	143	71.6	<70	<140	31.4	52.8	892	192	534	1440
541	378	2010	256	131	<75	229	65.4	90	1680	343	1170	2910
426	441	2710	206	146	<90	<180	45.2	65.2	1710	271	1100	3220
72.1	61.7	339	37.1	<23	<115	<230	<23	<23	215	42.7	170	455
371	334	2720	194	110	<120	<240	42.7	61.3	1230	225	901	2520
7340	5600	23200	2660	1540	<590	2240	642	841	17700	4560	12300	38000
123	104	107	105	114	102	103	103	103	102	104	110	103
98	96.8	96.7	98.3	97.8	98.8	97.2	97.8	99.3	96	98.3	97.8	98.3
94.1	88.5	87.4	97.1	92.7	93.9	89.1	89.9	93.8	85.4	94.2	91.9	92
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60.3	<260	24.6	<13	<13	<13	<260	<13	<13	<260	15.2	18.6	270
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
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AK3-1	AK5-1	AK5-2	AL1-1	AL1-2	4A Comp -1	4A Comp -2	4A Comp -3	4A Comp -4	4A Comp -5	4A Comp -6	4A Comp -7	4A Comp -8
0.50-0.50	0.20-0.20	1.20-1.20	0.50-0.50	1.00-1.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
17/12/2020	17/12/2020	17/12/2020	18/12/2020	18/12/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020
19/12/2020	19/12/2020	19/12/2020	19/12/2020	19/12/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020
05/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021
201219-57	201219-57	201219-57	201219-57	201219-57	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93
23471705	23471762	23471770	23471814	23471710	23443672	23443677	23443682	23443686	23443692	23443697	23443706	23443738
5.0	5.0	5.0	5.0	5.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Clay Loam	N/A	N/A	Sand	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones	Vegetation	Stones	Stones	Stones	Vegetation
None	Vegetation	None	None	None	Stones	None	None	Stones	None	Vegetation	None	Stones
6.1	18	7.9	6.2	9.5	13	15	12	11	13	9.2	17	16
-	-	-	-	-	-	-	-	-	-	-	-	-
04/01/2021	-	04/01/2021	04/01/21	-	22/12/20	-	23/12/2020	-	22/12/2020	-	23/12/2020	-
Marcin Magdziarek	-	Marcin Magdziarek	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	-	-
3.15	7.33	1.84	0.567	1.18	25.9	14.1	14	16.5	15.5	16.4	17.1	29.8
9.17	8.24	11.8	11.3	11.6	10.7	10.1	9.13	11.1	9.78	10.7	9.34	10.7
<1	<1	<1	<1	2.23	<1	<1	<1	1.11	<1	<1	<1	<1
<12	18.5	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
2.41	10.7	6.58	<6	<6	<6	12.3	8.78	17.4	18.4	16.4	11.8	<6
0.227	0.576	0.114	0.653	0.797	<0.2	<0.2	0.0908	0.0768	0.146	<0.2	0.469	<0.2
22	30.9	72.4	489	650	150	109	56.5	97.9	149	218	164	364
7.88	13.5	14.7	<14	<14	28.8	45.7	18	23.1	16.2	25.8	24.8	22
16200	39700	59400	157000	164000	79800	98900	34900	56300	54800	75000	57900	87600
24.4	52.9	22.3	<7	12	39.6	66	21.5	65.3	36.5	56.9	49.5	45.2
4770	2370	9450	36400	26600	9550	7740	4150	11400	7200	24000	9850	20400
<0.14	<0.14	<0.14	<1.4	<1.4	<1.4	<1.4	<0.14	<0.14	<0.14	<1.4	<1.4	<1.4
5.2	19.2	14.8	3.17	11.3	20.7	75.3	18.7	20.2	18.4	23.2	27.6	15.2
3.53	<1	3.05	18.1	13.5	<10	<10	1.11	3.66	3.03	<10	<10	<10
39.9	65.2	144	344	487	214	173	79.8	154	170	377	154	498
117	213	38.8	38.3	78.9	159	222	95.5	273	113	195	134	225
<0.01	<0.01	0.0109	<0.01	<0.01	0.0342	0.0117	0.0114	0.0224	0.0342	0.044	0.0242	0.0119
<0.01	0.0123	<0.01	<0.01	<0.01	0.0114	<0.01	<0.01	<0.01	0.0114	0.011	0.0121	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	0.0456	<0.035	<0.035	<0.035	0.0456	0.055	<0.035	<0.035
<50	<50	1890	84.2	66	55.9	57.3	55.9	161	84.4	92.4	<50	73.8
<50	<50	1120	<50	<50	<50	<50	<50	75	<50	<50	<50	<50
<20	<20	3010	84.2	66	55.9	57.3	55.9	236	84.4	92.4	<20	73.8
73.5	102	97.5	112	108	51.8	37.9	70	48.9	49.7	34.2	49.1	24.8
<10	<10	51	19.2	24.2	<10	<10	11.4	16.8	<10	11	<10	<10
<10	<10	155	20.3	20.9	25.1	29.3	18.2	69.4	38.8	37.4	15.7	36.9
<10	<10	1680	44.8	20.9	30.8	28.1	26.2	75	45.6	44	20.6	36.9
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37900	16700	1310	5380	30300	21300	8560	22400	22600	19700	21000	16600	32300
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1140000	42300	16800	<10000	75000	175000	53000	125000	628000	144000	169000	117000	434000
<10	<10	<10	<10	<10	<10	<10	<10	10.1	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	10.3	14.6	<10	<10	<10	<10
<10	<10	1120	29.8	13.2	20.5	18.7	18.2	50.4	30.8	28.6	13.3	23.8
<1000	<1000	<1000	<1000	<1000	3290	<1000	1340	5200	3150	2610	2150	5410
1640	<1000	<1000	<1000	<1000	5230	<1000	2190	24400	5100	3400	3650	12000
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476000	7000	3540	<1000	<1000	9730	1890	3650	39500	6310	11800	4710	25300
54500	<1000	<1000	<1000	<1000	1560	<1000	<1000	7160	<1000	2260	<1000	3770
1080000	23800	14500	<5000	14800	132000	39100	55500	584000	105000	122000	77200	371000
1140000	42300	15600	<10000	75100	176000	53100	125000	629000	144000	169000	117000	434000
92.5	79.9	95.8	90.7	87	82.3	80.1	84.3	83.7	77.4	84.8	77.7	84.6
91	82.3	92	93.3	88.6	80.3	83.6	84.2	84.4	77.2	82.5	81.4	83.7
90.5	85.4	91.9	97.5	93.3	88	86.1	87.2	87.1	80.9	86.6	87.9	86.3
85.5	90.7	83.4	108	100	82.4	85.8	85.8	85.2	81.9	87.7	82.3	87.5
79	90	84.7	105	98.6	88.6	77	83.9	84.2	79.2	85.9	84.9	87.2
<450	69.7	<45	<9	48.2	2590	965	1390	2140	2840	2170	795	1620
<600	83.9	<60	<12	42.3	1000	350	759	633	799	646	313	650
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<750	266	86.4	27.3	118	4840	2370	3860	3530	5280	2860	1430	2710
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<850	571	133	47.3	295	8600	3760	6740	5710	8300	5220	2720	4890
<750	426	117	61.8	239	6260	2660	4540	4130	5760	4040	1940	3830
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<500	286	67.4	50.6	145	3270	1340	2290	2280	2800	2020	1060	2040
<750	277	99	48.1	167	3610	1910	3540	3080	4640	3220	1470	3010
<700	189	<70	<14	61.4	1400	609	1240	1100	1420	1110	474	1060
<750	317	<75	36.6	169	3270	1190	2220	1990	2940	2020	901	1860
<900	271	<90	28.2	150	2760	807	1800	1720	2100	1560	709	1560
<1150	<115	<115	<23	<23	583	167	388	310	410	309	79.7	322
<1200	263	<120	43.8	123	2310	661	1520	1340	1720	1350	468	1350
<5900	3340	<590	409	1770	47000	19500	34800	32000	44900	30600	14200	28600
108	118	104	105	105	105	111	117	106	104	99.2	102	103
92.9	97.5	98.6	98.4	98.8	96.6	96.9	98	95.6	94.7	93.9	96.2	95.4
86	92.5	95.2	97	96.8	92.1	95.7	100	90.6	93.7	86.4	99.3	87.1
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<13	<260	<13	<13	<13	479	316	<260	915	723	1290	807	916
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
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4A Comp -9	4A Comp -10	4A Comp -11	4A Comp -12	4A Comp -13	4A Comp -14	4A Comp -15	4A Comp -16	4A Comp -17	4A Comp -18	4A Comp -19	4A Comp -20	4A Comp -21
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020
12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020
1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021
1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021
201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93
23443748	23443757	23443767	23443778	23443783	23443787	23443791	23443796	23443807	23443818	23443824	23443829	23443833
6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Black	Dark Brown
Sandy Clay Loam	Sandy Loam	Loamy Sand	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Stone/Soil	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam
Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones	Vegetation	Stones	Stones
None	None	Stones	None	None	Vegetation	Vegetation	Stones	None	Vegetation	Stones	Vegetation	None
13	15	11	16	13	9.8	7.6	15	8.6	9	13	13	44
-	-	-	-	-	-	-	-	-	-	-	-	-
04/01/21	-	23/12/2020	-	23/12/20	-	23/12/20	-	23/12/2020	-	22/12/20	-	23/12/2020
Andrzej Ferfecki	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Agnieszka Chelmowska
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
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Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-
<0.35	13.4	11.8	8.15	36.7	7.57	19.8	19.8	12.3	2.33	19.8	17	1.29
8.95	11	11	8.91	10.6	8.27	10.6	10	10.4	9	9.14	9.44	10.5
<1	1.79	1.73	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
9.74	<6	10.5	11.5	7.95	11.2	9.91	8.95	6.76	7.27	13.1	8.81	14.4
0.678	<0.2	1.03	1.27	0.553	<0.02	0.991	<0.2	0.15	0.0474	0.393	<0.02	<0.2
39.3	195	221	247	152	107	113	177	237	11.3	75.2	90.2	196
17.1	33	26.5	38.8	22.9	23.6	25.3	19.4	14.8	15.2	30.1	24.3	31.8
52400	82100	89500	58200	55900	44100	73900	121000	64600	33400	54100	76000	112000
34.4	62.5	187	63.4	65.9	26.5	56.2	63.9	28.1	31.5	60.7	43	48.1
4580	13300	11500	6870	10400	5610	8350	14700	20400	2660	4590	7640	14500
<0.14	<1.4	<1.4	<1.4	<1.4	<0.14	<0.14	<1.4	<0.14	<0.14	<1.4	<0.14	<1.4
17.7	20.4	29	28.3	24.2	23.2	20.5	16.7	11.5	17.6	25.7	25.9	21.4
1.71	<10	<10	<10	<10	1.85	2.55	<10	8.15	1.24	<10	2.64	<10
107	327	207	144	175	115	200	200	332	49	99.9	141	465
133	228	729	201	203	104	208	218	118	73.6	237	156	159
0.0115	0.0118	0.0113	<0.01	0.0232	<0.01	0.0217	0.0117	0.0547	<0.01	0.0115	0.023	0.036
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<0.015	<0.015	<0.015	<0.015	<0.015	0.0888	0.0325	<0.015	0.0219	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	0.0888	0.0542	<0.035	0.0875	<0.035	<0.035	<0.035	<0.035
107	101	83.6	<50	82.4	<50	78	63.2	<50	<50	107	<50	153
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107	101	83.6	<20	82.4	<20	78	63.2	<20	<20	107	<20	153
61.7	36.2	67.8	52.7	40.2	53.9	66.6	50.9	43.1	93.6	77.9	42.2	34.6
11.5	17.7	10.2	<10	<10	<10	17.3	<10	<10	<10	10.4	<10	16.2
48.3	41.3	33.9	<10	38.3	<10	30.3	30.4	14.2	<10	40.3	23	64.8
47.2	42.5	39.6	<10	44.1	<10	30.3	32.8	17.5	<10	56.4	19.6	72
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
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3500	25100	12400	14900	11700	42500	2910	18300	21400	<1000	5100	10700	160000
5600	30300	23600	31400	19600	16300	6800	30700	26900	<1000	8350	19100	86500
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9560	63100	46100	55700	37400	62300	10600	60400	57900	<5000	15700	41900	259000
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<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
32.2	28.3	27.1	<10	30.2	<10	20.6	22.2	10.9	<10	38	12.7	46.8
2120	2390	3050	<1000	2140	<1000	2530	6610	3660	<1000	1850	2950	5930
2540	9530	6610	1170	4710	1090	6990	17300	9990	<1000	3140	5500	10400
17100	98300	50500	8530	30600	8340	52300	188000	80100	1590	23500	32600	76100
41600	166000	135000	34200	75000	26600	71600	410000	196000	4490	55200	81500	168000
3640	18200	25400	2660	10800	3610	8650	57600	29100	<1000	7160	12600	25800
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67000	294000	221000	47100	123000	40200	142000	679000	319000	7270	90900	135000	286000
76700	358000	267000	103000	161000	103000	153000	740000	377000	<10000	107000	177000	546000
78.5	77.5	76.3	78.4	78.9	82.5	78.9	79.6	79.7	79.9	83.5	86.5	76.8
78.8	77.9	83.6	83	84.3	82.1	86.9	87.3	80	80.3	86.3	85	79.7
80.9	80.9	87.9	85.2	89.7	88.5	94.1	92.7	88.5	82.2	87	86.8	84.1
84.4	83.6	87.4	75.9	80.6	87.3	92.2	94.1	77.4	88	85.4	89.5	87.2
85.6	83.1	71.5	74.6	76.6	90.7	79.6	77	80.8	88.7	79.9	88.9	82.1
1280	1410	2280	674	2050	427	1790	3830	2780	68.8	1330	1800	3530
313	447	1690	335	1480	184	1310	1740	1560	24.3	561	647	1080
61.6	79.1	220	54	159	29.7	171	191	162	<8	72.1	88.3	169
265	412	1060	269	1140	96.1	2850	1250	1110	20.8	418	574	1050
1600	2710	7860	1540	7430	493	14300	8360	7690	201	2530	3160	7230
410	772	3090	483	3690	135	3930	3210	2100	44.4	920	1740	2120
2810	4660	18800	2680	15600	903	14100	16500	14100	327	5430	5650	12400
2140	3550	14000	1950	11500	668	9310	12100	10200	244	3980	4070	9000
1400	2160	8190	1170	6930	431	4860	7550	5980	168	2550	2650	5910
1180	1750	7570	1170	6640	364	4360	7270	5190	168	2470	2090	5490
1970	2760	9290	1780	8770	646	5040	9200	5040	211	3470	3480	7820
690	984	3050	637	2960	211	1690	3260	2390	76.7	1140	1240	2940
1310	1770	5510	1090	5420	416	3110	5430	5100	137	2130	2230	4780
986	1360	4520	906	4270	349	2480	4870	4300	92.9	1680	1740	3430
195	259	901	109	722	69.8	519	927	971	<23	315	350	713
799	1080	3650	601	2890	291	2030	4040	3520	89.4	1400	1470	2730
17400	26200	91700	15400	81600	5710	71900	89800	72100	1870	30400	33000	70400
104	108	110	103	104	114	102	97.7	102	112	114	99.5	109
95	97.1	97.1	96.9	96.1	97.8	95.1	91.5	91	98.2	98	95.5	96.1
93.3	95	96.8	91	91.4	97.5	91.1	84.5	86.8	100	99	84.7	96.8
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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463	572	321	423	962	410	972	13400	575	<260	754	315	794
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<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

4A Comp -22	4A Comp -23	4A Comp -24	4A Comp -25	4A Comp -26	4A Comp -27	4A Comp -28	4A Comp -29	4A Comp -30	4A Comp -31	4A Comp -32	4A Comp -33	4A Comp -34
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020
12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020
1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021
1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021
201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93
23443841	23443847	23443854	23443860	23443867	23443873	23443886	23443893	23443897	23443903	23443908	23443913	23443919
6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Clay Loam	Sandy Loam	Loamy Sand	Silty Clay Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam
Stones	Vegetation	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	Stones	Stones	None	Vegetation	Vegetation	Vegetation	None	None	Vegetation	Vegetation	Vegetation	Vegetation
13	15	14	10	16	9.5	13	14	12	7	16	12	11
-	-	-	-	-	-	-	-	-	-	-	-	-
-	23/12/2020	-	23/12/20	-	23/12/2020	-	04/01/21	-	22/12/20	-	23/12/2020	-
-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	-	-
21.6	13.4	20.9	13.1	25.7	1.81	30.7	17.4	14.6	5.26	16.4	1.39	9.28
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<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.12	<1
<12	<12	<12	<12	<12	<12	<12	47.9	<12	<12	<12	<12	<12
8.41	10.7	10.1	9.6	8.1	11.4	13.4	13.4	9.98	8.91	11.9	17.1	11.6
<0.02	<0.02	<0.02	0.146	<0.02	0.349	<0.2	1	0.457	1.32	0.184	10.1	<0.02
64	68.7	146	85.4	199	71.5	206	128	192	250	108	195	51.1
20.7	20.5	26.9	18.5	20.9	21.6	27.4	23	23.8	19.4	26.7	59.1	29.4
53800	94700	95400	45200	81900	69700	81000	53000	64800	67700	51600	98700	39700
60	33.6	73.4	44.2	46.3	53.3	44.6	88.7	61.6	155	64.4	206	37
6750	6540	10500	7490	11500	4960	11700	7170	14600	14100	5880	8550	2610
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<0.14	<1.4	<0.14
14.6	22.8	18.9	17.5	18.1	20.8	19.1	25.4	27.8	17.4	23.6	24.6	30.5
<1	<1	2.11	2.07	5.16	<1	<10	3.08	<10	5.89	<1	<10	1.24
146	138	240	186	240	110	301	185	281	152	159	219	84
193	117	421	175	172	171	177	173	238	710	214	938	117
0.0344	<0.01	0.0234	0.0444	0.0238	0.0222	0.0115	0.0234	0.0114	0.043	<0.01	0.0228	<0.01
<0.01	<0.01	<0.01	0.0111	<0.01	0.0111	0.0115	<0.01	0.0114	0.0108	<0.01	0.0114	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0456	<0.015
<0.035	<0.035	<0.035	0.0555	<0.035	<0.035	<0.035	<0.035	<0.035	0.0538	<0.035	0.0798	<0.035
55	<50	77.2	<50	97.6	<50	63.3	<50	148	90.4	66.6	80.9	<50
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48.8	81.2	45.4	44.8	70	40.5	24.8	23	35.3	32.5	53.5	54.1	107
<10	<10	<10	<10	10.7	<10	<10	<10	23.9	22.6	16.7	20.5	<10
26.3	<10	33.9	<10	41.7	<10	31.1	21.1	60.4	35.5	25	33.1	<10
28.6	<10	43.3	<10	45.2	<10	32.2	19.9	63.8	32.3	25	27.4	<10
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5200	50900	15200	16500	25600	9940	12400	11700	16900	11500	9870	19100	53700
15500	20000	27200	18900	28900	9460	24500	17000	25300	17900	19400	81700	25400
5900	1030	11200	2880	5510	<1000	4330	3190	8510	3800	3250	68700	4200
27800	72200	56200	39900	62600	20900	43200	33000	53500	35600	33300	175000	85700
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19.5	<10	28.1	<10	29.8	<10	21.9	12.9	43.3	21.5	16.7	18.2	<10
1240	1140	3080	2810	6700	1460	3540	5570	1920	2290	<1000	4480	1290
2530	1030	5150	5260	9120	2380	7580	5390	3930	4930	<1000	13400	3050
14000	8840	34400	29300	56600	13700	56900	23400	22100	38400	5180	134000	36800
36400	26400	79400	62200	124000	33700	121000	49300	63500	83900	24300	277000	98500
3090	3150	8890	7940	17500	3730	14900	5750	5720	12200	1310	33800	15400
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57300	40600	131000	108000	213000	55000	204000	89400	97100	142000	31600	463000	155000
85100	113000	187000	147000	276000	75900	247000	122000	151000	177000	64900	638000	241000
85.4	76.8	83.2	79.4	75.6	78.8	79.1	79.7	79.2	83.6	80.6	86.6	83.3
84.4	78	82.2	83.8	77.8	82.5	79.4	82.2	82.4	83.3	84.1	84.9	82.9
86.8	80.8	90.5	86.9	82.3	85.7	81.1	82.1	87.1	86.4	85.7	89.3	88
89.6	84.6	80.4	86.6	85.9	82.2	79.2	87.6	82.3	83.9	82.4	84.6	82.6
87.4	84.7	78.4	76.8	83	75.2	82.7	86.7	82.8	83.2	74.6	84.6	84.7
1360	1390	3400	1640	3180	1600	2490	1690	1070	2710	568	2760	509
499	434	967	522	1030	552	5410	498	672	965	194	1490	351
89.2	85.7	163	93.1	178	86.1	386	209	87.6	138	61.5	191	48.6
499	392	895	614	1080	547	9470	540	475	837	185	1110	346
2700	2210	5570	3130	5550	2920	42600	3140	4060	4600	1250	6950	1500
799	755	1830	929	2160	841	24900	911	1150	1540	345	2420	485
3830	3960	9320	4510	9970	5710	42500	5030	8500	7970	2040	12900	1750
2660	2830	6800	3240	7640	4150	28600	3680	6210	5780	1530	9520	1180
1550	1840	3620	1850	4550	2430	14600	2370	3340	3230	1040	5410	718
1350	1540	3190	1610	4150	1850	13700	2110	3180	2900	804	4480	672
2000	2400	3540	2210	6480	3180	15900	1060	4180	4110	1270	7620	1030
707	862	1320	765	2090	1060	6500	1090	1560	1590	482	2380	352
1240	1490	2910	1380	3850	1920	10800	2010	2510	2640	822	4780	636
1040	1160	2340	917	2860	1310	8170	1470	1990	2090	584	3730	537
193	227	480	173	548	277	1770	280	317	450	125	761	111
832	892	1920	741	2240	1030	6780	1200	1400	1820	470	3290	451
21300	22500	48300	24300	57500	29500	235000	27300	40700	43400	11800	69800	10700
99.7	107	98.5	102	117	96.5	106	111	113	101	104	98.1	99.7
94.9	97.2	92.4	92.7	97.7	95.3	94.6	94.6	97.5	94.8	93.9	93.5	94.7
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831	437	1710	1510	927	544	582	472	554	<260	365	476	<260
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4A Comp -35	4A Comp -36	4A Comp -37	4A Comp -38	4A Comp -39	4A Comp -40	2BN2-8	2BN2-9	2BN2-10	2BN2-11	2BN2-29	2BN2-30	2BN2-31
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/15/2020	12/14/2020	12/14/2020	12/14/2020	12/14/2020	12/14/2020	12/14/2020	12/14/2020
12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020
1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021
1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021
201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93	201216-93
23443926	23443933	23443944	23443961	23443967	23443973	23443648	23443730	23443814	23443880	23443952	23443977	23443986
6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Black	Dark Brown	Dark Brown	Black
Loamy Sand	Loamy Sand	Stone/Soil	Sandy Loam	Sandy Clay Loam	Loamy Sand	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Clay Loam	Sandy Loam
Vegetation	Vegetation	Vegetation	Vegetation	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	Stones	Stones	Stones	Vegetation	Stones	Vegetation	None	None	Vegetation	Vegetation	Vegetation	None
11	20	7.8	10	10	13	7.8	13	13	15	6.1	8.4	16
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23/12/2020	-	23/12/2020	-	23/12/2020	-	23/12/2020	-	22/12/2020	-	23/12/2020	-	23/12/2020
Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska
-	-	-	-	<0.001	-	-	-	-	-	-	-	-
-	-	-	-	None	-	-	-	-	-	-	-	-
-	-	-	-	N/A	-	-	-	-	-	-	-	-
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Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-	-
13.8	12.9	27.1	3.43	4.34	22.2	6.09	21.4	42.6	29.1	1.62	24.3	25.5
9.67	10.6	10.8	8.96	9.54	9.64	11.9	11.3	11.5	11.5	12	11.7	11.6
<1	1.06	<1	<1	<1	1.19	<1	<1	<1	<1	<1	1.2	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
7.08	6.37	8.85	9.43	17.5	9.59	7.78	6.9	10.9	<6	10.2	6.37	7.54
0.258	0.223	<0.2	<0.2	0.0879	<0.2	0.0431	0.328	0.166	0.609	<0.2	0.774	0.337
160	236	176	41.1	244	236	235	285	183	328	522	312	131
21.7	22.5	20.1	23.9	15	21.4	14.2	22.9	17.2	19.7	18.2	23.6	16
63900	86500	62100	50800	75100	72600	93800	85100	103000	96300	128000	98900	75600
64.3	57.7	46.4	31.2	40.4	39.4	61.4	66.7	161	129	51.3	92.3	80.8
9890	15900	7980	4910	14300	11800	19400	17100	16200	17900	25600	18700	9630
<1.4	<1.4	<1.4	<1.4	<0.14	<1.4	<0.14	<1.4	<0.14	<1.4	<1.4	<1.4	<0.14
22.6	17.6	18.7	24.5	12.7	23.5	9.6	13.1	16.2	11.5	11.6	15.1	18.2
<10	<10	<10	<10	5.68	<10	6.4	<10	5.03	<10	<10	<10	3.29
195	424	159	101	202	226	345	301	294	349	521	331	178
216	195	184	110	155	162	219	230	751	507	186	322	254
0.0112	0.0126	0.0108	<0.01	0.0111	<0.01	0.0108	<0.01	0.0228	0.0117	0.0106	0.0109	0.0119
0.0112	0.0126	0.0108	<0.01	<0.01	<0.01	0.0217	<0.01	0.0114	<0.01	0.0106	0.0109	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
134	<50	52	<50	124	<50	101	79.8	218	105	102	88.5	162
<50	<50	<50	<50	<50	<50	<50	<50	112	<50	<50	<50	65.5
134	<20	52	<20	124	<20	101	79.8	329	105	102	88.5	227
70.8	41.8	38.9	80.8	54	38.6	33.9	22.4	44.3	20.9	30.1	31.4	33.9
35.8	<10	16.3	<10	12.2	<10	29.3	<10	20.5	30.4	27.7	26.2	16.7
53.8	18.9	20.6	<10	50	19.4	39	38.8	94.6	43.3	40.4	33.9	64.3
44.8	23.9	15.2	<10	62.2	20.5	32.5	41	103	31.6	34	28.4	80.9
<1000	1270	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
<1000	3160	1960	<1000	<1000	2850	4090	2690	4010	2840	5460	7130	4190
9140	14400	16600	1620	3300	17000	35600	21700	25500	14100	30100	45500	31800
14700	36900	21200	5690	8760	29800	32700	25600	57100	32900	35100	45100	35800
2460	19300	3800	<1000	1570	8270	7030	4980	13500	6390	12600	11500	6150
27100	75000	43700	8080	14000	58500	79600	55200	100000	56600	84000	110000	78200
224000	421000	262000	21300	65500	224000	183000	159000	396000	395000	238000	281000	199000
<10	<10	<10	<10	<10	<10	<10	<10	20.5	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	22.8	<10	<10	<10	11.9
30.2	16.4	<10	<10	41.1	13.7	21.7	27.4	68.4	21.1	22.3	18.6	53.6
2320	6720	2920	<1000	1590	3830	2970	3450	10200	3050	4370	5670	4010
3760	9110	5100	<1000	1530	6900	4160	5620	15500	8150	7990	7450	5760
48400	72000	39800	2000	12600	40200	25000	28400	83400	73600	43900	40100	31000
122000	215000	143000	9630	32800	99600	65500	60800	161000	237000	87600	104000	72500
20600	43100	27000	<1000	2920	14700	5960	5870	25400	16500	10500	13300	7540
3070	7220	3720	<1000	<1000	2170	<1000	<1000	2770	1940	1520	1990	<1000
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224000	421000	262000	21300	65600	224000	183000	160000	397000	395000	238000	281000	199000
74.1	86.7	78	79.1	83.3	81	77.6	81.1	78.1	84.7	79.4	70.1	79.6
77	83.4	86.1	80	86.5	82.1	82.9	82	83.7	85	85.3	71	80.1
79.9	85.2	92.3	81.8	91.5	85.4	89.5	87	86.4	87.1	93.1	73.8	83.4
80.6	87.4	88.6	85.8	106	83.6	104	85.9	96.3	81.2	89.4	71.9	93.5
71.2	88.5	73.7	83.8	96	74.6	88.2	82.5	93.4	78.4	75.7	73.4	88
1770	7870	1990	95.2	993	1770	3440	2110	5340	1920	3700	3070	2880
791	2620	1310	85.1	362	613	900	435	1770	576	941	1000	829
89.5	267	147	<8	44.2	94.8	169	97.1	218	91.1	174	172	117
712	2150	746	35.2	260	571	963	454	1910	371	814	1080	820
5070	13500	5390	291	1490	3360	6520	2790	9860	2930	5760	7920	5640
2370	5720	1680	86.3	508	971	1770	738	3570	830	2070	3190	1700
10400	28100	10900	1870	3010	5680	10800	3910	13100	4680	10300	13100	10100
7560	19700	8340	1360	2330	4130	7970	3020	9100	3310	7570	8840	7260
4320	11700	5130	703	1610	2540	5200	1680	5310	2100	4770	5570	4540
3620	9820	4880	569	1300	2200	3990	1640	5350	2400	4960	5030	4070
5330	15600	6390	831	1910	3340	6350	2230	5690	3040	5360	6930	5420
1820	5620	2130	334	668	1160	1980	817	1650	1110	1830	2150	1790
3390	10200	3870	561	1260	2100	3690	1400	4230	2000	3160	4260	3390
2400	8210	3270	370	841	1440	2430	1120	3050	1690	2590	3760	2420
445	1640	684	76.7	159	300	538	235	658	328	568	726	512
1860	6880	2870	281	688	1130	2010	975	2800	1290	2110	2920	2320
51900	150000	59700	7550	17400	31400	58700	23600	73600	28700	56700	69700	53800
99.5	95.6	110	107	106	104	107	108	99.5	98	98.3	103	105
93.6	92.1	95.2	98.3	97	98.3	93.3	97.6	95.4	93.9	91.1	92.3	95.7
90.1	85.5	91.9	96.8	94.8	93.4	86.7	93.2	86.9	83.2	80.9	84	90.3
<200	<200	<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<1800	<180	<180	<180	<180	<180	<180	<180
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770	768	467	<260	465	831	<2600	778	4800	705	<2600	<2600	599
<0.4	<0.4	<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<8000	<800	<800	<800	<800	<800	<800	<800

2BN2-32	2BN2-33	2BN2-34	2BN2-35	2BN2-36	AR10-1	AR10-2	AR11-1	AR11-2	AS10-1	AS10-2	AS9-1	AS9-1
0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.00-0.00	0.50-0.50	1.70-1.70	0.50-0.50	1.80-1.80	0.40-0.40	2.00-2.00	0.50-0.50	1.20-1.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/14/2020	12/14/2020	12/14/2020	12/14/2020	12/14/2020	1/4/2021	1/4/2021	1/4/2021	1/4/2021	1/4/2021	1/4/2021	05/01/2021	05/01/2021
12/16/2020	12/16/2020	12/16/2020	12/16/2020	12/16/2020	1/5/2021	1/5/2021	1/5/2021	1/5/2021	1/5/2021	1/5/2021	06/01/2021	06/01/2021
1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/8/2021	1/7/2021	1/7/2021	1/7/2021	1/7/2021	1/7/2021	1/7/2021	14/01/2021	14/01/2021
1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/21/2021	1/13/2021	1/13/2021	1/13/2021	1/13/2021	1/13/2021	1/13/2021	14/01/2021	14/01/2021
201216-93	201216-93	201216-93	201216-93	201216-93	210105-10	210105-10	210105-10	210105-10	210105-10	210105-10	210106-76	210106-76
23443995	23444000	23443655	23443659	23443664	23498287	23498291	23498295	23498299	23498303	23498307	23504862	23504831
6.6	6.6	6.6	6.6	6.6	3.6	3.6	3.6	3.6	3.6	3.6	4.8	4.8
Black	Dark Brown	Black	Black	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown
Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Sand	Loamy Sand	Loamy Sand	Loamy Sand	Sandy Clay Loam	Sandy Loam	Sandy Loam
Stones	None	Stones	Stones	Vegetation	Stones	Crushed Brick	Stones	Stones	Stones	Stones	Stones	Stones
None	Stones	None	Vegetation	Stones	None	Stones	None	None	None	None	None	None
15	11	14	13	12	6.7	10	5.1	7.1	6.9	16	10	9.9
-	-	-	-	-	<0.001	-	-	-	-	-		
-	23/12/2020	-	23/12/2020	-	06/01/2021	-	06/01/21	-	06/01/2021	-	13/01/2021	13/01/2021
-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Paul Poynton	Paul Poynton
-	-	-	-	-	<0.001	-	-	-	-	-		
-	-	-	-	-	None	-	-	-	-	-		
-	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	-	<0.001	-	-	-	-	-		
-	Not Detected	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-
22.8	21.9	24.7	49.7	33.8	0.509	0.75	<0.35	0.748	2.69	1.32	4	8.45
11.6	11.1	11.6	11.7	11.8	9.75	11.1	9.95	11.7	10.8	8.16	10.3	11.6
<1	1.46	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	48.1	<12	<12	<12	<12	1260	<12	<12
10.8	<6	<6	10.7	<6	<6	8.68	1.26	7.45	3.23	4.92	9.11	10
0.593	0.731	1.09	0.344	0.261	<0.2	0.219	0.238	0.391	<0.02	0.344	2.89	1.4
175	350	259	392	313	321	<9	2.16	190	187	13.1	112	110
26.3	28	26.3	27.1	21.5	<14	16.6	<1.4	19.2	5.17	13.4	26.6	22.9
74900	134000	109000	105000	86700	197000	83200	5660	147000	79100	28900	177000	121000
123	193	217	141	96.8	17.3	24.2	7.87	25.2	15.7	32.3	334	261
11200	20100	14700	21500	18300	16100	4710	163	19700	14900	1330	10700	11600
<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<0.14	<1.4	<0.14	<0.14	<1.4	2.05
20.1	16.8	17.3	15.7	11.5	28.1	7.16	2.13	8.17	4.65	14	25.8	15
<10	<10	<10	<10	<10	<10	<10	<1	<10	5.23	<1	<10	2.27
218	418	270	503	342	296	-	5.05	385	449	31.8	268	297
431	722	729	515	526	70.8	39.6	13.7	46.2	156	138	1540	1010
0.0118	0.0226	0.0348	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	0.0226	0.0116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	0.0339	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	0.0791	0.0464	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
120	<50	293	162	104	<50	<50	<50	<50	<50	156	<50	<50
<50	<50	147	83.5	<50	<50	<50	<50	<50	<50	<50	<50	<50
120	<20	441	246	104	<20	<20	<20	<20	<20	156	<20	<20
23.7	45.8	47.1	28.6	15.9	101	103	76.3	102	99.2	126	96.8	97.5
10.6	<10	27.8	22	11.4	<10	<10	<10	<10	<10	45.2	<10	<10
48.4	11.3	131	73.1	45.6	<10	<10	<10	10.8	<10	57.1	<10	<10
61.4	13.6	135	67.3	46.7	<10	<10	<10	<10	<10	53.6	<10	<10
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5580	5440	4500	4620	6400	<1000	1030	<1000	1880	<1000	<1000	1060	10600
36800	27000	26400	23400	23700	<1000	2750	<1000	5710	4850	1940	7820	30300
40000	55800	49300	43000	43100	7060	8510	14300	20700	62900	17900	34600	69200
8850	21500	17400	9290	12900	1440	<1000	<1000	4020	23300	14600	7100	16500
91700	111000	98200	80800	87200	8750	12800	16300	32400	91300	34800	50500	127000
228000	480000	808000	253000	294000	19000	15700	18700	63200	102000	44000	68900	147000
<10	<10	26.7	13.9	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	31.3	24.4	10.3	<10	<10	<10	<10	<10	<10	<10	<10
41.3	<10	89.3	45.2	30.8	<10	<10	<10	<10	<10	35.7	<10	<10
3800	9850	20300	4110	3730	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
6230	15100	40700	7600	6870	<1000	<1000	<1000	<1000	<1000	<1000	<1000	2120
34500	93000	233000	42000	44500	<1000	<1000	<1000	2880	<1000	<1000	1530	2320
82500	212000	372000	108000	136000	7500	1600	1190	25600	9560	6550	14500	14300
9510	38700	43900	11000	16000	2000	<1000	<1000	2300	<1000	1440	1700	1330
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228000	480000	808000	254000	294000	19000	12800	16300	63200	102000	44200	68900	147000
79	85.4	79.2	83.7	79.1	99.4	97.3	102	98	96.9	96.4	97.5	95.9
80	85.9	79.8	82.6	76.5	98.8	96.8	101	98.2	92.2	96.3	100	99.9
84.3	89	87.1	83.7	80.7	98.6	95.9	99	99	91.8	95.9	104	105
94	84.2	73.8	78.7	72.5	102	91.9	95.8	98.1	91.5	101	101	104
89.3	87.3	77	75.1	71.1	95.9	97.3	99.4	102	86.3	102	84.9	89
2120	5410	8350	2640	2830	23.4	<9	13.1	23.8	20.7	18.3	37.9	39.3
563	1880	2150	695	624	25.1	<12	<12	<12	<12	<12	36.1	24
95.3	265	289	134	108	<8	<8	<8	38.3	<8	15.5	11.2	22.6
430	2340	2300	456	440	<10	<10	<10	19.6	<10	18.2	13	19.4
3240	9540	11700	4070	3990	86.8	19.4	25.2	244	107	77.6	181	254
1040	2390	4400	1140	966	19.6	<16	<16	55.9	18.7	22.6	56.8	52.7
5320	10900	15600	6810	5980	231	26.9	<17	645	205	78.9	548	631
4110	7500	10400	4890	4140	181	24.2	<15	644	164	61.3	450	572
2670	4270	5760	2990	2640	139	21.8	<14	429	97.7	31.8	343	385
2670	3910	5250	3330	2280	142	27.4	<10	445	113	30	404	436
3130	5480	3950	4170	2550	242	47.1	<15	773	151	34.7	551	603
1100	2100	1850	1540	1060	75.3	<14	<14	245	55.8	<14	166	184
2160	3630	4340	2690	2400	156	23.8	<15	522	86.5	24.7	322	382
1600	3090	3460	2140	2020	165	27.1	<18	465	78.8	<18	298	311
350	662	782	401	454	28	<23	<23	35.6	<23	<23	53.3	56.1
1510	2510	2850	1650	1820	161	<24	<24	453	82.6	<24	272	297
32100	65900	83400	39700	34300	1670	218	<118	5040	1180	413	3740	4270
103	96.9	105	99.5	98	104	116	110	81.6	104	106	108	108
98	92.5	96	93.7	92.4	93.6	96.9	92.4	92.8	98.6	95	96.1	93.5
92.3	89	91.2	82.4	84	76.4	89.3	71.7	74.3	87.1	81.9	101	102
<200	<200	<200	<200	<200	<10	<10	<10	<10	<10	<10	<200	<200
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817	43400	4590	1200	<2600	<13	<13	<13	15.3	<13	31.9	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.4	<0.4
<800	<800	<800	<800	<800	<40	<40	<40	<40	<40	<40	<800	<800

AS11-1	AS11-2	AT9-1	AT9-2	AT9-3	AT10-1	AT10-2	AT11-1	AT11-2	AU9-1	AU9-2	AU10-1	AV10-1
0.50-0.50	1.40-1.40	0.60-0.60	1.40-1.40	2.60-2.60	0.20-0.20	1.50-1.50	0.10-0.10	1.90-1.90	0.30-0.30	1.30-1.30	0.30-0.30	0.50-0.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
04/01/2021	04/01/2021	05/01/2021	05/01/2021	05/01/2021	04/01/2021	04/01/2021	04/01/2021	04/01/2021	05/01/2021	05/01/2021	05/01/2021	05/01/2021
06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
210106-76	210106-76	210106-76	210106-76	210106-76	210106-76	210106-76	210106-76	210106-76	210106-76	210106-76	210106-76	210106-76
23504840	23504844	23504866	23504870	23504779	23504772	23504835	23504848	23504854	23504788	23504795	23504800	23504804
4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Clay Loam	Loamy Sand	Loamy Sand	Sandy Loam	Sand	Sandy Loam	Loamy Sand	Sandy Silt Loam	N/A	Sand	Loamy Sand	Clay Loam	Sandy Loam
None	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	Vegetation	None	Vegetation	None	Stones	Vegetation	Vegetation	None	None	None	Vegetation	None
19	14	15	8.3	12	14	12	26	11	9.7	9.9	21	28
13/01/21	-	-	12/01/21	-	12/01/21	-	13/01/21	-	12/01/21	-	13/01/21	-
Andrzej Ferfecki	-	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-
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Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5.31	5.74	5.14	5.38	2.02	4.02	10	10.3	2.88	2.43	1.17	6.71	7.21
9.19	10.5	11.9	11.8	11.7	9.04	11.5	11	11.7	12.3	12	8.19	8.95
8.62	4.69	1	1.44	1.24	<1	<1	14.1	4.73	<1	<1	7.76	5.66
<12	16.2	22.7	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
19.5	10.6	13	282	9.49	10.6	17.2	22.7	10.1	4.6	3.63	9.74	13.3
11.7	1.46	1.96	2.38	1.75	1.93	<0.02	10.5	3.03	0.487	1.15	2.74	4.47
390	26	228	347	724	102	281	79.7	460	393	856	231	137
48.5	20.5	31.3	160	42	22.2	19	50.5	31.5	16.7	9.39	22.9	30.5
316000	52800	241000	196000	211000	99800	181000	247000	245000	107000	182000	138000	190000
1290	205	234	319	280	212	138	1050	342	79.1	56.9	370	809
23800	3420	17400	348000	42300	9630	26700	12400	34600	25300	42600	17200	15200
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38.4	20.6	30.3	237	23.9	17.3	17.9	39.3	24.8	9.14	9.48	18.2	23.9
<10	1.03	<10	207	21.9	2.98	7.18	<10	14	8.31	11.4	4.42	1.62
1140	93.9	369	492	1700	190	775	349	1330	738	670	499	431
3720	1210	1020	990	614	1000	696	3790	1080	212	360	1640	2650
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<50	<50	<50	<50	52.4	<50	<50	<50	327	<50	<50	133	<50
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99.5	100	116	107	110	95.5	108	102	123	115	112	122	87.5
<10	19.7	<10	<10	33.1	<10	<10	<10	32.5	<10	<10	21.6	<10
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76900	141000	66700	52200	10200	35400	34700	75100	27600	64700	124000	43300	33600
97000	162000	79500	65400	20600	60500	43300	89900	36600	78100	143000	75400	54600
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<10	20.9	<10	<10	52.4	<10	<10	<10	327	<10	<10	133	<10
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2640	1020	<1000	1300	1210	2950	<1000	1940	<1000	<1000	<1000	4100	1670
15600	17600	10300	10600	8200	18700	6280	10800	6610	11300	17400	23200	17700
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20200	21300	12800	13200	10500	25000	8570	14800	9020	13300	19400	32100	21000
97000	162000	79500	65400	20900	60500	43300	89900	37500	78100	143000	75800	54600
95.2	94.1	95.8	97.2	94.5	97.8	98.5	94.9	96.5	98.3	95.1	92.1	92.9
95.3	97.5	95.4	97.6	97.3	99.4	99.2	95.4	96.2	99.3	96.8	93.3	94.9
94.8	101	96.8	99.5	99.7	103	100	96.3	97.7	104	101	95.9	97.5
90.7	95.7	97.8	104	91.5	98	98.8	94.4	97.8	105	103	86.5	92.9
73.8	79.3	87.8	97.7	73.9	82.5	88	81.2	89.8	97.4	91.9	72.3	77.9
73.8	31.5	29.1	39.5	39	92.9	21.9	48.4	36.4	21.9	<9	78.3	31.3
<12	<12	<12	16.9	<12	73.3	<12	<12	<12	20	<12	22.5	<12
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142	106	121	269	108	542	89.4	93.7	145	90.4	95.2	171	119
39.6	25.7	24.8	65.7	24.6	164	21.7	25.3	27.6	17.9	<16	46.7	34.9
237	138	245	519	237	1020	218	210	297	210	232	266	211
282	169	221	470	252	780	235	219	291	185	184	226	222
158	67.9	152	337	160	605	173	92.8	165	138	119	124	129
175	92.9	184	397	188	642	199	96.1	200	176	160	140	154
235	91.7	265	556	282	850	307	132	279	263	230	162	211
79.3	28.9	81.5	197	95.5	282	92.3	38.7	89.4	83.8	63.2	53.8	62.3
137	50.9	162	374	211	539	201	73.8	196	148	118	92.9	132
107	36.4	140	299	151	419	164	57.6	144	155	116	70.7	99.6
<23	<23	27.6	49.7	<23	78.5	30	<23	<23	27.8	<23	<23	<23
109	35.3	143	286	147	376	154	60.3	146	143	110	66.4	101
1810	901	1800	3920	1910	6550	1910	1150	2040	1680	1430	1560	1540
102	108	106	109	105	106	110	105	103	103	106	108	108
96.1	96.4	96.2	96.3	96.2	96.7	95.2	96.5	96.3	95.5	96.1	95.2	95.6
98.9	99.8	104	104	103	101	104	103	105	102	103	99.8	101
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<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AV10-2	AV10-3	AW10-1	AW10-2	AN10-1	AN10-2	AN11-1	AN11-2	AN12-1	AN12-2	AN12-3	AP10-1	AP10-2
1.70-1.70	2.40-2.40	0.90-0.90	1.60-1.60	0.90-0.90	1.80-1.80	0.40-0.40	2.10-2.10	0.50-0.50	1.60-1.60	2.30-2.30	0.40-0.40	2.20-2.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
05/01/2021	05/01/2021	05/01/2021	05/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021	06/01/2021
06/01/2021	06/01/2021	06/01/2021	06/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021
210106-76	210106-76	210106-76	210106-76	210108-19	210108-19	210108-19	210108-19	210108-19	210108-19	210108-19	210108-19	210108-19
23504809	23504815	23504819	23504824	23512069	23512073	23512103	23512111	23512115	23512040	23512046	23512055	23512065
4.8	4.8	4.8	4.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Loamy Sand	Loamy Sand	Silt Loam	Sand	Sand	Loamy Sand	Sand	Sandy Loam	Sand	Sand	Sandy Loam	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	None	Vegetation	None	Concrete/Aggregate	Concrete/Aggregate	None	Brick	Vegetation	Brick	Brick	None	None
17	18	18	25	17	11	17	8.6	15	15	18	16	18
13/01/21	-	13/01/2021	-	-	13/01/2021	13/01/2021	-	13/01/21	-	13/01/21	-	13/01/2021
Andrzej Ferfecki	-	Paul Poynton	-	-	Paul Poynton	James Richards	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Christian Hallam
Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
soil containing material typical of asbestos insulation board	-	-	-	-	-	-	-	-	-	-	-	-
4.98	3.07	10.7	10.8	2.17	1.28	35.9	1.16	8.59	5.47	7.86	4.53	2.1
8.77	12	10.4	10.4	11	10.9	10.7	11.7	9.31	10.8	10.6	10.2	9.78
24	1.78	40.9	14.7	<1	<1	<1	<1	<1	2.99	1.48	<1	<1
<12	<12	79.3	<12	<12	13.6	<12	<12	<12	<12	<12	<12	43.6
77.4	14.9	14.2	18.4	9.76	9.18	12.3	1.71	9.43	11.2	6.64	11.3	7.72
8.79	3.32	9.62	5.14	2.11	0.221	0.47	0.0514	1.05	0.269	0.732	0.679	0.975
186	450	298	<9	51.4	11.1	122	70.3	128	33.5	33.8	50	36
80	97	33.2	32	27.4	12.9	31.5	2.24	21.5	10.3	21.7	23	21.5
220000	226000	213000	293000	172000	62600	63600	31300	71000	20600	30000	48800	28600
1500	283	2000	1240	131	69.8	98.4	2.45	50.9	18.8	29.8	62.9	34.9
48200	39900	21700	9840	5650	3100	12100	9960	9770	931	3210	4310	1280
<1.4	<1.4	<1.4	1.7	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
83.7	40.5	22.7	18	27.3	14.4	19.6	1.65	18.1	23.9	10.9	21.7	30.8
54.7	16.8	11.6	<10	<1	<1	4.93	4.75	3.93	<1	1.98	1.64	<1
544	1690	466	94.1	81.8	56.1	241	205	185	46	101	88.1	39.3
4620	892	5000	2660	143	66.8	280	21.6	209	171	217	398	106
<0.01	0.0122	<0.01	0.0134	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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<50	109	<50	<50	<50	<50	<50	<50	<50	119	536	<50	52
<20	357	<20	73.7	<20	<20	<20	<20	<20	398	1440	<20	168
99	105	97.1	70.4	102	100	77.9	91.2	73.3	105	127	95.1	106
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<1000	12300	11400	8890	<1000	1130	10900	6370	11100	10100	4710	<1000	<1000
2980	47700	40500	10100	16400	21500	124000	38000	113000	81000	107000	13100	22200
<1000	7640	5940	1500	7040	10100	16000	5030	6140	7460	9730	1930	1740
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<10000	143000	221000	97300	23600	54400	241000	69500	432000	214000	274000	66900	77700
94	96.6	88.7	84.6	87.7	85.8	88.1	87.2	85.6	85.1	86.2	88.8	87.5
97.4	97.3	91.9	83.9	82.9	81.3	84.3	82.7	83.6	83.8	85.2	86.8	85.2
101	101	94.3	75.9	81.8	80	81.7	82.4	84.4	84.6	84.8	87.6	84.6
100	105	78.7	41.8	79.9	80.2	82.7	84	85.3	86.8	87.2	86.9	85.9
88.1	99	59.8	25.6	78.7	80.7	80.2	82.5	82.5	83.8	84.3	86.4	85.4
35.9	69.3	356	1780	<45	<45	126	91.4	192	197	169	28.4	23.4
<12	<12	25.1	47.9	<60	<60	<60	<60	80.4	80.7	72.6	<12	18.4
22	114	69.9	152	<40	<40	87.1	<40	30.5	52.4	136	<8	15.5
23.2	71.7	250	410	<50	<50	84.4	<50	49.9	85	81.1	<10	21.2
178	1170	1100	837	<75	<75	756	579	327	1170	4910	85.2	84.9
54.1	178	408	246	<80	<80	263	181	104	299	945	24.7	51
279	2100	1890	717	113	113	1630	1510	656	6770	11800	137	208
254	1970	2160	961	100	106	1480	1510	541	5430	8250	124	161
142	1230	691	159	<70	97.5	1610	1190	409	4770	5240	71.6	145
150	1390	645	152	87.6	104	1590	1230	430	4400	5080	87.5	134
191	1850	1020	215	145	201	2920	2060	731	5670	5670	120	152
63.9	712	253	51.7	<70	<70	877	635	222	1810	1880	36.8	57.6
130	1570	496	93.3	<75	119	1720	1250	412	2840	2970	62.5	94
89.2	1050	318	63.6	<90	136	1430	1010	368	2210	2070	54.1	59.9
<23	158	69	<23	<115	<115	428	254	98.4	678	626	<23	<23
80.6	1050	333	70.1	<120	<120	1390	997	362	1890	1800	53.6	53.1
1690	14700	10100	5960	<590	876	16400	12500	5010	38400	51700	884	1280
108	105	105	97.5	107	108	106	106	107	110	107	105	105
96.4	96.9	96.5	93.9	99.3	99.7	101	99.3	101	99	101	101	101
105	103	102	88.3	95.9	98.6	94.7	93.1	97.6	91.8	89.5	95.9	95.6
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AQ10-1	AQ10-2	AV11-1	AV11-2	AW11-1	AW11-2	AN13-1	AN13-2	AN14-1	AN14-2	AN14-3	AN15-1	AN15-2
0.20-0.20	1.80-1.80	0.40-0.40	1.75-1.75	0.40-0.40	1.75-1.75	0.60-0.60	1.80-1.80	1.00-1.00	1.70-1.70	2.50-2.50	0.40-0.40	1.60-1.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
210108-19	210108-19	210108-19	210108-19	210108-19	210108-19	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52
23512094	23512099	23512035	23512079	23512083	23512087	23513440	23513530	23513568	23513578	23513589	23513603	23513615
1.8	1.8	1.8	1.8	1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Black	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Loam	Loamy Sand	N/A	Sandy Silt Loam	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand	Sand	Stone/Soil	Sand	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Stones
Vegetation	Crushed Brick	Vegetation	None	Brick	None	Vegetation	N/A	N/A	Vegetation	N/A	Stones	N/A
12	13	16	11	12	18	14	17	16	14	17	15	15
						-	-	-	-	-	-	-
13/01/21	-	13/01/21	-	13/01/2021	-	13/01/21	-	14/01/21	-	14/01/2021	-	13/01/21
Andrzej Ferfecki	-	Andrzej Ferfecki	-	Christian Hallam	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	James Richards	-	Andrzej Ferfecki
						-	-	-	-	-	-	-
						-	-	-	-	-	-	-
						-	-	-	-	-	-	-
						-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
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Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
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-	-	-	-	-	-	-	-	-	-	-	-	-
2.31	1.98	8.03	3.81	4.9	8.96	4.5	4.83	38.1	9.93	3.59	16.5	2.24
8.95	10.6	9.87	11.5	11.4	11.4	10	11	11.6	11.7	11.4	11.1	11.3
<1	<1	9.84	4.26	3.98	4.98	<1	3.78	<1	1.64	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	21.3	<12	<12	<12	22.2	16.7
5.43	6.44	11	6.24	8.97	17.4	9.08	7.32	4.18	7.08	7.48	8.84	6.72
0.309	0.323	6.55	1.96	4.59	7.51	0.098	0.706	0.995	0.629	0.0585	0.205	2.1
86.8	13.8	271	289	328	182	97.1	42.8	224	37.1	50.1	24.1	14.2
14.3	17.9	32.3	19.6	24.3	38.4	16	29.9	13.3	13.6	12.7	21.4	12.6
56000	87600	225000	126000	180000	291000	51400	40000	21200	34500	36600	69800	130000
44.7	27.6	722	285	626	901	56.1	12.3	20.3	28.2	11.7	41.1	43.9
7580	2790	28000	19900	28400	21000	9950	2940	4780	3740	4800	4120	3890
<0.14	<0.14	<1.4	<1.4	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
14.6	15.2	25.6	11.1	19	38.2	15	16.4	11.9	10.3	13.8	19.4	16
3.15	<1	11.3	10.8	14.6	<10	4.34	1.82	7.25	1.9	2.79	<1	<1
147	44.1	993	441	568	652	145	83.9	320	89.2	197	46.2	37.5
139	126	2900	886	2050	3090	307	49.9	103	139	59.7	88.8	154
<0.01	<0.01	0.0119	<0.01	<0.01	0.0122	<0.01	0.012	0.0119	0.0117	<0.01	<0.01	<0.01
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<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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<20	<20	239	112	<20	<20	<20	256	<20	194	75	<20	<20
103	92.8	97.4	98.5	84.4	112	83.9	116	50.1	83	106	60.2	113
<10	<10	23.8	30.2	<10	<10	<10	26.4	<10	14	19.4	<10	<10
<10	<10	25	40.3	<10	11	10.4	46.8	17.9	56.2	21.8	<10	<10
<10	<10	114	41.4	<10	13.4	12.8	109	19	67.9	33.9	<10	10.6
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<1000	<1000	1790	3390	1420	2110	3460	14500	18200	2590	3930	2850	1490
3640	4320	16300	16600	13600	19800	19600	23500	210000	41700	16600	27400	12900
10700	23300	48400	43900	53800	67400	47800	30800	72100	78400	20200	31400	53300
2810	12200	12300	8120	11600	16200	12100	8030	53900	29500	5880	37300	94400
17400	40200	79300	72000	80400	106000	83500	77600	355000	152000	46700	99600	162000
31600	63800	115000	91900	109000	145000	115000	147000	542000	349000	86500	176000	223000
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<10	<10	76.2	26.9	<10	<10	<10	73.2	13.1	45.6	23	<10	<10
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10900	20400	27000	14600	21900	28900	25100	48400	113000	137000	26000	57700	50300
2590	2580	2740	1170	1390	2480	2450	5560	5530	18100	8490	9430	9290
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14200	23600	35400	19800	28100	39600	31100	69100	188000	196000	39800	76700	61300
31600	63800	115000	92000	109000	145000	115000	147000	542000	349000	86600	176000	223000
87.9	89.3	89.4	92.2	85.7	87	87.2	85.9	86.9	87.2	90.3	89.5	86.5
85.8	85.7	84.7	89.8	83.7	84.5	85.6	87.7	91.3	86.8	90.4	87.9	85.4
85.8	86.2	79.8	87.2	83.3	82.8	89.8	92.9	98.9	88.4	91.7	91.8	87.5
83.4	83	62.1	76.3	78.2	75.8	105	107	104	82.4	91.6	93.2	107
79.9	83.6	49	62	71	66.2	99.5	97.5	101	76.9	97.2	94	101
21.7	<45	94.2	225	207	123	161	165	880	1310	92.7	387	57.7
<12	<60	80.3	42.9	53.5	37.4	149	213	1310	751	43.3	216	<60
<8	<40	16.4	22.8	29.1	36.5	26.2	23.1	111	110	11.7	<40	<40
<10	<50	28.6	36.8	45.8	62.8	141	102	1120	624	47.4	104	<50
62.9	<75	219	244	402	560	1090	812	8490	5380	315	1030	124
<16	<80	74.5	71.1	117	137	330	273	1830	1710	78.4	278	<80
117	<85	601	422	732	796	1850	2040	13500	9010	461	2300	249
103	<75	607	430	718	669	1400	1420	10400	8180	384	2070	249
81.2	<70	392	240	395	418	1030	1040	6020	4710	290	1350	162
106	<50	466	308	503	470	975	1030	4870	4100	263	1120	139
163	<75	715	414	710	583	1580	1630	6400	5000	361	1750	249
51.2	<70	226	143	208	193	501	449	2570	1900	125	605	<70
89.8	<75	375	234	350	326	883	924	4900	3850	293	1300	136
84.8	<90	328	202	289	243	713	751	4260	3120	270	1120	120
<23	<115	56.3	36.9	71.3	50.1	147	147	901	671	57.7	220	<115
88.4	<120	332	190	290	208	686	671	3510	2810	235	1060	<120
969	<590	4610	3260	5120	4910	11700	11700	71100	53200	3330	14900	1480
108	107	102	107	109	109	105	104	101	103	106	104	108
102	101	101	101	100	101	98.8	99.1	95.5	96.4	97.6	96.9	95.5
100	96.7	96.6	97.6	97.3	96.8	92.8	96.8	85.3	89.4	91.4	91.7	90.3
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AN16-1	AN16-2	AN16-3	AN17-1	AN17-2	AN18-1	AN18-2	AN19-1	AN19-2	AO18-1	AO18-2	AO19-1	AP19-1
0.60-0.60	1.20-1.20	2.90-2.90	0.30-0.30	1.90-1.90	0.60-0.60	1.70-1.70	0.30-0.30	1.50-1.50	0.10-0.10	1.10-1.10	0.90-0.90	0.40-0.40
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52	210108-52
23513623	23513634	23513448	23513456	23513467	23513491	23513499	23513507	23513518	23513474	23513483	23513522	23513536
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Red	Dark Brown
Sand	Sand	Sand	Sand	Sand	Loamy Sand	N/A	Loamy Sand	Stone/Soil	Loamy Sand	Sand	Shale	Loamy Sand
Vegetation	None	Stones	None	Vegetation	Stones	None	Vegetation	None	Stones	Stones	N/A	Vegetation
Stones	Stones	None	Stones	Stones	N/A	Stones	Stones	Stones	None	N/A	None	Stones
12	13	11	15	18	14	14	9.9	12	24	18	12	10
-	-	-	-	-	-	-	-	-	<0.001	-	-	-
-	14/01/21	-	13/01/21	-	14/01/2021	-	14/01/2021	-	13/01/2021	-	14/01/2021	-
-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	James Richards	-	James Richards	-	James Richards	-	James Richards	-
-	-	-	-	-	-	-	-	-	<0.001	-	-	-
-	-	-	-	-	-	-	-	-	None	-	-	-
-	-	-	-	-	-	-	-	-	N/A	-	-	-
-	-	-	-	-	-	-	-	-	<0.001	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	Fibre bundles in soil	-	-	-
10	4.57	3.64	28.6	19.3	10.6	2.95	4.07	5.57	3.29	45.2	0.5	2.72
11.2	11.7	11.5	11.4	11.5	10.9	10.6	10.8	10.6	10.8	11.2	10.9	10.9
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	39.3	<12	<12	<12	<12	<12	<12	<12	<12
4.74	6.84	5.9	7.05	12.9	15.3	6.61	6.34	6.99	11.5	6.02	7.46	6.46
1.44	1.55	0.49	0.242	1.92	<0.02	0.585	1.02	0.698	1.25	1.58	0.538	2.85
150	11.2	14.3	172	81.3	<0.9	13	32.3	76.7	153	48.3	24.7	55.7
19.4	12.9	15.9	<14	25.4	20.1	14.1	19.1	18	32.8	16.5	17.8	16.6
111000	135000	28300	116000	153000	102000	32000	19300	11800	78500	120000	9750	195000
489	31.8	19	25.8	37.1	61.8	19.4	32.2	18	62.2	82.1	9.87	125
12800	2610	943	17700	9570	1960	649	4430	3810	10800	5300	530	5320
<0.14	<0.14	<0.14	<1.4	<0.14	0.243	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
14.6	14.2	16.3	13.1	18.1	25.6	15.8	12.6	15.6	19.3	24.8	27.1	39.6
4.69	<1	<1	<10	2.08	<1	<1	2.01	2.36	4.24	<1	<1	<1
268	36.1	27.1	491	142	45.1	23.6	85.5	122	275	128	34.1	107
101	106	49.5	64.6	120	184	54.3	101	128	308	147	50.1	296
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0122	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	0.0246	<0.01	<0.01	<0.01	<0.01	<0.01	0.0122	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
101	<50	60.5	81.9	62.7	61.5	735	<50	<50	<50	160	<50	79.9
<50	<50	<50	<50	<50	<50	421	<50	<50	<50	58.6	<50	<50
101	<20	60.5	81.9	62.7	61.5	1160	<20	<20	<20	218	<20	79.9
65.6	106	127	50	73	91.4	83.8	71.6	79.6	74.1	53.1	95.8	81.4
10.2	<10	<10	<10	<10	13.9	29	<10	<10	<10	17.1	<10	<10
28.3	<10	20.2	36.3	24.6	23.2	74.2	<10	<10	<10	70.8	<10	22.2
62.2	<10	40.3	45.6	38.1	24.4	632	<10	<10	<10	72	<10	57.7
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
1650	<1000	<1000	<1000	1540	1420	<1000	<1000	1130	1560	1780	<1000	<1000
13800	<1000	<1000	4050	12900	13600	2160	2780	2270	4350	11000	<1000	4050
16500	16500	1130	13600	50700	44800	10200	23300	22700	20900	67900	<1000	53000
<1000	4620	<1000	3210	21400	16700	4080	36700	25600	4690	33100	<1000	39100
32600	22000	<5000	22000	86600	76700	16900	63000	52200	31600	114000	<5000	96400
230000	30300	<10000	142000	129000	131000	30000	111000	79100	78700	252000	11600	135000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	11	<10	<10
40.7	<10	26.9	30.4	24.6	16.2	421	<10	<10	<10	47.6	<10	38.9
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2670	<1000	<1000	2250	1030	1040	<1000	<1000	<1000	1360	3260	<1000	<1000
32000	<1000	<1000	25300	6770	2900	<1000	1380	1250	8790	21200	<1000	3010
138000	6520	<1000	82700	32100	38300	10500	40000	23000	30900	101000	9930	33100
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3540	<1000	<1000	1120	<1000	2480	<1000	1540	<1000	<1000	1760	<1000	<1000
197000	8270	<5000	120000	42900	54100	13100	47800	26900	47100	138000	11400	38300
230000	30300	<10000	142000	130000	131000	31200	111000	79100	78700	253000	11400	135000
88.1	88.7	88.4	87.5	87.8	87.5	90	86.3	86.5	85.1	84.2	89.1	89.3
86.5	90.4	86.6	91.2	89.4	91	88.1	85.2	86.4	84.2	84.5	86.2	86.8
88.7	95.2	87.7	97.5	96.2	102	88.2	88.1	89.9	87.9	84.8	87.3	89.3
83.7	103	85.1	100	103	93.1	84.9	88.9	87.8	87.3	96.5	85.1	86.7
78	101	78	94	98.9	82.3	78.7	81.1	82.2	84	84.7	79.3	82.5
339	44.8	10.8	268	357	51.9	82.4	<90	114	302	1330	<9	90.2
828	77.9	<12	217	641	34.5	64.1	<120	23.6	119	2680	<12	46.5
49.5	<8	<8	68.2	36.1	<8	<8	<80	<8	43.3	252	<8	<8
272	57.6	<10	191	268	14.9	54	<100	22.2	143	5160	<10	19.9
2440	765	32.6	1900	2430	209	289	433	176	926	25900	21.8	220
1490	896	<16	585	2760	45.4	72.5	<160	26.1	232	6590	<16	70.4
8640	4100	37.1	3710	9100	351	356	826	195	1560	26900	34.8	425
6630	3150	32.1	2970	6750	303	253	702	162	1230	18900	29.7	349
4620	1960	22.6	1990	4950	180	145	374	107	762	10700	22.6	243
4100	2010	25.6	1760	4430	159	122	367	145	687	8740	18.8	237
4380	1740	25.6	2250	4520	214	106	361	106	743	12000	26.1	266
1710	657	<14	856	2110	78.3	50.8	156	44.8	335	3780	<14	95.9
3920	1430	19.6	1640	3730	157	118	308	77.7	709	7430	17.7	239
3270	1320	<18	1490	2910	127	88.4	308	70.4	540	5690	<18	243
693	227	<23	324	679	27.8	<23	<230	<23	116	1190	<23	44.6
2740	1060	<24	1250	2350	134	83	315	77.8	497	5030	<24	239
46100	19500	206	21500	48000	2090	1880	4150	1350	8940	142000	171	2830
99.6	105	107	101	101	106	106	105	107	104	99.5	108	104
96.2	98.3	98.6	93.9	96.7	97.9	97.6	97.4	97.8	98.8	92.1	96.7	97.4
88.5	94.1	92.8	85.3	89.9	93.6	89.6	92	93.4	91.7	76.8	97.4	91.4
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	<260	<260	<260	324	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AP20-1	AP20-2	AL12-1	AL12-2	AL12-3	AL13-1	AL13-2	AL14-1	AL14-2	AM15-1	AM15-2	AM16-1	AM16-2
0.40-0.40	1.80-1.80	0.50-0.50	1.00-1.00	2.15-2.15	0.30-0.30	1.50-1.50	0.30-0.30	1.70-1.70	0.50-0.50	1.70-1.70	0.20-0.20	1.80-1.80
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
07/01/2021	07/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
08/01/2021	08/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021
14/01/2021	14/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021
19/01/2021	19/01/2021											
210108-52	210108-52	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42
23513545	23513553	23518594	23518599	23518603	23518581	23518588	23518567	23518577	23518557	23518561	23518548	23518552
2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Stone/Soil	Loamy Sand	Sand	Sand	Loamy Sand	Loamy Sand	Sand	Sand	Sand	Loamy Sand	Sandy Clay Loam	Sand
Vegetation	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	Stones	Brick	None	Brick	None	Vegetation	None	Brick	N/A	Vegetation	Vegetation	Brick
12	14	10	17	19	13	14	10	12	13	19	14	13
-	-											
14/01/21	-	15/01/2021	-	15/01/2021	15/01/2021	-	15/01/2021	-	18/01/21	-	15/01/2021	-
Andrzej Ferfecki	-	Paul Poynton	-	Paul Poynton	James Richards	-	Paul Poynton	-	Andrzej Ferfecki	-	James Richards	-
-	-											
-	-											
-	-											
-	-											
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Detected	-	Not Detected	-	Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Detected	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-
-	-	-	-	-	-	-	Asbestos insulation debris in soil	-	-	-	Fibre bundle in soil	-
2.83	4.45	4.12	24.1	4.59	4.4	4.14	3.91	3.17	22.2	31.7	3.1	15
11.2	11.2	10.7	10.8	7.67	10.9	10.5	10.6	10.5	10.5	9.48	8.74	11.5
<1	<1	<1	1.52	1.02	<1	<1	1.42	<1	1.75	11.2	<1	<1
18.6	<12	<12	<12	<12	<12	<12	38.8	<12	<12	<12	<12	<12
13.4	11.2	19.4	20.1	12.5	8.73	12.6	17.3	10.4	4.58	6.25	45.2	12.8
0.179	0.542	2.16	1.41	<0.02	2.47	1.57	2.96	0.406	<0.02	0.731	0.432	0.484
11.3	16.2	58.1	57.2	28.5	268	22	66.9	67.2	187	42	581	50.9
7.82	16.1	38.4	71.4	15	32.9	23.4	50.6	26.4	25.3	30.4	259	28.6
24300	30000	176000	102000	23900	179000	138000	229000	59700	65700	35400	96600	43900
55.8	26.6	117	127	16	220	297	587	97.3	51.8	110	177	81.5
1040	1290	6070	2990	1430	13700	3980	4550	2630	12200	3630	11000	1920
<0.14	<0.14	<1.4	<1.4	<0.14	<1.4	<1.4	<1.4	<0.14	<0.14	0.235	2.21	0.182
10.1	20.2	22.9	65.1	12.5	26.5	38.4	51.1	28.4	8.76	13.6	48.4	28
<1	<1	<10	<10	<1	<10	<10	<10	<1	4.81	1.98	1.82	<1
25.5	31.5	132	67	44.9	364	67.5	64.9	78.2	302	69.8	144	38.7
91.3	89.5	288	293	58.6	548	321	267	99.2	116	182	437	233
<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	0.0115	0.0123	<0.01	<0.01
<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	0.0369	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0984	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.148	<0.035	<0.035
140	135	52.2	<50	70.7	96.6	<50	<50	<50	56.4	244	<50	<50
76.4	61.5	<50	<50	<50	<50	<50	<50	<50	<50	106	<50	<50
217	196	52.2	<20	70.7	96.6	<20	<20	<20	56.4	349	<20	<20
55.5	84.8	64.9	72.2	79.8	78	81.8	84.1	82.4	21.3	37.1	70.1	53.4
17.1	18.6	<10	<10	<10	<10	<10	<10	<10	<10	18.5	<10	<10
60.4	24.4	24.4	19.2	24.8	40.3	<10	<10	10.3	26.5	98.4	<10	12.7
62.7	91.6	27.8	22.8	45.9	56.4	<10	<10	10.3	29.9	127	<10	19.6
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1840	<1000	<1000	<1000
1090	<1000	2100	<1000	1200	5220	14000	4540	<1000	3450	<1000	<1000	<1000
19000	1040	8430	5470	135000	17700	124000	46500	11300	8910	1770	3850	1870
286000	14000	36900	71300	51600	110000	106000	728000	199000	24000	5620	20400	13700
157000	4150	9500	14800	3610	22200	5940	337000	41500	22800	1960	6130	2360
463000	19300	56900	92500	192000	155000	250000	1120000	252000	61000	9690	30600	18200
557000	24700	91600	329000	282000	201000	309000	1380000	307000	2290000	808000	101000	26500
10.3	<10	<10	<10	<10	<10	<10	<10	<10	<10	20.9	<10	<10
23.9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
42.2	61.5	18.9	14.4	29.8	38	<10	<10	<10	19.6	84.9	<10	12.7
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76600	3740	24300	152000	61600	38200	47100	255000	51300	1550000	389000	48600	5840
3340	<1000	3520	15700	4290	4890	9300	7440	3210	212000	44500	13400	<1000
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93500	5450	34700	237000	90000	46200	59000	263000	54900	2230000	799000	70200	8300
557000	24900	91700	329000	282000	201000	309000	1380000	307000	2290000	809000	101000	26500
90.1	88.2	83.8	83.6	86.6	88.4	81.9	72.6	87.9	79.3	83	86.2	86.2
90.1	86.4	86.5	83.4	86.8	90.4	83.8	77.9	88.3	80.3	84.8	85.8	84.8
89.1	87	94.9	89.5	90.5	93.6	88.6	79.3	90.2	80.1	83.8	88.2	87.4
85.3	83.8	89.2	87.5	94.2	89.6	83.4	76.3	87.5	72.8	82.6	83.7	81.1
76.6	79.4	77.6	85.7	81.5	85.9	75.1	72.8	82.9	74.4	78.2	80.6	80.6
595	108	476	482	1990	183	<90	<90	166	3380	26500	90.5	170
174	29.1	220	291	406	80	<120	<120	71.7	2170	9590	25.9	57.1
33.4	<8	44.9	106	247	42.1	<80	<80	<8	1750	937	75.2	<16
107	19.9	200	272	1720	70.6	<100	<100	44	3170	5880	74.2	35.1
1190	205	1420	5760	17400	527	<150	<150	321	39300	34500	702	473
423	45.1	731	1310	3580	215	<160	<160	83	10700	9310	202	101
2050	340	2490	12300	16700	1240	<170	<170	553	75800	56800	1120	857
1700	269	1920	9130	10900	997	<150	215	416	59100	43200	909	659
1160	166	1180	6050	6250	662	<140	<140	299	42000	25700	593	342
1140	171	1190	5940	5560	679	<100	<100	276	36100	24200	626	368
1450	211	812	7830	6860	1070	<150	<150	472	54100	35200	851	399
509	79.7	334	2830	2180	375	<140	<140	130	18900	10800	278	126
1120	165	865	5210	4170	607	<150	<150	279	39600	23700	517	229
840	156	662	4610	3160	489	<180	<180	247	31100	19300	408	160
156	31.9	151	1030	603	91.5	<230	<230	47	6870	4070	82.1	<46
810	157	629	4100	2610	473	<240	<240	213	27400	19400	369	144
13500	2150	13300	67200	84300	7800	<1180	<1180	3620	451000	349000	6920	4120
99	106	103	107	105	105	103	112	106	98.1	109	103	111
91.9	98.2	97.7	97.7	97.5	98.7	98.5	96.6	98	93.8	94.5	97.9	97.7
80.7	94.3	90.4	92.1	92.9	95.5	95.9	91.2	96.3	82.4	90	93.1	96.7
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	<260	<260	<260	<260	<260	<260	467	6330	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
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AM17-1	AM18-1	AM18-2	AM19-1	AM19-2	AM20-1	AM20-2	AM20-3	AN20-1	AN20-2	AN20-3	AO20-1	AO20-2
0.40-0.40	0.20-0.20	1.90-1.90	0.40-0.40	2.10-2.10	0.50-0.50	1.50-1.50	2.60-2.60	0.30-0.30	1.20-1.20	3.00-3.00	0.80-0.80	1.70-1.70
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
08/01/2021	08/01/2021	08/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021	07/01/2021
09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021	09/01/2021
18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021
210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42	210109-42
23518542	23518531	23518538	23518523	23518527	23518626	23518630	23518634	23518611	23518615	23518620	23518571	23518607
2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown
Sand	Sandy Loam	Sand	Loamy Sand	Loamy Sand	Sandy Clay Loam	Sand	Loamy Sand	Sand	Sand	Loamy Sand	Loamy Sand	Loamy Sand
Stones	Stones	Stones	Vegetation	Stones	Stones	Fibres	Stones	None	None	Stones	Stones	Stones
None	Vegetation	N/A	Brick	None	None	Hardcore/Rubble	N/A	Stones	Stones	N/A	N/A	N/A
9.6	15	9.4	10	14	15	12	14	12	13	12	16	14
-	-	15/01/2021	-	18/01/21	15/01/2021	-	15/01/2021	-	15/01/2021	-	-	18/01/2021
-	-	Paul Poynton	-	Andrzej Ferfecki	Paul Poynton	-	Paul Poynton	-	Paul Poynton	-	-	Agnieszka Chelmowska
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-
6.38	5.64	12.6	4	7.09	2.72	9.78	3.38	62.6	92.8	3.6	4.09	0.874
11.3	11	9.77	8.7	11	8.22	10.1	9.72	10.9	10.1	10.1	9.49	9.17
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	133	22.9
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	219
9.94	23	9.62	12.7	12.9	7.39	14	7.21	6.92	8.29	14.1	21.1	6.64
2	0.718	0.446	0.451	0.358	0.246	<0.2	<0.02	1.24	<0.02	1.44	0.344	0.201
280	181	34.3	62.6	49	20	33.5	28.9	<9	11.6	18.4	13.8	16.8
30.4	73.5	28.7	22.4	28.8	15.2	24.6	15.5	16.4	20.3	17	33.7	19
168000	58200	29200	36100	41700	25400	183000	61700	124000	90500	119000	40500	19000
147	99	41.3	45.2	66	38.6	147	68.7	91.9	23.9	49.8	43.1	21.8
13800	9510	9280	3520	3970	909	4140	1750	3510	1510	2060	593	415
<1.4	1.46	0.196	<0.14	0.299	<0.14	<1.4	0.367	<1.4	0.171	<0.14	0.204	<0.14
29.9	103	26.8	19.3	15.2	18	40.4	17.9	17.3	14.5	17	41.8	19.5
<10	3.25	3.88	1.75	1.94	<1	<10	<1	<10	<1	<1	<1	<1
234	181	39.7	117	71.7	31.6	42.7	33.1	44.6	24.2	42.3	44.9	26.4
278	348	141	264	225	94.3	405	148	77.4	57.3	75	193	100
<0.01	<0.01	<0.01	<0.01	0.0232	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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<50	<50	<50	<50	<50	<50	<50	108	<50	<50	<50	<50	60.3
<20	118	<20	<20	66.1	136	130	292	<20	<20	100	<20	186
75.3	74.1	80.8	87.2	84	85.4	104	99.4	76.9	33.3	103	116	118
<10	10.6	<10	<10	<10	14.2	18.1	18.6	<10	<10	<10	<10	<10
<10	35.4	12.1	<10	22	48.4	52	60.3	13.6	11.5	34.2	21.4	33.6
<10	72	17.6	<10	44.1	73.2	59.9	106	19.2	15	66.1	26.2	91.6
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1200	18000	<1000	<1000	<1000	<1000	3230	<1000	2480	11100	1240	1500	<1000
17400	41100	2320	2110	2030	<1000	19900	3120	9410	50800	5800	<1000	<1000
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6200	31800	2040	3160	1680	2330	22600	<1000	10700	34100	4270	<1000	<1000
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225000	542000	29800	72400	32100	11900	129000	10100	82000	212000	35800	12200	<10000
<10	<10	<10	<10	<10	<10	<10	20.9	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	17.4	<10	<10	<10	<10	<10
<10	48.4	12.1	<10	29	49.6	39.6	69.6	13.6	10.4	43.3	17.9	60.3
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
<1000	2000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	2390	<1000	2940	<1000
1260	5390	2210	2910	1490	<1000	1180	1280	3300	9440	1680	2330	<1000
96900	39600	12300	35500	11700	2670	25000	3140	13100	13700	3630	2650	<1000
37500	3030	1570	14600	1280	<1000	1830	<1000	<1000	1040	<1000	<1000	<1000
1870	<1000	<1000	1110	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
136000	50000	16100	53500	14700	<5000	28300	5750	18300	26600	6520	9270	<5000
225000	542000	29800	72400	32200	<10000	130000	<10000	82100	212000	35900	<10000	<10000
86	76.9	85	85.8	87.8	79	86	87.3	91.2	84.7	85.8	82.8	89.3
84.5	77.7	84.5	84.7	86.5	85.1	83.5	86.7	89.5	86.7	88.4	83.5	88.4
87	76.9	85.5	85.5	88.1	82.3	86	90.4	87.5	84.5	90	89.7	91
78.2	69.7	82.9	80.5	83.4	74.9	78.6	84.4	72	54.2	77.8	79.9	81.8
73.1	70.1	74	78.2	88.3	74.4	70.1	81.7	59.8	33.8	63.2	70.6	83.3
92.3	79.9	28.9	241	275	<45	98.3	256	49	156	65.8	346	25.3
<60	<60	14.7	70.5	76.2	<60	<60	57.4	<12	21	<12	21.6	<12
<40	<40	9.26	<40	68.4	<40	<40	12.2	9.05	46.1	<8	<8	<8
<50	<50	11.1	56.8	94.3	<50	<50	48.9	26.4	114	27.6	19.5	<10
192	466	119	397	694	<75	242	290	198	597	179	309	52.8
<80	127	23.7	<80	160	<80	<80	76.5	32.1	102	32	32.8	<16
309	890	173	689	1170	<85	392	473	130	298	137	164	54.4
261	747	142	518	904	<75	333	342	121	253	108	145	40.3
159	442	92.3	380	579	<70	203	217	77.4	165	75.7	79.4	24.5
146	424	93.3	343	592	<50	178	223	85	153	69.4	106	24.1
260	550	108	654	981	<75	267	354	123	138	69.7	115	27.8
<70	189	37.7	182	300	<70	85.6	98.2	30.9	43.3	25.7	37.8	<14
143	421	72.9	345	566	<75	183	203	55.7	100	54.3	87.9	24.2
120	337	52.1	308	473	<90	153	176	42.1	59.6	42.4	167	27
<115	<115	<23	<115	<115	<115	<115	32.4	<23	<23	<23	28	<23
<120	318	57.4	282	449	<120	168	160	49.7	73.8	41	170	<24
1680	4990	1040	4470	7380	<590	2300	3020	1030	2320	928	1830	300
105	104	105	105	106	105	105	108	104	106	107	112	112
86.3	97.5	97.4	96.6	98.6	98.2	98.3	97.5	97.5	97.3	99.1	98.2	98.5
70.2	90.2	92.9	92.8	94.4	96	93.8	92.4	92.5	89.1	96	97.4	94.6
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<10	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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16.4	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.02	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<40	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AP19-2	AO12-1	AO12-2	AO13-1	AO13-2	AL10-1	AL10-2	AL11-1	AL11-2	AM10-1	AM10-2	AM11-1	AM11-2
1.70-1.70	0.50-0.50	1.20-1.20	0.30-0.30	1.80-1.80	0.10-0.10	2.00-2.00	0.30-0.30	1.40-1.40	0.20-0.20	1.90-1.90	0.20-0.20	1.80-1.80
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
07/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021
09/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021
18/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021
	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
210109-42	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39
23518515	23527346	23527351	23527359	23527365	23527439	23527534	23527299	23527369	23527539	23527546	23527550	23527559
2.4	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown
Silt Loam	Loamy Sand	Sand	Sand	Sand	Sand	Sand	Sand	Stone/Soil	Sand	Sand	Sand	Sand
Stones	Stones	Stones	Stones	Vegetation	Vegetation	Stones	Vegetation	None	Vegetation	Stones	None	None
N/A	None	None	None	Stones	Stones	Brick	Stones	Stones	Stones	None	Stones	Stones
18	10	10	11	15	13	10	12	11	9	7.9	9.4	14
15/01/2021	-	13/01/2021	-	14/01/21	18/01/2021	-	18/01/2021	-	18/01/2021	-	18/01/2021	-
Paul Poynton	-	Paul Poynton	-	Andrzej Ferfecki	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	James Richards	-	Marcin Magdziarek	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	-	-
2.24	61.5	1.24	5.74	4.17	8.79	2.45	5.84	1.98	2.69	1.3	4.19	15.3
11.2	9.14	12.1	11.8	11.2	8.84	10.2	8.99	10.2	9.3	9.41	11	11.1
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
8.11	4.56	8.07	9.06	9.45	10.2	8.24	8.96	5.84	8.22	6.68	6.77	8.23
<0.02	<0.02	0.207	<0.02	0.296	<0.02	0.5	<0.02	0.0296	1.54	<0.02	0.361	<0.02
33.9	24.3	8	10.7	9.87	35	57.2	118	12.6	<9	12.3	15.2	71.1
16.3	8.92	6.35	10.1	14.3	17.8	25.1	16	9.09	18.6	21.7	21.2	21.1
23700	15100	12500	42300	31700	63900	98500	71200	16200	174000	32700	53800	40200
17.9	2.62	16.4	36.4	15.4	61.8	57.8	26.8	12.5	343	19.2	30	30.4
2220	3080	721	2240	1240	3920	10300	11300	809	2790	891	1820	4130
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14
17.6	5.66	7.04	14.8	19	16.2	24.3	14.4	12.2	33.8	23.3	25.8	19.4
1.58	2.73	<1	1.09	<1	1.31	<10	3.25	<1	<10	<1	<1	2.2
62	37.5	24	21	23.8	60	180	213	20.2	55.7	24	37.9	85
105	35	43.3	75.8	64	161	128	125	62.1	128	66.4	92.1	107
<0.01	<0.01	0.0112	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
486	<50	<50	<50	103	<50	<50	<50	<50	<50	66.2	53.9	<50
271	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
756	<20	<20	<20	103	<20	<20	<20	<20	<20	66.2	53.9	<20
115	45.9	104	66.3	110	93	95.8	91.5	106	118	127	95.8	76.4
13.4	<10	<10	<10	17.7	<10	<10	<10	<10	<10	<10	<10	<10
65.9	<10	<10	<10	26	<10	<10	<10	<10	<10	27.2	19.8	15.2
406	<10	<10	<10	59	<10	<10	<10	<10	<10	39.1	34.1	22.2
2830	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
11500	<1000	<1000	1200	1790	<1000	1740	<1000	<1000	<1000	2620	<1000	2080
9190	3230	<1000	7830	3510	2150	34600	12500	<1000	2710	324000	4930	19800
17600	7140	7540	25500	13300	15700	33100	29000	2030	10500	135000	32600	45600
7130	<1000	1340	6050	3450	<1000	2850	4900	<1000	<1000	<1000	30900	19000
48300	11500	9100	40700	22100	19100	72300	47600	<5000	13700	461000	69000	86600
72200	215000	24400	210000	40700	61800	80900	81100	56400	46400	467000	91500	217000
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<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
271	<10	<10	<10	38.9	<10	<10	<10	<10	<10	26.1	23.1	15.2
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
1480	4640	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	3070
<1000	49300	2160	1650	<1000	1040	<1000	2150	18400	<1000	<1000	<1000	32000
17900	132000	9750	110000	12100	26500	6420	26600	29600	23300	3710	19900	84800
3960	17600	3220	56600	5290	15100	<1000	4560	4470	8920	<1000	1740	9930
1920	2400	<1000	13900	1040	1820	<1000	<1000	<1000	<1000	<1000	<1000	1300
23900	204000	15300	169000	18600	42800	8590	33500	53000	32700	5670	22500	131000
72900	215000	24400	210000	40800	61800	80900	81100	53000	46400	467000	91500	217000
89.1	74.1	85.2	76.6	87.6	87.4	86.1	89.8	88	71.1	88.1	76.9	84.7
90.2	74.7	91.4	76.2	92.5	91.4	91.3	91.6	92.5	71.6	87.8	77.4	90.1
91.8	76.3	96.3	77	97	94.1	95.8	99.3	99.7	73.8	88.6	81.1	95.2
83.4	74.8	95.9	77.5	96.1	95.4	97	97.1	93.2	71.2	87.3	76.5	95.9
79.4	70.1	85.9	77.7	85.9	85.6	86	87.5	88.1	70.2	85.1	72.9	88.2
28.4	602	39.7	106	49	30.2	11.6	24.9	51.6	<90	12.5	<90	7300
<12	1260	51.7	<120	29.3	14.2	21	26.3	50.2	<120	<12	<120	3540
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<10	983	23.5	<100	12.4	<10	24.8	14.6	39.4	<100	<10	<100	2960
55	6950	273	315	91.2	75.6	223	154	527	<150	37.8	<150	13700
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79	13400	675	594	200	142	341	390	974	<170	53.9	<170	13700
67.6	9780	510	475	169	117	259	370	760	<150	44.8	<150	10200
44.5	5620	330	292	132	86.9	151	278	455	<140	29.5	<140	4540
38.7	4800	333	283	117	98.3	121	307	453	<100	28	<100	4580
66.6	7640	384	462	131	89.6	157	510	644	<150	41.1	<150	5050
19.4	2530	146	<140	68.7	38.6	49.2	164	191	<140	<14	<140	1690
35.7	4770	292	253	146	81.7	108	338	427	<150	22.3	<150	3940
33.9	3880	260	225	140	77.9	91.2	297	391	<180	<18	<180	3170
<23	704	48.6	<230	28.6	<23	<23	46.4	83.2	<230	<23	<230	569
30.3	3590	230	<240	124	76.5	81.2	291	383	<240	<24	<240	3030
499	68900	3690	3000	1470	928	1680	3270	5580	<1180	270	<1180	82200
107	98	102	97.6	104	104	105	106	105	106	113	111	115
97.5	94.8	96.9	95.6	98.2	96.6	98.7	96.4	99.1	98.1	99.2	98.2	98.7
94.3	82.8	92.8	91.3	94	90.2	97.4	90.6	93.9	97.8	95.3	93.7	94.3
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AM12-1	AM12-2	AM13-1	AM13-2	AM14-1	AM14-2	AM14-3	AO15-1	AO15-2	AO16-1	AO16-2	AP15-1	AP15-2	AP16-1
0.10-0.10	2.10-2.10	0.00-0.80	1.50-1.50	0.20-0.20	1.80-1.80	2.10-2.10	0.40-0.40	1.20-1.20	0.30-0.30	1.50-1.50	0.50-0.50	1.60-1.60	0.40-0.40
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	08/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021
12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021
12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39
23527563	23527310	23527315	23527320	23527326	23527335	23527341	23527374	23527380	23527390	23527397	23527402	23527407	23527414
7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Light Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Sand	Sand	Sand	Sand	Stone/Soil	Stone/Soil	Sandy Silt Loam	Sand	Sand	Sand	Loamy Sand	Sand	Loamy Sand
Stones	None	None	Stones	Vegetation	None	N/A	Stones	Stones	None	Stones	Stones	Stones	Stones
Vegetation	Stones	Stones	Brick	Stones	Stones	Stones	None	None	Stones	None	None	None	None
6.4	11	13	8.6	8.1	13	13	12	11	14	12	13	13	13
18/01/2021	-	13/01/21	-	18/01/2021	-	18/01/2021	-	14/01/2021	-	18/01/2021	-	18/01/2021	-
James Richards	-	Andrzej Ferfecki	-	James Richards	-	James Richards	-	Paul Poynton	-	Paul Poynton	-	Marcin Magdziarek	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
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4.12	8.4	5.83	7.15	10.7	<0.35	12.9	28.3	15.6	42.1	0.702	34.1	0.61	43.6
8.94	10.4	11.3	10.8	10.1	11	10.9	11.1	11.1	11.2	9.52	11.5	10.7	10.9
<1	<1	<1	<1	<1	<1	<1	<1	3.85	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
20.7	6.15	9.07	4.51	5.98	5.75	7.43	<6	4.63	<6	11.9	<6	10.2	7.74
0.227	<0.02	0.208	0.296	0.302	<0.02	0.33	0.74	<0.02	0.344	0.739	0.467	0.385	0.504
4.7	30.1	3.77	15.7	9.09	22.5	9.42	119	302	213	4.41	270	5.14	262
5.27	8.69	13.7	11.7	10.7	10.6	15	20.6	8.89	20.9	4.39	26.7	6.55	21
15000	22800	92900	39200	32700	28500	28300	94300	85900	98900	11300	104000	16700	88300
12.2	1.25	56.8	14	29.4	12	13	41.1	6.99	32.3	17	37.7	16.6	36.5
3940	3650	4690	3580	2800	3230	1900	80700	17600	17400	880	24300	500	12300
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3.86	8	17.6	9.86	10.3	13	13.2	23.9	9.77	17.5	6.65	18.8	10.8	24.2
2.22	2.55	<1	1.75	1.42	3.44	1.6	<10	3.82	<10	<1	13.2	<1	<10
14.8	35.2	36.5	22.8	33.2	25.9	19.3	154	334	537	23.8	602	21.9	243
59.3	76.5	125	58	237	74.8	97	146	60	95.9	54.9	90.4	55.9	159
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0113	<0.01	<0.01	0.0115	<0.01	<0.01
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35	114	88.9	85	43	82.4	96.4	15.4	27	17.8	85.9	22	97.5	62.8
<10	37	<10	<10	<10	<10	<10	10.3	<10	22	<10	25.3	<10	11.4
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5060	1860	39100	5380	3600	2290	1450	10400	9980	30000	<1000	77300	<1000	2430
15600	9290	62500	116000	18700	8340	6770	24900	23300	34100	3870	31800	<1000	11000
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23200	12900	170000	168000	34200	17100	12000	51800	71300	77500	<5000	138000	<5000	17400
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2340	<1000	2570	<1000	5020	2090	<1000	42900	58200	31100	<1000	136000	<1000	9240
87200	6170	68400	42900	31400	12600	9360	137000	156000	116000	1700	288000	<1000	40100
57600	<1000	7090	3830	3580	1430	1020	16000	19800	16500	<1000	34500	<1000	4460
6560	<1000	1700	<1000	<1000	<1000	<1000	2150	3200	1670	<1000	4960	<1000	<1000
148000	7840	78300	47700	41200	16300	11500	206000	240000	169000	<5000	477000	<5000	56000
171000	20900	248000	215000	75500	33400	23500	258000	311000	247000	<10000	615000	<10000	73500
87	90.4	81.2	88.2	86.4	79.3	85.7	85.5	91.7	87.9	88.6	82.5	89.8	88.9
89.7	90.9	86.3	89.5	92.4	81	87.3	91.2	92.2	88.1	86.8	90.6	87.7	87.7
95.1	96.6	89.3	93.2	98.1	83	91.2	96.3	90.5	94.5	86.6	90.7	87.6	87.9
93.3	95.5	89.3	86.3	95.9	82.3	89.1	94.7	83.3	80.7	84.8	92.6	84.9	82.6
83.2	88.6	81.9	84.7	81.6	77.7	83.2	83.3	81.5	74.9	86.1	85.5	85.9	78.8
87.1	27.9	79.4	23.5	270	<90	28	1160	1260	998	17.3	1540	25.1	619
144	47.2	71.9	21.4	147	<120	14.1	750	1050	3360	<12	2170	26.9	399
35.2	11.6	69.6	9.91	48.1	<80	<8	79.8	71.9	259	<8	174	<8	50.8
46.2	14.9	76.4	<10	104	<100	<10	302	694	4340	<10	1270	12	220
428	112	540	100	1310	253	105	3810	3660	27400	36.8	8980	71.1	2220
177	54.7	158	29.3	328	<160	19.7	1070	1390	6430	<16	3680	23.6	604
1300	407	1200	364	2720	528	157	9170	7640	29500	65.7	19700	149	4660
1140	336	1400	299	2260	417	121	7450	6370	24400	56.9	15900	114	3590
800	259	1100	218	1540	259	84.4	5080	3900	11700	41.3	8950	71.1	2450
648	260	917	190	1560	275	92.8	4590	3690	9220	38.3	7180	66.2	2240
1100	437	1110	275	2120	380	135	7010	5900	13800	68.7	9370	116	3560
373	127	458	88.6	712	<140	40.9	1680	1900	5130	20.6	3460	33.3	1290
749	258	905	184	1560	220	75.1	4390	3700	9550	33.9	7350	66.8	2100
731	214	708	134	1370	<180	67.3	3730	3240	7880	37.6	6260	63.2	1710
141	36.9	168	25.6	278	<230	<23	921	645	1410	<23	1230	<23	340
575	206	591	118	1280	<240	69	3220	2810	7020	34.6	5340	53.9	1450
8470	2810	9560	2080	17600	2330	1010	54400	47900	162000	452	103000	892	27500
108	101	108	104	102	103	103	92.8	98.9	97.7	103	98.1	118	106
95.6	97.3	97.8	97.4	96.8	96.2	96.5	88.6	91.8	93.8	98.2	95.4	99.7	95.7
79.9	90.1	93.7	91	89.5	90.3	89.1	72.3	79.9	84.3	96.2	86.1	98.7	87.4
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AP16-2	AQ17-1	AQ17-2	AQ18-1	AQ18-2	AQ18-3	AQ20-1	AQ20-2	AR19-1	AR19-2	AR20-1	AO21-1
1.80-1.80	0.20-0.20	1.90-1.90	0.40-0.40	1.00-1.00	2.20-2.20	0.50-0.50	1.40-1.40	0.60-0.60	1.30-1.30	0.60-0.60	0.90-0.90
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021
12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	14/01/2021
12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	22/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	26/01/2021
210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210112-39	210114-154
23527425	23527429	23527434	23527450	23527463	23527472	23527505	23527519	23527483	23527493	23527529	23543943
7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	6.7
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Sand	Stone/Soil	N/A	Sand	Loamy Sand	Stone/Soil	Sandy Clay Loam	Sand	Sand	Sandy Loam
Stones	Stones	Stones	None	Stones	Stones	None	None	Stones	Stones	Stones	Stones
None	None	None	Stones	Vegetation	None	Stones	Stones	Vegetation	None	None	None
13	13	10	14	6.5	13	10	13	13	7.9	10	12
											-
18/01/21	-	18/01/2021	-	18/01/21	-	18/01/2021	-	19/01/2021	-	18/01/2021	20/01/2021
Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Christian Hallam	-	Agnieszka Chelmowska	Paul Poynton
											-
											-
											-
											-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-
7.33	15.8	2.02	4.4	0.931	2.1	1.49	2.4	15.3	6.43	25.3	9.26
10.1	11.2	10.9	9.18	11.5	10.1	9.8	11.3	10.1	11.4	10.3	11.5
<1	<1	<1	<1	<1	<1	<1	1.55	<1	<1	<1	<1
<12	<12	<12	<12	<12	26.4	<12	<12	<12	<12	<12	<12
16.4	8.12	12.5	9.79	7.42	12	11.8	10.2	10	6.6	21.1	12.1
0.383	<0.02	0.316	0.832	0.353	0.25	0.801	<0.02	0.622	0.292	1.8	<0.2
21	114	58.3	118	6.77	<0.9	<9	51.1	111	373	24.5	<9
10.4	47.2	15.8	41.6	6.39	13.7	22.5	28.7	24.2	15.1	56.2	15.8
23500	56000	88000	66800	38000	31400	199000	78200	76800	15700	271000	171000
19.2	56.8	56.9	76.9	15.8	797	113	16	72.2	22.7	377	115
1690	10200	10000	11300	1230	742	2930	4650	10600	907	6350	2040
<0.14	<0.14	<1.4	<1.4	<0.14	0.163	<1.4	<0.14	<1.4	<1.4	<1.4	<1.4
13.3	18	15.6	22.5	10.7	11.9	40.5	18.7	25.5	23.6	73.5	48.7
<1	3.76	<10	<10	<1	<1	<10	<1	<10	<10	<10	<10
40.1	244	112	193	35.1	17.3	63.2	107	164	29.6	84.9	33.9
64	130	162	230	61.7	25	150	114	220	64.9	1260	146
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0115	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	0.0116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	0.0232	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	109	<50	<50	<50	<50	62.1	<50	<50	<50	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	109	<20	<20	<20	<20	62.1	<20	<20	<20	<20
67.8	110	103	79.2	116	91.3	74.4	77.5	40.4	79.9	80.8	91.1
<10	12.7	22.2	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	15	24.4	<10	<10	<10	14.6	26.5	<10	<10	<10	<10
<10	18.4	62.2	<10	<10	<10	17.9	35.7	<10	<10	<10	<10
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1170	37600	4370	2630	<1000	<1000	<1000	18100	4690	5020	4480	15600
6290	284000	30200	13500	19000	14100	5780	43300	8630	5750	33900	106000
<1000	81800	40700	2300	6040	1870	<1000	12600	3660	1190	20500	65600
7710	422000	77800	18700	25200	16000	6630	80500	17500	12000	59000	189000
18900	487000	98400	44300	32500	19100	11200	97500	129000	107000	84600	231000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
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<10	11.5	41.1	<10	<10	<10	12.3	24.2	<10	<10	<10	<10
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2100	15600	1380	2470	<1000	<1000	<1000	2770	35900	12300	<1000	1990
7710	43300	17100	17500	6090	1840	3110	12200	63300	72600	23000	37000
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11200	64900	20600	25600	7310	<5000	<5000	16900	112000	94500	25500	42600
18900	487000	98600	44300	32500	16000	<10000	97600	129000	107000	84600	231000
90.8	88.7	86.8	82.7	86.9	86.7	88	88.3	77	88.9	85.8	81.5
92	92	89.7	85.5	85.9	92.1	86.3	93.7	77.9	87.3	85.4	85.5
96.4	98	94.8	94.3	87.7	96.2	87.7	102	80.5	90.6	87.7	89.7
99.9	94.6	92	85	91.2	95.1	86.5	94.3	78.8	87.3	87.9	86.3
92.6	86.8	86.8	78.4	90.2	87.2	86.7	90.1	73	83.3	84.5	72.1
140	124	36.2	67.3	31	<9	78.7	106	624	540	90.5	328
91.1	29.3	25.1	<60	15.1	<12	22.4	68.4	363	1680	24.4	122
11.3	29.7	<8	<40	<8	<8	<8	9.97	<80	166	<8	<40
64.3	37.7	12	<50	<10	<10	18.8	36.5	260	2960	19	140
464	333	114	420	68.6	20.6	114	499	1570	13500	138	590
189	86.8	32.6	138	<16	<16	32.2	191	724	3090	40	152
843	601	283	641	129	20	154	1440	3650	15200	233	593
682	622	237	488	98.6	<15	118	1160	2600	9730	187	447
448	379	161	310	78.7	<14	81.5	636	1770	5470	133	228
453	426	165	385	68.4	15.5	78.2	618	1780	3960	138	268
610	544	228	350	127	<15	140	1000	2390	5700	204	294
190	171	66.8	143	38.1	<14	42.7	352	707	2010	60.8	99.4
358	319	131	293	73.4	<15	76.6	755	1420	3940	113	166
288	236	108	270	71.8	<18	74.6	633	1050	2820	87.6	160
59	60.2	<23	<115	<23	<23	<23	134	<230	596	<23	<115
274	240	106	256	70.8	<24	67.1	631	985	2210	96.3	<120
5170	4240	1710	3760	871	<118	1100	8260	19900	73600	1560	3590
103	104	105	107	104	104	115	117	98.6	105	114	107
97.5	97.1	99.2	96.2	96.9	98.1	98	99.9	96	98.5	98	96.9
89.1	91.3	98.5	93.3	91.6	96	94.8	96	84.6	96.8	91.1	94.3
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	<260	<260	<260	<260	<260	306	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AO21-2	AO21-3	AP21-1	AP21-2	AP21-3	AQ21-1	AQ21-2	AR21-1	AR21-2	AR21-3	AS20-1	AS20-2	AT20-1
1.60-1.60	2.50-2.50	0.30-0.30	1.90-1.90	2.40-2.40	0.40-0.40	1.90-1.90	0.30-0.30	1.20-1.20	2.00-2.00	0.40-0.40	1.70-1.70	0.30-0.30
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	11/01/2021	12/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021
26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021
210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154
23543949	23543955	23544156	23544165	23543938	23544143	23544149	23544096	23544133	23544137	23543930	23544000	23543960
6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Light Brown	Dark Brown
Sandy Loam	Sand	Sandy Loam	Sandy Loam	Sandy Silt Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Sand	Loamy Sand	Sand	Sandy Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Brick	Stones	Stones	Stones
N/A	Brick	Vegetation	None	Vegetation	None	N/A	None	None	Stones	None	Brick	N/A
13	10	10	8.1	20	11	16	13	11	11	7.1	6.6	11
-	-	-	0.007	-	-	-	-	-	-	-	-	-
-	21/01/2021	-	19/01/2021	-	-	20/01/21	21/01/2021	-	20/01/2021	20/01/2021	-	-
-	James Richards	-	Paul Poynton	-	-	Andrzej Ferfecki	Agnieszka Chelmowska	-	James Richards	James Richards	-	-
-	-	-	<0.001	-	-	-	-	-	-	-	-	-
-	-	-	None	-	-	-	-	-	-	-	-	-
-	-	-	N/A	-	-	-	-	-	-	-	-	-
-	-	-	0.007	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-
-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-
-	-	-	ACM debris typical of asbestos bituminous product in soil	-	-	-	-	-	-	-	-	-
3.43	3.03	17.8	3.36	7.43	12.9	4.21	15.5	18.1	4.05	2.93	5.76	0.426
11.5	11.7	9.83	9.93	9.49	9.35	9.8	10	10.2	10.7	11.5	11.9	11.5
<1	1.31	<1	3.93	1.16	3.73	<1	1.43	9.2	<1	3.58	2.2	<1
<12	<12	<12	<12	74.1	<12	<12	<12	<12	<12	<12	<12	<12
12.3	7.92	6.21	35.7	16.9	16.7	14	12.6	12.6	8.74	14.3	11.4	33.2
0.0685	0.108	1.55	<0.2	0.413	<0.2	<0.2	<0.2	<0.2	0.437	<0.2	<0.02	<0.2
21.7	16.9	49.5	<9	9.75	<9	<9	<9	74.3	<9	<9	17.3	<9
22.4	38.1	30.7	20.2	25.4	31.6	21.5	23.1	40.5	19.4	19.1	34.2	75.5
49700	35000	305000	374000	82600	230000	185000	223000	211000	100000	159000	44100	360000
27.5	19.5	150	94.3	36.4	160	110	98.9	117	30.8	100	26.2	77.7
1720	707	6190	7060	2000	4830	3160	6220	9100	3640	2900	1690	5610
<0.14	<0.14	2.18	1.89	<1.4	2.56	<1.4	<1.4	<1.4	<1.4	<1.4	0.164	<1.4
19.9	21.4	60.4	37.9	30.1	58.4	35	57.9	71.6	54.7	36.2	14.6	93.4
<1	<1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10
51	20.7	208	122	82	88.4	72.2	77.7	176	48	51.2	28.9	62.9
76	64.2	564	159	68.8	483	347	237	314	165	172	129	194
<0.01	<0.01	<0.01	<0.01	0.0504	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	0.0126	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	0.0378	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	0.101	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
913	206	<50	<50	263	<50	<50	<50	51.5	<50	<50	<50	<50
581	133	<50	<50	139	<50	<50	<50	<50	<50	<50	<50	<50
1490	339	<20	<20	402	<20	<20	<20	51.5	<20	<20	<20	<20
94.1	112	104	100	89.1	78.5	104	108	99.2	87.5	86.1	105	84.5
11.4	<10	<10	<10	11.3	<10	<10	<10	<10	<10	<10	<10	<10
68.4	31.4	<10	<10	44.1	<10	15.5	12.7	22.4	13.4	<10	<10	<10
833	175	<10	<10	208	<10	28.6	20.7	29.1	22.4	10.8	<10	<10
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<1000	<1000	<1000	1660	1090	<1000	<1000	<1000	<1000	2470	4040	<1000	<1000
2510	2640	6160	17800	2540	7110	1110	4980	10500	4480	95300	9070	2940
19900	19300	15700	84400	9790	11000	5210	22100	157000	17300	171000	30700	60800
13400	7480	2840	37000	1680	<1000	<1000	6460	41400	1300	61400	21600	33300
36000	29500	25100	141000	15300	19200	7160	34100	211000	25500	332000	62000	97000
48100	36600	45200	156000	384000	46800	12400	70500	288000	53000	361000	74900	114000
26.2	16.8	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
555	116	<10	<10	139	<10	19	13.8	20.2	15.7	<10	<10	<10
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8680	5040	16100	11400	217000	20400	3940	32500	67500	25800	27300	11400	15200
1810	<1000	<1000	1000	24500	5600	<1000	1880	2560	<1000	<1000	<1000	1130
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12100	7070	20100	15300	368000	27600	5220	36400	77700	27400	29300	12900	16800
49600	36900	45200	156000	384000	46800	12400	70600	288000	53000	361000	74900	114000
91.6	85.3	84.2	89.3	90.4	91.2	87.9	83.8	84.7	88.9	85.8	86.3	86.1
87.9	82	87.1	88.4	86.2	87.1	85.7	82.9	82.8	87.1	90.8	88.1	83.3
88.3	81.2	92.4	88.4	84	84.4	84.4	82.9	83.5	84.6	97.5	94.3	81.6
113	73.6	88.5	89.4	73.4	78.6	87.2	91.2	77.4	75.5	93.6	93.8	72.9
120	71.9	72.3	86.1	67.3	74.7	84.1	88.3	73.5	72.4	86.2	88.2	70.3
274	267	267	26.3	77.4	145	24.6	125	209	26.3	163	65.7	44.1
179	<12	104	<12	<12	43.8	<12	40.7	73.8	<12	32.4	15	<12
<16	<8	14.4	<8	<8	<8	<8	11.6	34.4	<8	<8	<8	<8
57	13.8	78.8	13.8	<10	27.2	<10	21.5	54.9	<10	26.3	11.5	<10
490	92.9	760	58.3	93.1	275	29.7	413	1790	53	186	85.3	53.1
247	<16	196	<16	<16	70.5	<16	94.6	398	<16	48.8	19	<16
1170	54.3	1330	42.3	110	399	30.7	849	3420	91	346	192	52
838	41	1030	44.6	79.8	313	26.1	635	2410	71.3	295	161	43.7
721	23.3	653	22.8	51.3	230	20.3	441	1400	41.6	185	113	26.3
611	29.8	622	30.6	52.2	226	22.8	427	1290	45.6	199	112	36.1
1020	33.6	901	49.3	65.7	454	31.6	740	1870	59.8	245	185	45.7
347	<14	286	<14	21.8	126	<14	246	538	19	85.7	63.1	<14
667	<15	527	21.9	37	241	18.1	438	1260	37	137	107	22.1
539	<18	485	24.2	30.6	232	<18	422	975	36.6	110	90.5	23.1
119	<23	97.9	<23	<23	48.2	<23	87.1	218	<23	28.2	<23	<23
480	<24	411	<24	<24	211	<24	392	933	32.8	114	90.4	<24
7760	556	7770	334	619	3040	204	5380	16900	514	2200	1310	346
106	108	101	105	111	104	115	108	105	111	108	110	109
97.7	96.1	94.5	97	95.4	98.2	99.6	96.6	96.5	96.8	95.4	97.7	95.9
91	91.2	83.6	92.4	87.9	95.5	97.7	93.2	86.3	93.7	93.1	96.1	90.6
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AT20-2	AT21-1	AT21-2	AT22-1	AT22-2	AT22-3	AU20-1	AU20-2	AU21-1	AU21-2	AU22-1	AU22-2	AV20-1
1.00-1.00	0.30-0.30	1.90-1.90	0.40-0.40	1.00-1.00	2.50-2.50	0.40-0.40	1.60-1.60	0.40-0.40	1.50-1.50	0.50-0.50	1.40-1.40	0.50-0.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021
26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021
210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-154
23543966	23544071	23544080	23544090	23544110	23544114	23543974	23543980	23544054	23544062	23544119	23544127	23543984
6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	N/A	Sand	Stone/Soil	N/A	Sandy Loam	Loamy Sand	Sand	N/A	Sand	N/A	Loamy Sand
Stones	ar19	Vegetation	Stones	None	Stones	Stones	Stones	None	Stones	None	Stones	Brick
None	Stones	Stones	None	Stones	None	None	None	Stones	None	Stones	None	Stones
9.8	11	10	12	11	4.3	10	8.8	7.3	7.3	14	5.8	9.9
-	<0.001	-	-	-	-	-	0.007	-	-	-	-	-
20/01/2021	21/01/2021	-	20/01/2021	-	20/01/21	-	20/01/2021	19/01/2021	-	-	21/01/2021	-
Agnieszka Chelmowska	Paul Poynton	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Paul Poynton	Paul Poynton	-	-	Paul Poynton	-
-	<0.001	-	-	-	-	-	<0.001	-	-	-	-	-
-	None	-	-	-	-	-	None	-	-	-	-	-
-	N/A	-	-	-	-	-	N/A	-	-	-	-	-
-	<0.001	-	-	-	-	-	0.007	-	-	-	-	-
Not Detected	Detected	-	Not Detected	-	Not Detected	-	Detected	Not Detected	-	-	Not Detected	-
Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	Loose fibres soil in soil	-	-	-	-	-	Loose fibres and ACM debris typical of asbestos bituminous product in soil	-	-	-	-	-
>100	4.33	3.45	73.8	<0.35	1.64	4.19	5.05	9.91	4.29	30.5	8.05	3.76
10.4	11.1	11.1	9.11	11.7	11.1	11.5	10.7	10.2	10.5	11.4	10	11.2
<1	<1	1.63	<1	3.98	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
<6	14	7.8	13	<6	<6	13	8.46	12.2	10.2	10.1	9.84	7.97
<0.2	<0.2	0.357	<0.2	<0.2	<0.2	<0.2	0.997	1.42	1.39	<0.2	<0.2	1.63
<9	<9	11.8	<9	615	<9	10.7	55.3	40.7	<9	213	35	91.4
<14	17.6	15.2	22.7	16.5	<14	24.4	25.7	18.4	<14	<14	14.9	20.9
42500	208000	87000	234000	188000	193000	113000	199000	281000	197000	123000	96000	207000
15.7	63.5	29.1	45.8	11	7.9	56.7	80.1	27.1	12.5	55.3	46.5	145
767	3230	2750	5060	48600	3050	3420	4960	5850	3220	2330	4160	8540
<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
8.38	39.7	22.4	48.8	12.4	46.2	41.9	37.6	35.5	22.8	33.1	18	25.3
<10	<10	<10	<10	35.1	<10	<10	<10	<10	<10	<10	<10	<10
12	55.2	54.6	181	592	190	52.5	81.7	64	64.5	37.3	126	88.5
45.6	144	116	194	45.6	158	98.2	236	316	105	107	168	641
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0116	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	<50	<50	<50	86.7	<50	31.8	<50	<50	<50	<50	52.2
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	<20	<20	<20	86.7	<20	31.8	<20	<20	<20	<20	52.2
68.8	84.3	88.4	55.9	110	94.8	83.8	71.5	73.2	91.4	106	95.5	93.5
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	11.1	<10	<10	29.3	<10	11	<10	<10	<10	<10	18.9
<10	<10	17.8	<10	14.7	57.5	<10	20.8	<10	<10	17.4	<10	33.3
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
1710	<1000	7390	<1000	3830	2110	<1000	<1000	<1000	<1000	1160	<1000	<1000
3660	1140	7000	1460	13200	4930	2640	2260	3200	<1000	26400	1240	5880
18200	18200	13600	6260	9790	8620	31400	30800	16600	5530	221000	6590	56000
2750	7650	6570	<1000	<1000	<1000	19400	23900	4250	1220	41300	<1000	13600
26500	27000	34500	8130	26800	15700	53400	57100	24100	7490	290000	8050	75800
49100	42000	46200	29000	28700	21400	65600	75500	43600	17700	335000	11600	94900
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	12.2	<10	10.2	38.7	<10	13.2	<10	<10	11.6	<10	22.2
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
1380	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
5680	2130	<1000	4460	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1160
14400	11800	9900	14900	<1000	2850	10600	16500	17200	8640	42000	2010	16500
<1000	<1000	1350	<1000	<1000	<1000	<1000	1260	1640	1190	2260	<1000	1220
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
22700	15000	11600	20900	<5000	5670	12200	18300	19500	10200	45200	<5000	19100
49100	42000	46200	29000	26800	21500	65600	75500	43600	17700	335000	<10000	94900
92.6	92.2	90.5	87.1	86.9	87.3	87.4	88.7	89.4	89.6	83.5	86.8	88.7
89.3	87.7	86.3	86	86.4	88.3	85.5	89.5	87.4	86.4	81.5	85.9	87.6
81	83.8	84.6	80.3	89.3	91.5	84.2	93.1	89	85.3	76.5	82.7	85.2
56.6	76.2	79.9	66.6	84.7	88.5	76	90.7	78.2	78.6	73.5	73.1	79
44.6	79.2	79.6	53	84	82.9	73.6	82.1	70.9	76	72	70.8	74.4
74.5	141	24.7	71.9	14.1	145	40.8	28.4	63	55.3	<450	43.2	53.7
<12	59	<12	38.9	<12	<12	27.2	<12	33.7	<12	<600	<12	38
<8	9.58	<8	10.8	<8	9.7	<8	<8	9.75	<8	<400	<8	9.29
26.8	39.3	<10	23.8	<10	10.5	<10	<10	16.1	11.2	<500	<10	17.6
244	324	17	298	92.1	23.7	112	63.9	180	78.6	<750	62	194
38.1	82.5	<16	72.4	<16	<16	30	<16	43.9	<16	<800	<16	43.4
72.1	540	<17	426	117	20.3	197	84.7	307	98.3	<850	49.7	385
84.1	389	<15	371	189	17.9	183	70.4	253	77	<750	40.2	331
55.6	239	<14	246	116	<14	121	47.8	169	47.5	<700	24.9	212
83.5	242	12.5	240	141	<10	154	51.7	174	50.7	<500	36.5	249
73.9	374	<15	283	313	<15	163	81.5	303	53.4	<750	46.5	288
23.6	114	<14	110	114	<14	69.8	27.3	87.9	21.1	<700	<14	120
36.2	229	<15	241	230	<15	147	43.4	164	41	<750	21.8	240
23.2	199	<18	175	289	<18	146	40.4	147	37.5	<900	22.2	228
<23	37.1	<23	49.9	60.5	<23	28	<23	28.7	<23	<1150	<23	46.6
32	173	<24	210	306	<24	153	44.4	136	39	<1200	<24	227
867	3190	<118	2870	1980	227	1570	584	2110	611	<5900	347	2680
110	108	108	106	108	116	108	110	111	108	109	113	106
94	97.3	97.8	100	98.9	97.3	97.4	96.2	96.2	97.3	95.5	97.5	96.1
86.7	96.4	95.1	88.7	100	95.8	89.5	88.6	89.9	90.1	88.8	97	93.1
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AV21-1	AV21-2	AW20-1	AW20-2	AW21-1	AW21-2	AR29-1	AS29-1	AT29-1	AT29-2	AU23-1	AU23-2	AU28-1
0.40-0.40	1.60-1.60	0.30-0.30	2.00-2.00	0.50-0.50	1.50-1.50	1.20-1.20	1.00-1.00	0.50-0.50	1.10-1.10	0.50-0.50	1.40-1.40	0.50-0.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	12/01/2021	12/01/2021	13/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021
210114-154	210114-154	210114-154	210114-154	210114-154	210114-154	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156
23544032	23544041	23543990	23544006	23544014	23544023	23544315	23544309	23544291	23544302	23544336	23544341	23544284
6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Black	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sand	Sandy Loam	N/A	Loamy Sand	Sand	Sand	Sand	Loamy Sand	Loamy Sand	Sandy Clay Loam	Sandy Loam	Sandy Loam
Stones	Vegetation	Stones	None	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	Stones	None	Stones	Vegetation	Stones	None	None	None	None	None	N/A	Vegetation
9.3	19	16	5.7	7.4	20	15	11	12	24	20	14	13
-	-	0.0142	-	-	-	-	-	-	-	-	<0.001	-
20/01/2021	-	20/01/2021	-	20/01/21	-	-	20/01/2021	20/01/2021	-	-	19/01/2021	-
James Richards	-	James Richards	-	Andrzej Ferfecki	-	-	Paul Poynton	James Richards	-	-	Paul Poynton	-
-	-	0.0074	-	-	-	-	-	-	-	-	<0.001	-
-	-	None	-	-	-	-	-	-	-	-	None	-
-	-	N/A	-	-	-	-	-	-	-	-	-	-
-	-	0.0216	-	-	-	-	-	-	-	-	<0.001	-
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Trace	-
Not Detected	-	Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	Detected	Not Detected	-	-	Not Detected	-
-	-	Loose fibres in soil	-	-	-	-	-	-	-	-	Loose fibres in soil	-
11.4	5.07	7.78	1.17	6	1.79	61.9	12.8	22.1	98.8	4.98	4.47	3.28
10.5	10.9	9.12	10.4	11.4	11.5	11.7	11.5	10.8	10.4	9.06	10.8	9.07
1.62	<1	2.98	<1	4.14	11.2	<1	<1	<1	<1	<1	<1	<1
<12	25.8	<12	<12	<12	<12	<12	<12	<12	<12	<12	28.7	<12
22.5	10.8	16	8.02	8.04	14.3	5.37	6.29	4.22	5.02	13.6	6.17	7.86
<0.2	<0.2	0.636	<0.2	0.642	<0.2	<0.02	1.22	0.147	<0.02	0.839	0.309	<0.02
<9	85	109	<9	32.3	<9	307	222	25.6	8.05	226	77.9	26.5
27.4	21.5	42.2	15	22.5	15.7	19.3	<14	6.17	17.8	24.1	<14	15.2
325000	48000	144000	120000	141000	216000	64500	102000	32600	23900	87800	55000	53200
89.5	31.8	296	19.7	29.4	42.2	9.84	13.1	22.5	16.2	100	109	37.6
6800	6510	8550	3070	2700	5540	19000	19600	5800	1800	12600	6930	4440
1.56	<1.4	<1.4	<1.4	<1.4	3.44	<0.14	<1.4	<0.14	<0.14	<1.4	<1.4	<0.14
68.5	18.7	42.2	27.5	52.9	29.7	7.08	10.1	4.84	8.34	28.4	12.3	14.6
<10	<10	<10	<10	<10	<10	10.1	11.5	4.19	1.3	10.7	<10	1.61
89.1	142	173	52.9	31.1	61.1	895	480	51.5	26.9	236	140	60.3
272	116	897	79.7	119	161	35.5	522	49.7	46.3	476	265	136
<0.01	0.0124	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	193	<50	<50	<50	291	<50	<50	<50	<50	<50	56.2	<50
<50	64.5	<50	<50	<50	125	<50	<50	<50	<50	<50	<50	<50
<20	258	<20	<20	<20	416	<20	<20	<20	<20	<20	56.2	<20
70.3	107	86.4	90.3	83.1	100	80.1	79.3	79.7	35.1	86.2	117	113
<10	24.8	<10	3.18	<10	16.4	<10	<10	<10	<10	<10	10.5	<10
<10	73.2	14.3	10.6	<10	88.2	<10	<10	<10	<10	<10	21.1	<10
<10	95.5	22.6	23.3	<10	186	<10	<10	<10	<10	<10	24.6	<10
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
<1000	3830	3200	<1000	2310	55400	2780	<1000	2450	7050	<1000	<1000	<1000
2960	7570	23400	3260	21400	193000	10100	3780	15000	23700	1920	3580	1190
43000	22300	33500	56100	14700	16800	29900	20700	98800	35500	17200	10700	9020
14900	4700	8110	27600	2410	2190	4240	12100	67500	7370	4160	1170	1370
61000	38700	68700	87100	40900	267000	47200	37700	184000	73900	23400	16300	11700
76200	45300	123000	111000	87700	427000	58800	49400	225000	116000	42400	20300	32700
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	19.9	<10
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<10	64.5	15.5	15.9	<10	125	<10	<10	<10	<10	<10	16.4	<10
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13100	4840	39100	21700	27600	40600	8050	9560	34400	27900	14600	2440	17400
1380	<1000	9860	1440	11300	4640	<1000	1270	4610	3050	1300	<1000	1340
<1000	<1000	3240	<1000	1710	<1000	<1000	<1000	<1000	1190	<1000	<1000	<1000
15200	6570	54600	23500	46800	159000	11600	11600	40700	41800	19000	<5000	21000
76200	45500	123000	111000	87700	427000	58800	49400	225000	116000	42400	16400	32700
89.7	86.5	85.1	86.5	88	93.4	89.7	86.7	82.6	88.9	80.1	89.5	91.4
85.4	84.4	86.2	88.2	87	90.3	86.2	87.6	81.7	87.6	82	88.1	87
85.4	83	91.2	88.8	85	89.6	78	88.1	79.4	86.1	87.3	87.6	88.8
104	75	86.4	91.7	79.5	85	57	79.7	74	69.9	85.9	90.4	79
100	72.6	76.5	94	72	87.5	47.7	79.9	72.4	59.5	74.2	86.3	77.3
64.5	30	79.6	157	<450	1010	73.9	39	<45	76.7	84.1	205	<90
31.4	<12	113	<12	<600	927	<12	<12	<60	<12	51.3	<12	<120
<16	<8	<40	<8	<400	101	12.3	<8	<40	<8	13	17.3	<80
<20	<10	168	11	<500	458	22.1	12.2	<50	32.2	36.4	21.8	<100
123	102	1430	47.5	<750	1250	238	107	<75	256	270	117	<150
<32	<16	295	<16	<800	457	53.3	23.1	<80	39.1	83	19.6	<160
225	149	2320	44.6	<850	2810	310	165	164	170	542	157	<170
194	116	1630	37.9	<750	2750	261	149	258	322	424	126	<150
150	69.2	883	26.9	<700	2040	299	119	106	128	262	106	<140
162	84.5	637	26.4	<500	2030	321	126	153	194	274	126	<100
297	110	1120	44.6	<750	4200	357	220	209	187	366	183	<150
94.2	38.5	422	<14	<700	1180	134	66.9	<70	47.6	110	66.1	<140
143	55.8	657	22.1	<750	2590	292	135	98.4	94.7	217	99.9	<150
171	47.4	528	25	<900	2400	189	109	<90	71.6	175	94.7	<180
<46	<23	<115	<23	<1150	469	73.4	<23	<115	<23	34.4	<23	<230
160	48.9	481	<24	<1200	2010	201	98.9	<120	91.8	146	85.9	<240
1810	851	10800	443	<5900	26700	2840	1370	989	1710	3090	1420	<1180
106	104	113	112	109	105	108	105	111	105	107	108	108
98	96	97	96.8	96.4	97.3	94.5	98.2	95.8	96	96.7	96.7	95.8
91.7	92.1	90.8	94.7	91.1	95.1	87.2	97.1	89.8	90.4	93.6	95.3	92.3
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AV22-1	AV22-2	AV23-1	AV23-2	AV28-1	AV28-2	AV28-3	AV29-1	AV29-2	AW22-1	AW22-2	AW22-3	AW23-1
0.50-0.50	1.50-1.50	0.50-0.50	1.60-1.60	0.30-0.30	1.20-1.20	2.20-2.20	0.80-0.80	1.70-1.70	0.50-0.50	1.30-1.30	2.40-2.40	0.60-0.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/01/2021	12/01/2021	12/01/2021	12/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	12/01/2021	12/01/2021	12/01/2021	12/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021
210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210114-156
23544150	23544263	23544346	23544351	23544251	23544270	23544277	23544237	23544246	23544320	23544325	23544330	23544170
6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
Black	Dark Brown	Dark Brown	Light Brown	Dark Brown	Black	Black	Dark Brown	Black	Black	Black	Grey	Dark Brown
Loamy Sand	Sandy Loam	Sand	Sand	Silty Sand	Loamy Sand	Loamy Sand	Loamy Sand	Stone/Soil	Sandy Loam	Loamy Sand	Rubble/Soil	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones
None	Concrete/Aggregate	None	None	None	None	None	None	None	None	None	None	None
9	17	11	6.8	9.8	19	21	15	12	11	11	5.8	10
-	-	-	-	-	-	-	-	-	-	-	-	-
21/01/21	-	-	20/01/2021	21/01/21	-	20/01/21	20/01/2021	-	21/01/2021	-	20/01/21	-
Andrzej Ferfecki	-	-	Paul Poynton	Andrzej Ferfecki	-	Andrzej Ferfecki	Agnieszka Chelmowska	-	James Richards	-	Andrzej Ferfecki	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	-	Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	-	-
17.4	7.52	1.01	0.441	26	49.1	44	11.5	1.45	23.4	10.9	2.67	1.01
10.4	11.8	9.67	10.9	9.4	11.5	11.3	11.3	8.31	10.2	10.4	10.6	11.3
<1	1.54	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	30.1	<12	<12	<12	<12	<12	<12	127	<12	<12	<12	<12
9.2	12.4	6.51	2.8	7.62	9.8	11.7	17.2	4.66	8.42	19	<6	1.9
<0.2	<0.2	0.873	0.24	0.802	<0.2	<0.2	4.82	0.297	0.132	<0.2	<0.2	<0.02
<9	<9	23.7	57.2	219	<9	<9	<9	<9	138	<9	101	3.79
<14	15	10.2	3.15	19.1	19.6	17.8	43.9	14.3	15.3	41.3	<14	<1.4
238000	118000	22000	6400	208000	143000	146000	321000	14800	94200	264000	42100	10800
44.6	33.5	19.5	<0.7	29.1	51.4	74	1400	31.7	147	41.5	21.3	<0.7
3470	3140	2090	6650	8970	4270	4290	10900	2880	10400	4700	4710	3970
<1.4	<1.4	<0.14	<0.14	<1.4	<1.4	<1.4	<1.4	<0.14	0.239	<1.4	<1.4	<1.4
53.7	30.9	13	1.37	29.5	20.7	21.3	41.6	7.14	18.5	41.5	13.5	1.21
<10	<10	1.15	3.97	<10	<10	<10	<10	6.48	3.64	<10	<10	2.23
56.6	54.5	38	110	146	64.6	69	156	22.1	311	83.2	202	14.8
164	110	90.6	27.6	180	128	170	2780	83	449	116	43.6	21.1
<0.01	0.0121	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0113	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0424	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.0424	<0.035
<50	436	<50	63.3	<50	86.8	<50	<50	145	154	667	89.1	137
<50	259	<50	<50	<50	<50	<50	<50	57	<50	350	<50	<50
<20	695	<20	63.3	<20	86.8	<20	<20	202	154	1020	89.1	137
86.7	86.5	90.2	97.7	67	97.4	69.3	92.6	109	80.5	88.1	90.1	72.6
<10	<10	<10	<10	<10	13.6	<10	<10	18.2	38.4	42.9	18	27.8
<10	47.2	<10	16.1	<10	36	<10	<10	41	64.4	98.3	30.8	43.3
<10	388	<10	47.2	<10	37.2	<10	<10	85.5	50.9	525	40.3	65.5
<1000	3000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	13700	<1000	<10000
<1000	33100	<1000	<1000	<1000	2050	1170	<1000	4070	4050	9440	<1000	<10000
4470	50600	<1000	<1000	1790	6720	6340	20500	6360	11600	4010	1100	25000
19900	67000	<1000	5790	8620	12400	10800	38000	17000	32300	39700	2790	343000
6240	14300	<1000	1390	<1000	2220	1300	1090	6100	31300	18900	<1000	375000
31200	168000	<5000	7180	11300	23400	19600	60400	33500	79800	85700	<5000	747000
50400	198000	<10000	12500	31100	42100	34700	69200	39500	150000	99000	<10000	1160000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	259	<10	31.1	<10	24.8	<10	<10	57	33.9	350	27.6	43.3
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1950	<1000	<1000	<10000
<1000	9290	<1000	<1000	<1000	1640	<1000	<1000	<1000	2950	1170	<1000	<10000
<1000	9860	<1000	<1000	1890	3730	2720	2140	<1000	13500	<1000	<1000	<10000
17500	9820	1180	3980	15200	12300	10500	5160	4640	48100	9210	1400	381000
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19300	30100	<5000	5320	19800	18700	15100	8800	6040	70500	13300	<5000	415000
50400	199000	<10000	12600	31100	42200	34700	69200	39700	150000	100000	<10000	1160000
86.1	86.4	91.2	0	88.7	87.2	89	86.1	92.2	87.9	91.3	89.9	87.5
87.1	86	88.3	86.4	87.1	87.3	85.1	83.2	88.4	85.9	87.5	87.8	92.5
86.6	83.7	84.8	85.1	83.7	85.1	83.7	74.9	85	86.7	84.1	84.4	96
85.4	78.9	79.1	79.2	72.9	67.5	72.9	42.5	76.2	83.7	79.1	80.4	91.5
78.5	73.3	77.1	77.1	63.8	63.7	69	27.1	77	82	78.3	79.9	86.5
62.9	56.1	20.5	95	48.8	102	54.9	38.3	11.2	1440	67.6	71.6	<450
20.3	<12	15.9	<12	25.8	17.2	<12	<12	<12	341	19.4	<12	<600
<8	18.4	<8	<8	9.57	56.4	11.2	<8	<8	65.1	<8	<8	<400
12.6	52.9	<10	21.2	20.8	211	27.4	12	<10	279	37.4	<10	<500
129	147	89.4	129	293	442	183	113	28.7	1940	137	63	962
30.9	<16	31	<16	73.3	79.2	37.9	<16	<16	530	28.3	18.8	<800
170	92.7	206	257	417	347	268	82.9	28.5	2930	99.1	91.6	995
147	85.8	162	215	324	312	232	72.8	24.6	2190	77.6	67.8	913
104	59.5	95.2	202	228	260	200	22.1	16.5	1340	52	36.2	<700
115	57.2	94.5	172	245	258	219	25.1	16	1330	56.7	28.2	<500
201	98.2	92.1	242	226	383	316	19.1	28	1930	90.5	41.1	<750
57.2	33.2	39.3	<14	92.2	140	102	<14	<14	613	27.1	<14	<700
108	53.9	76.7	143	182	311	215	<15	<15	1210	41.3	22.8	<750
102	52.8	56.3	105	134	203	137	<18	<18	946	35.3	<18	<900
<23	<23	<23	<23	38.5	57.5	42.6	<23	<23	197	<23	<23	<1150
92.7	50.9	53.1	93.2	139	209	145	<24	<24	806	35.4	<24	<1200
1350	859	1030	1670	2500	3390	2190	385	153	18100	805	441	<5900
105	104	109	106	103	105	104	105	110	105	106	106	112
97.9	97.6	96.8	97.3	95.5	94.6	97.8	98	98.2	94.3	96.9	98.5	94.5
93.9	93.1	94.1	95.3	88.2	88.1	95.9	96.9	92.2	87.8	92.1	97.8	93.9
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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AW23-2	AW26-1	AW28-1	AW28-2	AW29-1	AW29-2	AL24-1	AL24-2	AM33-1	AM33-2	AN23-1	AN23-2	AO27-1
1.70-1.70	0.50-0.50	0.40-0.40	1.40-1.40	0.60-0.60	1.30-1.30	0.70-0.70	1.30-1.30	0.30-0.30	1.30-1.30	0.20-0.20	1.50-1.50	0.60-0.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
12/01/2021	12/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021
27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021
210114-156	210114-156	210114-156	210114-156	210114-156	210114-156	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27
23544178	23544190	23544196	23544202	23544215	23544221	23547855	23547865	23547873	23547879	23547829	23547841	23548024
6.7	6.7	6.7	6.7	6.7	6.7	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Dark Brown	Dark Brown	Black	Black	Black	Black	Black	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Sand	Gravel	Sand	Sand	Loamy Sand	Sand	Sandy Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
N/A	None	None	None	None	None	None	None	None	None	Vegetation	None	Vegetation
8.2	13	9.9	11	12	18	15	13	8.3	8.6	5.8	8.2	9.3
-	-	-	-	<0.001	-	-	-	-	-	-	-	-
19/01/2021	-	20/01/2021	-	20/01/2021	-	22/01/21	-	22/01/21	-	21/01/21	-	21/01/21
Paul Poynton	-	Paul Poynton	-	Paul Poynton	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki
-	-	-	-	<0.001	-	-	-	-	-	-	-	-
-	-	-	-	None	-	-	-	-	-	-	-	-
-	-	-	-	N/A	-	-	-	-	-	-	-	-
-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-	-
1.91	4.34	14.1	7.12	24.7	19.7	>100	2.76	1.19	10.3	3.64	1.11	13.6
10.3	9.52	9.57	11.1	9.1	11.2	10.4	11	12.6	11.8	12	12.7	11.4
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
39.6	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
6.69	11	7.89	6.03	15.6	17.3	7.68	1.33	7.22	9.12	<6	<6	8.95
0.742	<0.2	0.249	<0.2	1.18	3.89	<0.02	<0.02	<0.2	0.258	0.477	<0.2	0.893
97.2	399	294	399	<9	65.1	13.1	7.04	628	121	841	376	131
17.6	40.3	<14	<14	25.7	34.1	12.2	<1.4	14.5	23.8	<14	26.1	79.3
36600	64300	175000	168000	222000	291000	31600	12000	180000	65800	159000	139000	107000
16.1	49.9	166	56.1	242	1100	18.4	<0.7	22.5	23.5	7.35	14.9	135
2020	18900	19100	30700	6090	12000	2410	4760	209000	5090	33700	34500	11600
0.297	<1.4	<1.4	<1.4	<1.4	<1.4	<0.14	<0.14	<1.4	<1.4	<1.4	<1.4	<1.4
16.7	26.4	14	11.2	29.7	32.9	10.4	0.818	24.6	45.1	9.88	20.6	31.2
2.32	16.7	12.6	23.6	<10	<10	2.33	2.98	22.7	<10	18.6	24	<10
102	622	227	506	78.6	168	28.7	23.1	571	96	839	1800	396
95.1	205	427	182	718	2990	83.8	10.8	63.9	86.6	75.2	51.4	764
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
92.6	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	52.3	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
92.6	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	52.3	<20
104	122	70.4	124	94.3	126	89.3	115	113	84.8	95.4	103	72.6
20.7	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
33.8	<10	<10	<10	<10	<10	11.8	<10	<10	16.4	<10	22.9	<10
38.1	<10	<10	<10	<10	<10	10.6	<10	<10	16.4	<10	29.4	<10
2050	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
7070	<1000	5000	<1000	<1000	<1000	<1000	<1000	1260	<1000	<1000	2920	1250
4650	5280	14800	1260	6380	10000	11400	<1000	9880	3970	3070	14000	6110
34400	18900	34300	4850	10800	33000	5320	4980	62700	8720	22800	108000	21100
48300	4980	3520	<1000	<1000	1510	<1000	<1000	16400	1080	7170	52800	7780
96400	30100	57600	6190	18500	44800	17000	5850	90200	14000	33600	178000	36200
142000	55800	67400	<10000	47500	56300	109000	10200	106000	52200	51800	198000	137000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
26.1	<10	<10	<10	<10	<10	<10	<10	<10	10.9	<10	19.6	<10
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1220
<1000	<1000	<1000	<1000	<1000	1720	14500	1030	<1000	7120	4670	4730	18700
39300	22600	7590	2440	25900	8780	67000	2270	13600	25800	11700	12500	70800
4470	2600	<1000	<1000	2710	<1000	9070	<1000	<1000	5020	<1000	1590	9270
1230	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1370	<1000	<1000	1720
45300	25700	9730	<5000	29000	11600	91800	<5000	15500	38300	18200	19700	101000
142000	55800	67400	<10000	47500	56300	109000	<10000	106000	52300	51800	198000	137000
91.8	87.5	89	85.5	90.4	87.8	83.9	88.9	88.4	89.6	88.6	91.4	88.5
88.3	90.4	86.7	87.6	87	86.1	85.2	87.3	88.9	91.8	91.7	89.5	91.7
86.8	94.8	86.4	87.8	79.7	83.5	87.7	87.5	90.1	93.3	92.4	91.3	94.3
88.7	90	79.8	76.5	61	79	79.2	83.1	87.1	88.7	82	92.1	87.8
89.6	80.1	76.6	70.5	50.4	69.6	64.5	85	91.3	92.2	85	95.9	88.6
72.6	25.1	47.3	64	13.5	47.7	426	66.3	18.5	123	254	253	1330
<60	<12	14.7	18	<12	<12	169	18.2	<12	224	72.9	58	508
<40	<8	<8	<8	<8	17.9	40.7	16.9	15	13.3	27.4	69.8	112
<50	<10	<10	14.2	<10	29.2	129	32.3	<10	125	81.2	64.9	419
<75	72.2	106	115	46	182	1510	262	133	972	782	2300	3880
<80	<16	22.7	32.8	<16	49	392	67.3	23.3	540	206	263	944
<85	122	149	158	41.4	294	3040	419	273	2530	1100	2060	6780
<75	117	122	120	37.1	293	2420	420	204	1750	788	1410	4880
<70	72.3	69.7	82.2	26	125	1800	191	131	1270	382	718	2890
60.8	77.8	72.3	89.4	34.6	136	2000	202	179	1370	354	856	2690
89.8	119	115	150	58.2	196	2780	352	319	1620	557	1030	4210
<70	35.7	32.6	47.1	17.1	50.9	875	121	97.9	537	185	421	1350
<75	63.9	65.5	74.6	25.9	106	1820	207	128	986	323	630	2900
<90	54.9	59.3	75.5	22	93.5	1440	190	167	813	301	515	2450
<115	<23	<23	<23	<23	<23	345	38.5	33.7	172	42.8	92.3	368
<120	57.5	57.3	65.2	<24	79.3	1410	170	147	723	249	489	2070
<590	818	933	1110	322	1700	20600	2770	1870	13800	5710	11200	37800
107	112	104	107	110	105	113	110	104	106	108	103	108
97.3	95.9	97.9	96.8	97.9	98.8	98.4	98.8	97.3	96.3	97.8	97.6	99.2
95.7	93.5	98.1	97.3	98.5	97.3	92.5	98.3	95.2	93.8	97.2	97.5	93.3
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AO27-2	AO29-1	AO29-2	AQ24-1	AQ24-2	AQ25-1	AQ25-2	AQ26-1	AQ26-2	W168-1	W168-2	W168-3	W168-4
1.20-1.20	0.50-0.50	1.50-1.50	0.20-0.20	1.50-1.50	0.20-0.20	1.50-1.50	0.20-0.20	1.50-1.50	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	13/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021
28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021
210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27
23548034	23547788	23547917	23548085	23547819	23548065	23548075	23548044	23548052	23547887	23547896	23547907	23547927
4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sandy Loam	Sand	Sand	Sand	Sandy Loam	Sand	Sandy Loam	Sand	Loamy Sand	Loamy Sand	Silt Loam	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	None	Stones	Vegetation	Stones	Stones
N/A	Vegetation	None	Vegetation	None	None	Stones	Vegetation	Stones	Vegetation	Stones	Vegetation	Vegetation
7	7.4	6.5	16	5.5	24	8.2	18	6.7	13	12	12	14
-	-	-	-	-	0.0083	-	-	-	-	-	-	-
-	22/01/21	-	21/01/21	-	22/01/21	-	21/01/2021	-	22/01/21	-	22/01/21	-
-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-
-	-	-	-	-	<0.001	-	-	-	-	-	-	-
-	-	-	-	-		-	-	-	-	-	-	-
-	-	-	-	-	Chrysotile detected. Fibre bundles in soil.	-	-	-	-	-	-	-
-	-	-	-	-	0.0083	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	loose fibres in soil	-	-	-	-	-	-	-
2.5	5.14	20.5	5.65	1.14	19.1	1.57	7.38	0.924	27.9	26.5	27.6	28.1
11.9	8.92	12.6	10.7	11.8	9.53	12.7	9.19	12.7	9.42	9.7	9.15	9.82
<1	<1	<1	<1	<1	1.06	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
7.22	9.67	<6	<60	11	8.52	<6	8.64	6.23	8	8.65	7.73	10.8
<0.2	1.81	0.401	<2	<0.2	1.23	<0.2	0.337	0.794	0.896	1.26	1.23	0.989
39.8	456	802	291	28.6	257	565	255	302	182	323	253	354
<14	81.4	<14	<140	16.8	25.6	28.5	19.3	20.4	30.2	19.5	19.8	28.4
430000	140000	140000	116000	356000	98900	210000	86000	253000	72100	94900	87600	140000
26.3	165	7.04	84.8	17.6	132	24.2	121	18.9	142	204	107	217
6230	23400	38000	16500	6350	13100	49500	13700	24100	21000	15500	16000	16800
1.84	<1.4	<1.4	<14	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
18.1	29.7	7.31	155	35.2	21.8	23.7	20.8	39	17.9	19.8	19.1	25.1
<10	10.1	21.7	<100	<10	<10	27.6	10.7	<10	12.9	13.8	<10	13.6
325	419	681	696	235	361	1960	318	1300	270	357	328	365
191	531	44.5	207	186	446	55.6	359	114	501	596	364	806
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0109	<0.01	<0.01	<0.01	0.0114	<0.01	0.0116
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0115	0.0114	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	86.7	217	58.2	275	<50	101	<50	74.8	<50	<50	67.3
<50	<50	<50	78	<50	98.3	<50	<50	<50	<50	<50	<50	<50
<20	<20	86.7	295	58.2	373	<20	101	<20	74.8	<20	<20	67.3
105	80.4	103	110	95.8	66.9	95.3	85.7	101	36.2	30.2	49.2	49.1
<10	<10	<10	18	<10	43.2	<10	11	<10	<10	<10	<10	<10
<10	<10	35.3	82.8	21.2	83.8	<10	45.1	<10	28.8	14.8	<10	32.5
<10	<10	51.4	116	37	148	<10	45.1	<10	46	11.4	<10	34.8
<1000	<1000	<1000	18800	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
1230	<1000	5390	161000	13400	3270	1440	1960	<1000	1980	2630	<1000	3750
51200	5810	17300	179000	22500	11000	9490	6420	7270	13800	12100	1290	14200
9890	16500	53300	150000	20200	46000	64500	20900	51100	25200	33300	4110	36200
<1000	1940	22700	16400	2850	13300	32900	4250	18200	4530	9690	<1000	13200
63000	24500	98700	524000	58900	74500	108000	33600	77400	45600	58300	6350	68000
73000	89300	115000	718000	73000	447000	158000	210000	106000	421000	256000	159000	391000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	34.2	78	24.3	98.3	<10	30.5	<10	29.9	<10	<10	23.2
<1000	<1000	1040	1740	<1000	12200	<1000	2820	<1000	5060	5160	2510	5560
<1000	<1000	1950	32100	3550	14300	1080	3480	<1000	16900	7030	3860	10400
3820	4900	2360	44400	3220	104000	10000	30300	6190	128000	39600	32900	81300
4990	50900	9400	104000	6030	218000	31300	125000	19600	195000	127000	98800	201000
<1000	8570	1420	10900	<1000	24100	6460	15200	2600	29900	18900	14500	24800
<1000	1750	<1000	2170	<1000	5410	1250	2070	<1000	3630	4130	1790	5510
9990	64800	16200	194000	14100	372000	49200	177000	28800	375000	197000	153000	323000
73000	89300	115000	718000	73100	447000	158000	211000	106000	421000	256000	159000	392000
91.1	90.9	81.7	84.7	84.7	86	88.5	85.7	88.6	87.5	83.8	90	84.7
90.9	92.2	88.4	86.6	86.8	85.8	90.5	84.9	90.5	89.8	88.1	88.9	86.3
90.4	93	91.3	88.3	89.6	85.2	93	83.1	91.9	91.5	88.7	91.3	88
85.7	89.6	81	80	82	80.4	89.1	78	89.8	81.6	78.9	89.1	79.3
87.5	92.9	78.7	81.8	85.3	76.7	92.8	74.9	94.2	78.8	75.5	89.1	77.1
311	92.3	134	866	416	7620	1230	3890	198	3280	3990	3190	4790
54.7	40.1	14.7	279	88.9	1880	830	833	139	977	1150	1490	1260
17.8	43.5	11.6	54.3	13.6	264	195	209	135	200	191	158	255
22	47.2	10.8	227	63.7	1690	1050	761	146	797	780	903	1060
308	366	266	1930	476	13900	10400	6660	3290	5600	5030	6320	7170
70.6	88.6	32.3	418	102	3190	1950	1420	462	1690	1850	<16	3420
544	749	338	3040	732	20800	11900	11100	3380	9570	9340	15300	13100
434	661	277	2250	558	14200	8110	8060	2390	6840	6890	10900	9310
256	505	181	1330	319	7600	4790	4410	1650	4800	4770	7830	6280
255	591	206	1150	292	6160	4700	3820	1680	3810	3880	7160	5610
455	910	350	2100	495	10600	5930	6830	2290	6570	6860	10900	9250
138	375	141	682	171	3740	2160	2300	774	2310	2390	3550	3030
267	609	173	1360	300	6210	4090	3970	1330	3990	4170	7170	5260
232	562	143	1180	270	5250	3430	3700	1150	3370	3590	5310	4270
41	111	<23	220	53.2	676	686	454	261	575	623	1180	694
209	580	155	1090	250	4230	2930	3040	1010	2610	2720	4730	3500
3620	6330	2430	18200	4600	108000	64400	61400	20300	57000	58200	86000	78300
109	110	112	103	106	105	102	99.8	103	88.7	96.2	96.9	97.9
98.6	99.1	99.2	96.3	103	95.4	96.1	96.4	96.9	90.4	96.5	96.9	95.1
99.5	95.4	96.7	87.9	95.7	89.9	96.8	85.3	96.7	74.3	84	82.9	82.6
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	<260	1200	<260	1410	<260	1710	<260	1680	819	948	651
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

W168-5	W168-6	W168-7	W168-8	W168-9	W168-10	W168-11	AG10-1	AG10-2	AG11-1	AG11-2	AG11-3	AG11-4
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.30-0.30	1.90-1.90	1.00-1.00	2.00-2.00	3.00-3.00	4.00-4.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021
15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021
28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021
210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210115-27	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77
23547935	23547942	23547958	23547970	23547983	23548001	23548010	23560721	23560726	23560687	23560613	23560617	23560621
4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.0	4.0	4.0	4.0	4.0	4.0
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Sandy Loam	Sandy Loam	Silt Loam	Loamy Sand	Sand	Loamy Sand	Loamy Sand	Stone/Soil	Sand	Sand	Stone/Soil	Sand
Stones	Stones	Stones	Stones	Stones	Vegetation	Vegetation	Vegetation	Vegetation	None	Stones	None	Stones
Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Stones	Tar	Stones	Stones	Stones	Brick	Stones	Brick
12	20	11	15	12	9.1	14	19	12	14	15	12	11
-	-	-	-	-	-	-						
21/01/2021	-	21/01/21	-	21/01/21	-	21/01/21	-	25/01/2021	25/01/2021	-	25/01/2021	-
James Richards	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	Agnieszka Chelmowska	-	Marcin Magdziarek	-
-	-	-	-	-	-	-						
-	-	-	-	-	-	-						
-	-	-	-	-	-	-						
-	-	-	-	-	-	-						
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Not Detected	-	Trace	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	Soil containing ACM debris	-	-	Loose fibres in soil	-
19.3	28.8	24.5	13.3	23.3	30.9	30.2	7.53	2.22	2.86	2.45	2.86	7.88
10.2	9.24	9.65	9.08	10.1	9.95	10.7	8.42	9.93	8.85	8.96	9.33	8.98
<1	<1	<1	<1	<1	<1	<1	1.05	11.2	12.5	31.5	13.4	9.71
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	13.7	<12
8.38	9.62	7.96	<6	7.75	9.37	8.5	9.61	6.31	<6	4.72	4.01	10.3
2.1	3.45	1.3	1.01	2.49	1.39	2.29	0.249	<0.02	0.241	0.264	0.228	0.221
304	271	298	175	248	283	290	12.9	223	10.4	14.5	9.66	26.1
23.9	28.1	24.1	17	20	28.2	21.2	25.3	59.4	21.3	29.6	18.3	12.8
124000	99000	85000	78100	98300	109000	111000	23100	85800	14500	17300	12800	15300
241	184	130	93.1	314	200	255	37.3	54.1	106	75.6	55	40.9
17100	12000	16000	12600	14000	14600	17400	808	20400	530	507	547	1360
<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<0.14	<1.4	<0.14	<0.14	<0.14
20	22.1	19.1	20	18.7	25.1	19.8	20.8	9.16	13.1	14	14	8.13
<10	11.1	11.4	<10	<10	13.6	13.3	<10	5.16	<10	<1	<1	<1
408	286	290	200	251	355	365	21.1	234	15.8	16.7	12.4	29.6
903	564	454	324	987	645	940	122	117	142	194	162	143
<0.01	0.0126	<0.01	0.0234	<0.01	0.011	0.0117	<0.01	<0.01	<0.05	0.0234	<0.01	<0.01
<0.01	0.0126	<0.01	0.0117	<0.01	0.011	<0.01	<0.01	<0.01	<0.05	0.0117	0.0114	0.0112
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.075	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.175	<0.035	<0.035	<0.035
<50	<50	<50	<50	<50	68.2	63.2	<50	65	69.6	93.6	545	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	63.2	466	<50
<20	<20	<20	<20	<20	68.2	63.2	<20	65	69.6	157	1010	<20
36.4	39.5	31.1	50.9	36.1	47.9	45.2	103	82.1	109	80.4	87.3	93.1
<10	<10	<10	<10	<10	14.3	<10	<10	<10	<10	<10	10.3	<10
13.7	<10	14.6	<10	21.7	29.7	32.8	20.9	27.4	26.7	32.8	59.3	25.8
12.5	<10	13.4	<10	22.8	24.2	30.4	25.8	37.6	42.9	60.8	475	22.4
1050	<1000	1070	<1000	<1000	1000	<1000	<1000	<1000	<1000	<1000	<5000	<1000
4140	2460	3710	<1000	4480	4680	4010	<1000	<1000	<1000	1600	<5000	<1000
20900	14500	15600	3110	18300	25800	26900	2470	14100	12100	28000	<5000	6050
45200	31100	43800	10600	42100	50200	50800	8790	9120	4650	15700	<5000	5570
12200	6550	11000	1840	12200	14900	10200	<1000	1150	<1000	2950	<5000	<1000
83500	55000	75200	16900	78000	96700	92400	11900	25200	17700	48300	<25000	12600
309000	303000	315000	164000	329000	295000	363000	51100	161000	402000	956000	1240000	945000
<10	<10	<10	<10	<10	<10	<10	<10	<10	15.1	22.2	94.6	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	54.7	<10
<10	<10	<10	<10	14.8	16.5	19.9	17.2	25.1	29	41	317	14.6
5780	5200	8120	2670	6170	5970	7070	<1000	<1000	2160	3890	<5000	<1000
8860	7720	9860	6080	8870	9030	10300	<1000	1280	13600	51900	57300	19200
49100	48500	49100	27000	52600	40600	60300	8830	27100	118000	324000	452000	266000
143000	163000	143000	92900	163000	125000	169000	24800	90500	208000	439000	613000	535000
18300	23700	29200	18700	20400	17900	24200	4870	16600	42000	89800	107000	112000
3370	2940	5010	2350	2990	2720	3480	<1000	2520	6440	18400	14400	22900
225000	248000	240000	147000	251000	198000	271000	39200	136000	384000	908000	1230000	933000
309000	303000	315000	164000	329000	295000	363000	51200	161000	402000	957000	1230000	945000
81.8	86.4	80.8	86.6	78.6	88.6	82.1	85.1	84.3	79.4	79	80.8	84.6
81.7	82.3	87.6	82.5	85.6	90.8	80.3	84.3	87.3	77.7	78.7	81.8	86.3
87	81.2	91.4	81.9	85.9	92.5	83.5	86.8	90.2	78.5	78.9	84.6	89
75	75.1	79.5	79.8	77.1	88.1	72.6	76.9	76.7	80.5	76.4	74.6	83.8
74.4	74.3	73.9	78.1	70.7	84.6	70.8	79.8	77.3	77.4	77.2	76.4	85.7
4390	4170	4380	2180	4520	5430	4000	<90	431	878	4280	606	655
1960	4800	1040	1180	1690	1570	1250	<120	340	2180	4390	2040	1280
385	868	221	118	272	213	308	<80	22	1200	705	516	473
1940	10300	864	674	1230	1210	1300	<100	177	4220	5400	3400	2080
16300	47400	5590	4750	8820	10800	9800	452	2130	24400	31800	15100	9770
5230	8330	1810	1510	3780	3820	3220	<160	790	16500	7820	7250	5160
26500	43400	9670	9990	18000	17500	15100	1020	4110	46300	35000	22800	15400
18000	26900	6960	7310	12800	12400	11000	751	2730	29500	24000	15000	10500
10800	15400	4450	4990	8290	7860	7860	531	2550	16300	13700	8530	5750
9500	16400	3790	4850	7010	6820	6930	523	2350	13000	12000	7060	4380
14600	17800	6520	7170	11300	10300	10700	836	4560	16700	15900	9610	6330
4850	5620	2240	2270	4270	3230	3640	260	1420	5380	5120	3290	1850
8700	11100	3760	4420	6560	6260	6690	489	2250	11400	11800	6360	4250
6950	8280	2850	3570	4730	4900	5090	404	2290	8600	8640	4820	2760
1450	2030	489	735	745	1160	1170	<230	624	1830	1920	1050	709
5800	6960	2400	3150	4330	4090	4270	373	1920	6750	8090	3950	2670
137000	230000	57000	58900	98300	97600	92300	5640	28700	205000	190000	111000	74000
92.6	94.8	89.2	103	101	94.8	97	119	113	118	112	105	107
93.2	95	95.2	96.2	97.2	94	95	96.7	99.2	96	97.8	97.1	97.3
78.8	82.9	80.1	89.5	89.3	81.4	80.4	96.1	95.4	98.1	94.8	91.7	94.7
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
1270	806	1310	368	491	839	1240	<260	574	742	1490	7900	629
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AG12-1	AG12-2	AG13-1	AG13-2	AH13-1	AH14-1	AH14-2	AH14-3	W166-1	W166-2	W166-3	W166-4	W166-5
0.60-0.60	1.70-1.70	0.20-0.20	1.50-1.50	0.30-0.30	0.50-0.50	1.50-1.50	2.50-2.50	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021	14/01/2021
16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021
16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021	16/01/2021
29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021
210116-77	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77	210116-77
23560627	23560633	23560638	23560644	23560651	23560664	23560672	23560677	23560608	23560682	23560668	23560693	23560703
4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Sand	Loamy Sand	Stone/Soil	Loamy Sand	Sand	Sand	Loamy Sand	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand
Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Oil/Petroleum	Stones	Stones	Stones	Stones	Stones
Vegetation	Oil/Petroleum	Stones	Oil/Petroleum	Vegetation	Vegetation	None	Stones	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation
13	12	9.4	21	5.4	12	8.5	13	12	23	15	13	15
25/01/2021	-	22/01/21	-	25/01/2021	22/01/21	-	25/01/2021	25/01/2021	-	-	25/01/21	-
Marcin Magdziarek	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	Andrzej Ferfecki	-	Marcin Magdziarek	Agnieszka Chelmowska	-	-	Christian Hallam	-
Detected	-	Not Detected	-	Not Detected	Not Detected	-	Detected	Not Detected	-	-	Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
Loose fibres in soil	-	-	-	-	-	-	Loose fibres in soil	-	-	-	Fibre bundles in soil.	-
7.43	3.34	4.09	5.02	1.88	12.9	<0.35	7.59	7.45	4.4	4.9	3.9	8
9.5	9.76	9.13	9.52	9.5	9.4	9.16	9.36	11.2	8.47	9.73	10.9	11.5
1.04	8.76	<1	39.8	<1	<1	<1	8.12	12.1	49	1.6	1.62	10.2
13.9	33.3	<12	<12	<12	<12	<12	18.7	<12	<12	<12	<12	<12
8.57	5.09	4.61	7.83	4.32	4.64	10.4	9.85	22.4	24	13.8	14.3	21.2
0.326	0.0347	<0.02	0.0629	0.263	0.101	0.161	0.339	8.85	16.5	3.66	3.58	8.07
24.2	74.3	16.9	45.1	6.2	86.4	9.59	8.06	354	244	363	438	260
22.8	6.35	10.2	15.2	4.08	14.1	23.5	24.6	59.5	82.2	43	95	68.5
20100	49100	44000	40900	13400	57400	24700	73700	339000	386000	197000	191000	297000
385	9	25.8	23.9	7.38	29.9	32.5	125	1150	1410	496	597	1050
2240	5880	4980	4720	1400	8120	4300	1680	29300	29700	25400	27900	25500
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.204	<0.14	<1.4	<1.4	<1.4	<1.4	<1.4
11.7	8.65	8.51	16.9	4.54	11.1	19.2	23.5	49.3	57.3	33.7	29.8	52
<1	2.52	3.64	3.68	<1	2.7	<1	<1	14.4	<10	19.3	18.2	14.6
26.1	59	55.9	102	11.1	106	19.2	18.2	1350	1130	1470	1310	1260
115	36.3	111	74.7	27.5	125	119	116	4920	7580	2120	1680	4900
0.0115	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.667	0.0114	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	1.55	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	2.22	<0.035	<0.035	<0.035	<0.035	<0.035
205	315	<50	686	<50	<50	60.6	41500	<50	<50	<50	<50	<50
75.9	508	<50	640	<50	<50	<50	30200	<50	<50	<50	<50	<50
281	823	<20	1330	<20	<20	60.6	71700	<20	<20	<20	<20	<20
66.3	90.3	77.8	86.3	81.9	104	102	80.9	92.6	90.9	116	83.2	93.6
48.3	41	<10	62.2	<10	<10	22.4	799	<10	<10	<10	<10	17.7
78.2	85.5	<10	203	<10	<10	21.3	2690	<10	<10	<10	<10	13
78.2	188	<10	420	<10	<10	16.8	38100	<10	<10	<10	<10	14.2
<1000	<1000	<1000	1570	<1000	<1000	<1000	<10000	<1000	<1000	<1000	<1000	<1000
1900	49400	1680	113000	<1000	3440	<1000	711000	3920	2080	<1000	1500	4980
12100	571000	43800	952000	9120	32700	1000	3290000	25700	17900	2430	14900	30000
12400	62000	22700	235000	7380	12300	<1000	230000	104000	591000	30200	104000	128000
5650	2130	<1000	43500	<1000	<1000	<1000	<10000	43000	153000	16800	52000	44000
32000	684000	68500	1350000	17100	48500	<5000	4230000	176000	764000	50000	172000	207000
157000	935000	132000	1630000	82800	461000	<10000	16900000	215000	819000	94500	231000	251000
24.2	365	<10	348	<10	<10	20.2	2980	<10	<10	<10	<10	<10
<10	18.2	<10	11.4	<10	<10	<10	1860	<10	<10	<10	<10	<10
51.8	125	<10	281	<10	<10	11.2	25400	<10	<10	<10	<10	<10
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2680	16600	<1000	27400	<1000	5070	<1000	1680000	<1000	<1000	<1000	<1000	<1000
25100	109000	6810	126000	4960	36800	<1000	4280000	6340	<1000	3550	5310	7230
88000	113000	43100	119000	50900	273000	3060	3500000	31200	51500	34800	48400	34400
8160	8830	12200	8700	9050	97200	<1000	536000	1070	2640	5920	5070	1630
1270	1530	1700	<1000	1120	16800	<1000	122000	<1000	<1000	1330	1130	<1000
124000	251000	63300	285000	65800	413000	<5000	12700000	38700	54800	44500	58900	43400
157000	936000	132000	1630000	82800	461000	74800	17000000	215000	819000	94500	231000	251000
78.6	84.8	88	88.8	87.8	84.9	87.7	85	86.4	83.1	87.9	86.2	76.1
80.1	86	85.8	94.6	87.2	84.2	88.6	113	84.5	83.9	87	85.4	74.2
77.8	92.3	88.4	93.1	92.9	88.2	89.9	92.5	87.3	87.3	88.4	87.9	74.7
74.2	80.3	79.7	83	83.7	79.4	80.5	77.5	70.6	71.5	82.8	83.6	61.4
73.4	83.2	85.3	82.3	86	82.1	83.5	77.5	67.3	63.8	78.3	82.9	56.3
499	2150	269	2620	194	354	16.3	1650000	61.3	33.9	61.2	64.8	<90
364	848	304	510	291	3180	<12	74300	18.8	<12	116	23.3	<120
77.7	881	<80	1090	15.5	55.2	<8	253000	42.6	19.8	54.6	59.5	<80
236	529	<100	460	75.9	195	<10	189000	34	15.9	37.7	37.2	<100
2380	1800	794	779	597	1520	73.1	767000	430	184	478	460	571
841	628	212	381	195	675	<16	163000	102	39.6	176	113	<160
5290	6470	1820	2250	2300	9490	115	537000	1050	351	3070	1070	1630
4060	4870	1390	1980	1770	8670	97.5	350000	1010	374	2550	1210	1540
2580	2650	952	1100	1230	7770	50.6	148000	533	232	1300	753	526
2040	2170	937	1020	1050	6190	48.3	121000	613	233	1170	760	553
3310	4440	1800	1450	1950	17200	80.8	187000	603	308	1720	1240	559
940	1510	640	592	652	5760	28.5	59100	226	129	609	380	201
2250	2670	1120	1300	1260	11300	56.2	131000	551	272	1380	949	470
1770	2730	1220	1320	1180	11500	59.2	110000	375	195	1280	726	332
424	470	<230	268	205	1990	<23	19500	82.1	41.4	247	160	<230
1780	2560	1150	1290	1120	10800	63.1	99600	383	200	1260	738	342
28800	37400	12600	18400	14100	96600	689	4860000	6110	2630	15500	8750	6720
99	108	111	115	111	104	110	114	107	111	111	107	111
93.5	96.6	99.1	96.6	98.4	95.8	98.5	90	98.7	100	99	98.4	97.1
80.8	94.1	94.2	93	90.2	90.9	92.7	70.9	95.8	97.7	97	93.2	92.8
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	547	<180	785	<180	<180	<180	6060	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	1780	<140	<140	<140	<140	<140
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<200	<200	<200	<200	<200	<200	<200	11900	<200	<200	<200	<200	<200
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<260	2700	<260	5170	<260	478	<260	1610000	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	14.1	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	1160	<800	<800	<800	26300	<800	<800	<800	<800	<800

W166-6	W166-7	W166-8	AG15-1	AG15-2	AG19-1	AG19-2	AH15-1	AH15-2	AH15-3	AH18-1	AH18-2	AH18-3
0.20-0.20	0.20-0.20	0.20-0.20	0.60-0.60	2.00-2.00	0.50-0.50	1.70-1.70	0.50-0.50	1.10-1.10	2.00-2.00	1.00-1.00	2.00-2.00	3.00-3.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
14/01/2021	14/01/2021	14/01/2021	15/01/2021	15/01/2021	18/01/2021	18/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021
16/01/2021	16/01/2021	16/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
16/01/2021	16/01/2021	16/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021
29/01/2021	29/01/2021	29/01/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021
210116-77	210116-77	210116-77	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85
23560709	23560713	23560717	23572845	23572849	23572760	23572764	23572724	23572780	23572827	23572854	23572858	23572862
4.0	4.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Loamy Sand	Loamy Sand	Sand	Sandy Loam	Sandy Loam	Stone/Soil	Sand	Sandy Loam	N/A	Sandy Loam	Loamy Sand	Sandy Loam
Stones	Stones	Stones	Stones	Stones	Stones	Oil/Petroleum	Vegetation	Stones	Stones	Stones	Stones	Stones
Vegetation	Vegetation	Vegetation	None	None	None	Stones	Brick	None	Oil/Petroleum	None	Brick	None
16	18	14	7.6	11	9.8	12	11	17	6.5	8.6	10	21
			-	<0.001	-	-	-	-	-	-	-	-
22/01/21	-	25/01/2021	-	26/01/2021	26/01/2021	-	26/01/2021	-	26/01/21	-	26/01/2021	-
Andrzej Ferfecki	-	Agnieszka Chelmowska	-	James Richards	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-
			-	<0.001	-	-	-	-	-	-	-	-
			-	None	-	-	-	-	-	-	-	-
			-	N/A	-	-	-	-	-	-	-	-
			-	<0.001	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-	-
3.84	5.19	3.09	0.459	12.4	13.6	6.38	6.22	7.84	6.6	3.78	6.38	5.79
8.47	9.19	10.7	12	12.1	9.3	9.47	9.76	11.5	11.1	9.04	9.06	9.44
28.7	1.62	<1	<1	4.19	6.82	104	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	17.4	<12	<12	<12	<12	<12	29.9
20.4	1.35	10.4	<6	3.07	27.9	9.15	3.52	13.9	6.97	3.86	8.95	10.1
12.8	0.376	2.27	0.32	0.146	0.949	0.38	<0.02	0.609	0.259	0.0643	0.408	0.354
298	33.6	518	855	776	77.8	101	388	164	72.4	30.6	25.6	117
76.9	3.89	35.1	<14	17.8	29.4	<14	7.96	21.6	13.3	9.31	18.3	19.8
292000	17700	201000	180000	183000	174000	89300	73600	65000	41300	27800	40400	27000
1300	48.2	334	10.4	8.54	81.1	14.8	9.8	27.6	16.3	13.1	73.9	40.3
32100	2520	26300	32600	32900	8420	5740	16900	4490	4260	3830	2970	3020
<1.4	<0.14	<1.4	<1.4	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
48.4	3.06	25.4	4.08	8.86	40.3	17.4	4.7	19.3	18.8	5.53	15.3	26.5
17.7	2.01	21.6	15	8.46	<10	<10	6.78	3.15	2.21	2.81	2.55	3.35
1440	121	1150	470	399	107	78.5	256	144	75.5	48.2	62.2	103
6300	205	1410	70.1	49	230	79.4	65.4	134	61.2	92.9	359	185
<0.01	<0.01	<0.01	<0.01	<0.2	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	0.339	<0.01	0.0114	<0.01	0.0121	0.47	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.3	<0.015	0.0342	<0.015	<0.015	0.609	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.7	<0.035	0.0456	<0.035	<0.035	1.08	<0.035	<0.035	<0.035
<50	<50	<50	<50	-	<50	20100	<50	<50	-	<50	<50	249
<50	<50	<50	<50	-	<50	14900	<50	<50	-	<50	<50	1110
<20	<20	<20	<20	-	<20	35000	<20	<20	-	<20	<20	1360
99.8	90	87.3	94.9	-	75.1	96.8	74.3	95.2	-	93.4	109	86.7
<10	<10	<10	<10	-	<10	866	<10	<10	-	<10	<10	38.1
<10	<10	<10	<10	-	<10	1270	<10	14.5	-	<10	<10	82.6
<10	<10	<10	<10	-	<10	18000	<10	20.6	-	<10	<10	128
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3620	<1000	2440	<1000	510000	<1000	77700	<1000	1860	389000	1500	<1000	4650
11500	2190	13800	<1000	4500000	8350	245000	3110	18300	3340000	4860	<1000	26100
41200	29600	82800	<1000	514000	26000	2260000	13300	7710	348000	3160	1830	1570
11600	12400	32900	<1000	10800	2100	665000	<1000	1180	<10000	<1000	<1000	<1000
68000	44200	132000	<5000	5540000	37100	3260000	17000	29100	4070000	9920	<5000	32700
83500	88300	199000	<10000	21900000	158000	4360000	135000	68700	42600000	132000	56000	51200
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1650	3250	5280	<1000	6220000	8310	132000	4290	12500	13600000	3550	<1000	7760
12800	33400	52200	5610	5350000	87600	231000	96100	21500	11200000	66500	40300	2170
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15500	44100	67400	7600	16400000	121000	1110000	118000	39700	38500000	122000	52900	18500
83500	88300	199000	<10000	-	158000	4400000	135000	68800	-	132000	52900	52500
85.9	86.2	84.2	87.3	91	84.2	96.2	84.6	90.9	80	86.4	90.8	87.2
83.5	87.8	85.8	87.1	125	89.1	108	89.6	89.9	145	90	94.4	90.7
84	88.3	89.6	86.6	101	91.2	117	82.6	96.3	115	83	93.6	87.2
67	78.2	82.3	85.4	95.5	92.6	105	82.2	95.3	150	79.8	89.4	81.1
62.6	79.1	77.8	87.3	95	81.2	103	80.8	91.8	80	81	89	71.4
20.1	58	63.2	53.2	2420000	1200	127000	<180	684	4480000	335	135	1060
<12	15.3	64.4	96.6	616000	228	1480	374	242	108000	<240	<12	432
10.6	57.4	58.5	<8	39500	43.5	919	<160	34.9	1130000	<160	<8	35.9
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96.7	421	625	161	2090000	2570	1900	<300	829	3100000	436	66	1490
21.3	95	140	47.4	474000	593	392	<320	162	577000	<320	<16	481
190	803	1170	423	1630000	4240	2270	2280	1070	2360000	1070	115	2470
199	791	1190	414	1100000	2960	1500	2140	1570	1540000	843	103	2020
134	549	754	337	464000	1890	1180	1590	576	693000	647	72.3	1400
141	551	819	297	439000	1680	1070	1670	561	565000	664	79.1	1480
183	1160	1260	623	520000	2320	1670	2850	834	772000	1130	127	2360
68.4	364	452	183	168000	817	489	900	244	265000	332	29.6	717
155	803	955	394	361000	1570	945	1780	485	555000	710	75.8	1450
115	755	731	399	255000	1440	721	1700	413	429000	701	62.2	1320
<23	124	160	75.1	55400	278	<230	<460	75.1	72700	<460	<23	270
117	723	778	390	241000	1340	647	1630	376	370000	662	63	1220
1450	7300	9300	3920	11400000	23300	144000	16900	8340	17800000	7530	928	18300
109	112	111	111	115	106	112	111	115	108	112	113	106
98.2	98.2	98.5	98.8	88.1	96.6	94.8	97.2	101	98.7	98.7	101	97.1
95	93.8	95.4	99.4	74.9	89	85.1	95.5	98.5	96.4	95.3	96	94.4
<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<200	<200	<200
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<260	<260	<260	<260	>550000	351	>550000	1090	409	>550000	<260	<260	357
<0.4	<0.4	<0.4	<0.4	1.86	<0.4	6.28	<0.4	<0.4	6.11	<0.4	<0.4	<0.4
<800	<800	<800	<800	3690	<800	9720	<800	<800	9180	<800	<800	2220

AH19-1	AH19-2	AI11-1	AI11-2	AI11-3	AI12-1	AI12-2	AI13-1	AI13-2	AI14-1	AI14-2	AI14-3	AI15-1	AI15-2	AI16-1	AI16-2	AI17-1	AI17-2	AI18-1	AI18-2	AI19-1	AI19-2	AG15-1	AG15-2	AG19-1	AG19-2	AH15-1	AH15-2	AH15-3	AH18-1	AH18-2	AH18-3	AH19-1	AH19-2	AI11-1	AI11-2	AI11-3	AI12-1	AI12-2
0.90-0.90	1.50-1.50	0.70-0.70	1.30-1.30	2.60-2.60	0.50-0.50	1.80-1.80	0.20-0.20	1.50-1.50	0.30-0.30	1.00-1.00	2.00-2.00	0.20-0.20	1.60-1.60	0.20-0.20	1.80-1.80	0.40-0.40	1.30-1.30	0.50-0.50	1.50-1.50	1.00-1.00	2.00-2.00	0.60-0.60	2.00-2.00	0.50-0.50	1.70-1.70	0.50-0.50	1.10-1.10	2.00-2.00	1.00-1.00	2.00-2.00	3.00-3.00	0.90-0.90	1.50-1.50	0.70-0.70	1.30-1.30	2.60-2.60	0.50-0.50	1.80-1.80
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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Sandy Loam	Sandy Loam	Sand	Loamy Sand	Sand	Sand	Sand	Sand	Stone/Soil	Sandy Loam	Sandy Loam	Sandy Clay Loam	Loamy Sand	Stone/Soil	Sandy Loam	N/A	Sand	Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Sand	Sandy Loam	Sandy Loam	Stone/Soil	Sand	Sandy Loam	N/A	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Loamy Sand	Sand	Sand	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Brick	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Oil/Petroleum	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	None	None	N/A	Oil/Petroleum	Brick	Brick	Brick	None	N/A	N/A	None	None	N/A	N/A	Concrete/Aggregate	N/A	Stones	Concrete/Aggregate	None	None	N/A	None	None	None	Stones	Brick	None	Oil/Petroleum	None	Brick	None	None	None	None	N/A	Oil/Petroleum	Brick	Brick
12	15	6.5	10	15	11	12	9.3	7.9	10	15	7.8	14	15	10	7.2	5.3	6.1	9.5	11	18	11	7.6	11	9.8	12	11	17	6.5	8.6	10	21	12	15	6.5	10	15	11	12
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Agnieszka Chelmowska	-	-	Agnieszka Chelmowska	-	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	Andrzej Ferfecki	-	Andrzej Ferfecki	James Richards	-	Agnieszka Chelmowska	-	James Richards	-	Marcin Magdziarek	-	James Richards	-	-	James Richards	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	-	Agnieszka Chelmowska	-	-	Agnieszka Chelmowska
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N/A	-	-	-	-	-	-	-	-	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-	N/A	-	-	-	-	-	-	-	-	N/A	-	-	-	-	-	-
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Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	-	Not Detected	-	-	Not Detected
Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-	Not Detected
Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-	Not Detected
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Loose fibres in soil	-	-	-	-	-	-	-	-	-	-	-	ACM debris and loose fibres in soil	-	-	-	-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	-	-	-
26.2	5.33	0.429	3.38	37.1	2.31	1.42	2.88	0.447	10.2	4.19	3.22	42.4	5.52	27.2	0.724	0.409	1.98	17.4	1.55	70.5	6.45	0.459	12.4	13.6	6.38	6.22	7.84	6.6	3.78	6.38	5.79	26.2	5.33	0.429	3.38	37.1	2.31	1.42
9.9	9.01	9.44	8.98	8.32	11.2	10.3	10.5	9.12	8.54	9.01	9.61	11.1	8.56	9.61	9.72	9.33	10.3	9.71	10.3	9.01	9.11	12	12.1	9.3	9.47	9.76	11.5	11.1	9.04	9.06	9.44	9.9	9.01	9.44	8.98	8.32	11.2	10.3
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5.01	11.1	132	7.49	16.6	8.72	4.69	6.04	5.7	8.89	8.76	5.79	27.3	8.01	8.42	3.64	3	5.3	5.52	5.88	5.98	3.7	<6	3.07	27.9	9.15	3.52	13.9	6.97	3.86	8.95	10.1	5.01	11.1	132	7.49	16.6	8.72	4.69
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69.3	37.3	72.4	<9	5.43	109	110	37.3	45.6	20.3	13.5	28.4	45.2	35.4	136	18.2	4.8	19.5	105	16.5	76	11.1	855	776	77.8	101	388	164	72.4	30.6	25.6	117	69.3	37.3	72.4	<9	5.43	109	110
10.7	17.3	14	16.4	34.1	11.5	13.6	8.61	13.6	22.6	21.2	19.7	44	19.7	28.5	3.58	1.65	4.98	16.8	12.7	14	9.54	<14	17.8	29.4	<14	7.96	21.6	13.3	9.31	18.3	19.8	10.7	17.3	14	16.4	34.1	11.5	13.6
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18.9	20.6	10.5	17.8	19.1	43.9	12.3	14.7	11.6	92.2	18.7	10.8	193	18.7	55.7	1.51	2.45	12.5	24.1	2.87	20.4	5.88	10.4	8.54	81.1	14.8	9.8	27.6	16.3	13.1	73.9	40.3	18.9	20.6	10.5	17.8	19.1	43.9	12.3
9800	1650	1060	1050	212	9410	8630	7860	2990	2370	1800	1400	5000	1130	9390	1770	1110	1130	6670	2800	6680	1530	32600	32900	8420	5740	16900	4490	4260	3830	2970	3020	9800	1650	1060	1050	212	9410	8630
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4.92	1.18	<10	<10	2.07	5.72	2.72	3.06	1.98	3.04	1.98	<1	<10	1	<10	1.58	1.98	<1	4.3	2.02	3.14	2.68	15	8.46	<10	<10	6.78	3.15	2.21	2.81	2.55	3.35	4.92	1.18	<10	<10	2.07	5.72	2.72
96.1	33.2	216	30.9	16.7	153	118	82.8	64.6	66.2	39.4	38.1	80	56.8	168	40.8	10.8	28.6	120	38.1	80	23.4	470	399	107	78.5	256	144	75.5	48.2	62.2	103	96.1	33.2	216	30.9	16.7	153	118
81.5	156	163	48.3	38.4	210	73.5	78.2	37.3	138	165	44.6	216	47.9	164	18.4	16.6	64.9	121	35.1	128	33	70.1	49	230	79.4	65.4	134	61.2	92.9	359	185	81.5	156	163	48.3	38.4	210	73.5
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35.7	80.1	105	90.5	95.1	72	90.8	84.4	117	71.3	82.6	84.8	53	82	50.2	92.8	80.5	72.5	31.3	89	34.5	78.4	94.9	-	75.1	96.8	74.3	95.2	-	93.4	109	86.7	35.7	80.1	105	90.5	95.1	72	90.8
17.1	<10	<10	<10	714	12.3	<10	<10	<10	16.7	<10	26	27.8	30.7	<10	14	<10	<10	14.4	<10	<10	<10	<10	-	<10	866	<10	<10	-	<10	<10	38.1	17.1	<10	<10	<10	714	12.3	<10
26.2	51.9	38.5	82.1	3980	14.6	<10	<10	<10	18.9	<10	31.5	30.2	48.4	<10	15.1	<10	<10	20	27.1	12.2	<10	<10	-	<10	1270	<10	14.5	-	<10	<10	82.6	26.2	51.9	38.5	82.1	3980	14.6	<10
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82.1	85.9	87.8	91.4	94.6	82.1	90.7	87.1	87.3	85	84.1	90.4	90	91.4	83.8	83.5	87.4	79.1	83.4	89.2	86.4	90.7	87.3	91	84.2	96.2	84.6	90.9	80	86.4	90.8	87.2	82.1	85.9	87.8	91.4	94.6	82.1	90.7
83.3	88.1	95.2	102	102	82.7	89.9	90.5	90.6	88.5	83.2	90.1	90.3	91.9	88.5	81.4	91.7	81.5	92	89.6	89.1	92.5	87.1	125	89.1	108	89.6	89.9	145	90	94.4	90.7	83.3	88.1	95.2	102	102	82.7	89.9
87.1	84.2	94	98.3	104	83.1	92.8	89.2	88.2	88.3	78.3	92.2	90.1	94.2	92.9	77.9	92.1	82.4	96.9	87.8	94.6	96.7	86.6	101	91.2	117	82.6	96.3	115	83	93.6	87.2	87.1	84.2	94	98.3	104	83.1	92.8
84.2	81.3	90.5	92.8	126	84	95.9	91	88.3	79.3	74	82.5	85.9	90.2	89.2	73.7	89.3	76.9	91.1	86.2	98.7	93.8	85.4	95.5	92.6	105	82.2	95.3	150	79.8	89.4	81.1	84.2	81.3	90.5	92.8	126	84	95.9
78.6	78.1	84	82.2	129	82.2	96.9	87.7	83.2	75	80.4	87.8	82.7	86.5	89.7	80	86.1	78.6	92.4	85.1	89.7	87.3	87.3	95	81.2	103	80.8	91.8	80	81	89	71.4	78.6	78.1	84	82.2	129	82.2	96.9
719	251	82.6	97.9	1630	81.1	54.4	54.5	42.1	4800	1160	16500	2100	798	156	15.7	34	189	503	28.7	536	563	53.2	2420000	1200	127000	<180	684	4480000	335	135	1060	719	251	82.6	97.9	1630	81.1	54.4
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103	121	113	117	115	108	115	107	110	113	110	114	112	110	105	113	118	113	101	114	103	109	111	115	106	112	111	115	108	112	113	106	103	121	113	117	115	108	115
96	99.5	101	98	89.9	97.8	98.8	98.3	97.4	97.3	97.7	102	93.8	98.1	97.6	99.8	99.6	98.8	93.1	100	96.7	98.8	98.8	88.1	96.6	94.8	97.2	101	98.7	98.7	101	97.1	96	99.5	101	98	89.9	97.8	98.8
81.8	95.8	98.5	91.9	76.1	93.9	93.1	95.6	95.2	85.2	94.1	96.5	80.1	96.7	91.6	96.4	99.6	94.1	79.8	93.8	80.1	96.4	99.4	74.9	89	85.1	95.5	98.5	96.4	95.3	96	94.4	81.8	95.8	98.5	91.9	76.1	93.9	93.1
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AI13-1	AI13-2	AI14-1	AI14-2	AI14-3	AI15-1	AI15-2	AI16-1	AI16-2	AI17-1	AI17-2	AI18-1	AI18-2
0.20-0.20	1.50-1.50	0.30-0.30	1.00-1.00	2.00-2.00	0.20-0.20	1.60-1.60	0.20-0.20	1.80-1.80	0.40-0.40	1.30-1.30	0.50-0.50	1.50-1.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	15/01/2021	15/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021
02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021
210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85
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6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Dark Brown	Blue	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Stone/Soil	Sandy Loam	Sandy Loam	Sandy Clay Loam	Loamy Sand	Stone/Soil	Sandy Loam	N/A	Sand	Sand	Sandy Loam	Sandy Loam
Stones	Brick	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones
Brick	None	N/A	N/A	None	None	N/A	N/A	Concrete/Aggregate	N/A	Stones	Concrete/Aggregate	None
9.3	7.9	10	15	7.8	14	15	10	7.2	5.3	6.1	9.5	11
-	-	-	-	-	0.0308	-	-	-	-	-	-	-
-	26/01/2021	25/01/21	-	25/01/21	26/01/2021	-	26/01/2021	-	26/01/2021	-	26/01/2021	-
-	Agnieszka Chelmowska	Andrzej Ferfecki	-	Andrzej Ferfecki	James Richards	-	Agnieszka Chelmowska	-	James Richards	-	Marcin Magdziarek	-
-	-	-	-	-	0.0014	-	-	-	-	-	-	-
-	-	-	-	-	None	-	-	-	-	-	-	-
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-	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	ACM debris and loose fibres in soil	-	-	-	-	-	-	-
2.88	0.447	10.2	4.19	3.22	42.4	5.52	27.2	0.724	0.409	1.98	17.4	1.55
10.5	9.12	8.54	9.01	9.61	11.1	8.56	9.61	9.72	9.33	10.3	9.71	10.3
<1	<1	13.2	<1	1.01	<1	3.36	<1	<1	<1	<1	<1	<1
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6.04	5.7	8.89	8.76	5.79	27.3	8.01	8.42	3.64	3	5.3	5.52	5.88
0.0393	<0.02	0.568	<0.02	0.133	1.13	0.185	0.54	0.0726	0.255	0.176	0.338	0.13
37.3	45.6	20.3	13.5	28.4	45.2	35.4	136	18.2	4.8	19.5	105	16.5
8.61	13.6	22.6	21.2	19.7	44	19.7	28.5	3.58	1.65	4.98	16.8	12.7
66100	31200	26700	32500	33500	218000	22400	86400	14700	3940	27600	57100	40000
14.7	11.6	92.2	18.7	10.8	193	18.7	55.7	1.51	2.45	12.5	24.1	2.87
7860	2990	2370	1800	1400	5000	1130	9390	1770	1110	1130	6670	2800
<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14
8.35	14.3	18.1	23.1	16.3	45.4	24.1	17.8	4.41	2.52	6.32	11.4	18.5
3.06	1.98	3.04	1.98	<1	<10	1	<10	1.58	1.98	<1	4.3	2.02
82.8	64.6	66.2	39.4	38.1	80	56.8	168	40.8	10.8	28.6	120	38.1
78.2	37.3	138	165	44.6	216	47.9	164	18.4	16.6	64.9	121	35.1
<0.01	<0.01	<1	<0.01	<0.01	0.0116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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<20	<20	59.9	<20	229	85.8	418	<20	<20	<20	<20	53.3	63.3
84.4	117	71.3	82.6	84.8	53	82	50.2	92.8	80.5	72.5	31.3	89
<10	<10	16.7	<10	26	27.8	30.7	<10	14	<10	<10	14.4	<10
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87.1	87.3	85	84.1	90.4	90	91.4	83.8	83.5	87.4	79.1	83.4	89.2
90.5	90.6	88.5	83.2	90.1	90.3	91.9	88.5	81.4	91.7	81.5	92	89.6
89.2	88.2	88.3	78.3	92.2	90.1	94.2	92.9	77.9	92.1	82.4	96.9	87.8
91	88.3	79.3	74	82.5	85.9	90.2	89.2	73.7	89.3	76.9	91.1	86.2
87.7	83.2	75	80.4	87.8	82.7	86.5	89.7	80	86.1	78.6	92.4	85.1
54.5	42.1	4800	1160	16500	2100	798	156	15.7	34	189	503	28.7
123	40.2	25700	3930	5590	221	75.7	149	<12	13.3	<120	396	<12
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77.9	256	22200	2660	4100	111	83.5	247	<16	23	171	684	<16
753	277	111000	12700	15800	481	414	2240	52.7	363	894	5180	139
587	186	96600	11600	10600	324	305	1760	39.6	289	810	3910	112
405	122	55900	7180	4860	133	182	1410	24.9	249	487	3010	76.5
326	167	46400	7430	3690	150	203	1180	22.2	258	602	2690	69
700	136	119000	16900	6300	173	317	2440	38.3	401	730	5040	102
216	49.3	34200	5240	1810	49.2	94.8	722	<14	112	208	1500	26.2
440	94.9	82800	11200	4200	96.8	191	1410	21.9	233	497	2970	63.7
397	82	87500	13100	3460	77	192	1220	27.1	188	333	2410	47.8
68.4	<23	14000	1830	610	<23	38.1	253	<23	40.8	<230	473	<23
386	76.1	79100	12200	3050	74.3	173	1150	32.6	181	403	2230	52.6
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107	110	113	110	114	112	110	105	113	118	113	101	114
98.3	97.4	97.3	97.7	102	93.8	98.1	97.6	99.8	99.6	98.8	93.1	100
95.6	95.2	85.2	94.1	96.5	80.1	96.7	91.6	96.4	99.6	94.1	79.8	93.8
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AI19-1	AI19-2	AG7-1	AG8-1	AG8-2	AH6-1	AH6-2	AH7-1	AH7-2	AH8-1	AH8-2	AH8-3	AH8-4
1.00-1.00	2.00-2.00	0.50-0.50	0.40-0.40	1.50-1.50	0.40-0.40	2.00-2.00	0.40-0.40	1.50-1.50	0.10-0.10	1.00-1.00	2.00-2.00	3.90-3.90
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
15/01/2021	15/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021
19/01/2021	19/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
26/01/2021	26/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
02/02/2021	02/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021
210119-85	210119-85	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68
23572733	23572738	23577280	23577255	23577263	23577284	23577289	23577269	23577276	23577467	23577235	23577244	23577249
6.0	6.0	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sand	Sand	Stone/Soil	Stone/Soil	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	Stone/Soil	Sandy Loam	Stone/Soil
Stones	Stones	Vegetation	Oil/Petroleum	None	Stones	Stones	Stones	Stones	Vegetation	None	Stones	None
None	N/A	Stones	Stones	Stones	None	Stones	None	None	Stones	Stones	None	Stones
18	11	7.4	9.5	15	9.9	10	10	9.2	13	9.7	11	13
-	-											
26/01/2021	-	26/01/21	26/01/21	-	-	26/01/2021	26/01/2021	-	26/01/2021	-	26/01/2021	-
James Richards	-	Andrzej Ferfecki	Andrzej Ferfecki	-	-	Marcin Magdziarek	Agnieszka Chelmowska	-	James Richards	-	Marcin Magdziarek	-
-	-											
-	-											
-	-											
-	-											
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
-	-											
70.5	6.45	3.88	2.26	2.26	24.1	1.28	9.45	12.3	7.6	6.71	13	30.7
9.01	9.11	11.3	11.1	10.5	8.95	10.4	9.29	11	8.89	9.17	11.3	11
<1	<1	1.04	1.41	2.63	4.46	6.68	<1	1.27	<1	<1	<1	<1
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5.98	3.7	6.16	5.08	6.09	6.03	5.98	4.02	<6	5.96	16	4.3	6.32
<0.02	0.0516	0.529	0.371	<0.02	0.0677	1.55	0.0282	<0.2	0.215	<0.2	0.164	<0.2
76	11.1	505	215	108	43.9	8.61	210	332	148	448	127	288
14	9.54	30.3	22.1	13.8	13.4	10.1	8.55	18.1	21.9	29.2	19.3	22.1
44600	9900	153000	114000	54600	56200	29300	94700	96700	62800	112000	85300	97400
20.4	5.88	55.7	28.1	18.1	39.5	179	17.3	44.8	31.2	182	32.3	18.7
6680	1530	20400	17000	12300	6260	2340	12600	24100	10400	3340	17400	25000
<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<1.4
10.5	8.28	23.4	9.95	13.6	11.5	16	7.23	42.6	13.1	33.6	10	11.1
3.14	2.68	11.8	6.3	5.37	3.54	1.06	5.09	12	4.29	<10	5.72	10.2
80	23.4	411	157	110	73.9	42	184	444	181	74.1	165	199
128	33	184	75.7	77.1	910	124	103	41.9	154	283	82.3	71.5
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<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.35	<0.035	<0.035	<0.035	<0.035
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34.5	78.4	82.4	113	89.9	84.2	116	73.9	97.6	95.9	71.4	88.9	91.5
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168000	37000	98100	1130000	3340000	130000	112000	46800	4120000	259000	207000	734000	785000
86.4	90.7	87.2	91.1	83.6	84.5	88.6	88.6	93	78.8	82.1	82.7	88.2
89.1	92.5	89.2	91	90.3	87	90	88.8	96.2	81.1	84.8	86.4	92.3
94.6	96.7	94.1	95	94.9	87.9	88.7	92.3	91.8	82.4	87	85.1	91.1
98.7	93.8	88.6	82.5	86.1	84.5	78.1	81.1	87.8	80.3	86	81.1	79.8
89.7	87.3	79.9	83.1	77.8	73.5	73.4	81.5	90.4	72.4	78.3	74.5	82.6
536	563	137	1830	4900	175	1240	255	80600	144	237	19900	25800
462	1040	139	1520	1130	303	272	286	18600	906	1240	6210	5780
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172	978	22.9	1210	1010	38.9	746	99.9	34000	96.6	86.8	7810	7610
2250	8410	240	3330	2730	436	2610	721	163000	783	1730	30200	24400
605	1260	109	1160	750	140	491	227	27000	380	660	5300	4850
5830	10900	618	7260	5590	1400	2630	1730	143000	4820	9190	26700	22900
4340	7920	551	5600	5540	1150	1870	1320	91800	4280	7850	18000	15700
3410	3880	482	2970	2400	1120	624	953	50500	3300	4750	9140	7350
3500	3570	413	2760	1850	1010	652	859	35700	3190	4320	6820	5820
5620	4970	898	5140	3190	1920	639	1650	61000	7640	8990	11100	9510
1550	1630	271	1550	938	658	177	688	20800	2110	2470	3470	2790
3360	3280	538	3350	1940	1280	399	989	41900	4380	5560	7600	6190
2650	2720	626	3670	1590	1300	304	926	32200	4050	5170	5560	5000
574	489	117	492	344	272	66.7	173	5410	843	947	1110	838
2420	2480	705	4140	1480	1200	266	918	27600	4000	5280	4980	4430
37300	54200	5890	46600	35700	12400	13100	11800	835000	40900	58500	165000	150000
103	109	113	114	111	113	113	115	113	112	109	120	116
96.7	98.8	99.6	97.5	97.2	98.6	99.7	98.7	92.6	100	98.2	96.9	97.4
80.1	96.4	97.2	90.6	89.6	95	98	96.8	85.1	95.7	92.8	96.5	94.6
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	266	1480	<180	390	<180	1370	<180	<180	376	623
<140	<140	<140	<140	320	<140	238	<140	4510	<140	<140	478	432
<80	<80	<80	<80	<80	<80	<80	<80	835	<80	<80	<80	<80
<200	<200	<200	<200	549	<200	<200	<200	19000	<200	<200	1190	618
<200	<200	<200	<200	<200	<200	<200	<200	4430	<200	<200	298	<200
1500	<260	<260	1110	2900	<260	1000	<260	183000	<260	<260	49800	34100
<0.4	<0.4	<0.4	<0.4	0.549	<0.4	<0.4	<0.4	23.4	<0.4	<0.4	1.49	0.618
<800	<800	<800	<800	2350	<800	<800	<800	30100	<800	<800	2340	1670

AI6-1	AI6-2	AI7-1	AI7-2	AI8-1	AI8-2	AI10-1	AI10-2	AJ10-1	AJ10-2	AJ12-1	AJ12-2	AJ13-1
0.10-0.10	1.60-1.60	0.40-0.40	1.30-1.30	0.40-4.00	2.00-2.00	0.40-0.40	1.70-1.70	0.50-0.50	1.90-1.90	0.60-0.60	2.00-2.00	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	18/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021
210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68
23577450	23577459	23577433	23577438	23577358	23577424	23577224	23577295	23577300	23577304	23577315	23577319	23577325
9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Stone/Soil	Stone/Soil	Sand	N/A	Sand	Loamy Sand	Loamy Sand	Stone/Soil	Sand	Sand	Sandy Loam
Vegetation	Vegetation	Vegetation	Oil/Petroleum	Stones	None	Stones	Stones	Stones	None	Stones	Stones	Stones
Stones	Stones	Stones	Stones	N/A	Stones	None	Brick	None	Stones	None	N/A	None
8.7	15	7.5	12	6.8	7.1	8.6	13	19	11	8.2	12	7.6
26/01/21	-	26/01/21	-	26/01/21	-	26/01/2021	-	-	26/01/21	26/01/2021	-	26/01/2021
Andrzej Ferfecki	-	Andrzej Ferfecki	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	-	Andrzej Ferfecki	James Richards	-	Marcin Magdziarek
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
20	5.69	21	32.6	3.79	0.619	6.31	2.14	10.2	6.05	1.78	1.37	5.4
8.89	9.38	9.72	10.9	12	9.27	9.39	9.29	9.77	9.07	10.9	10.1	9.23
<1	1.12	<1	<1	<1	4.42	<1	1.92	2.67	<1	<1	<1	<1
<12	<12	<12	<12	<12	25.4	<12	<12	<12	<12	<12	<12	<12
2.77	7.05	<6	<6	<6	6.52	5.36	8.01	1.86	8.03	15.9	7.5	7.34
0.121	<0.02	0.228	<0.2	<0.2	0.231	0.271	<0.02	0.628	1.05	<0.2	<0.02	0.591
35.2	157	348	384	589	8.3	11.5	<0.9	3.22	99	<9	<0.9	<9
9.14	17.4	<14	<14	<14	6.31	9.89	15.5	3.83	18.5	90.7	16.6	22.2
52400	64900	104000	104000	112000	39800	34600	82100	207000	94100	345000	40400	70200
14.9	21.6	15.5	<7	10.1	11.8	31.2	15.7	1110	199	27.4	11.8	30.8
9580	8500	22500	23900	32400	2010	14200	3120	872	6530	4020	1470	1940
0.581	<0.14	<1.4	<1.4	<1.4	<0.14	<0.14	<0.14	0.261	<0.14	<1.4	<0.14	<1.4
10.4	18.2	7.43	41.8	5.7	5.96	9.23	23.5	3.63	15.5	147	27.6	30.9
4.47	3.38	10.6	12.2	17.2	1.03	5.71	<1	<1	1.95	<10	<1	<10
103	130	311	276	478	15.7	25.9	50.5	17.6	248	20.1	24.3	28.8
86.5	73.6	87.1	38.9	59.9	50.8	148	61.6	260	537	22.5	51.9	198
0.0219	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	133	<50	97.2	<50	174	<50	<50	<50	90.7	715	<50	<50
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<20	264	<20	97.2	<20	341	<20	<20	<20	90.7	1140	<20	<20
48.8	83.7	36.9	15.8	98.5	87.6	73.4	116	86	85.7	79.8	89.4	68.8
<10	23.4	<10	19.2	<10	28	<10	<10	12.4	17.9	29.4	<10	<10
<10	39.8	<10	30.5	<10	50.6	<10	<10	13.6	20.2	41.4	<10	<10
<10	70.2	<10	47.5	<10	95.8	<10	<10	11.2	52.6	645	<10	<10
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1460	22600	3860	12600	37000	28800	1790	2680	10400	1290	1350000	7850	9690
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5580	102000	16400	87400	53300	110000	5010	<5000	16000	<5000	2450000	9640	15400
98600	152000	35100	105000	57800	143000	77900	14200	75300	10500	2590000	11400	33100
<10	71.4	<10	11.3	<10	82.9	<10	10.4	<10	<10	<10	<10	<10
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<10	46.8	<10	31.6	<10	63.5	<10	<10	<10	35.8	429	<10	<10
2060	6290	<1000	1580	<1000	1210	<1000	<1000	1590	<1000	3580	<1000	<1000
1560	2440	<1000	1460	<1000	2060	<1000	<1000	<1000	<1000	8240	<1000	<1000
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1390	1370	<1000	<1000	<1000	<1000	8360	<1000	2120	<1000	<1000	<1000	1130
93000	50900	18700	17600	<5000	33200	72900	10300	59300	8450	141000	<5000	17700
98600	153000	35100	105000	53300	143000	77900	10300	75300	<10000	2590000	<10000	33100
88.8	85.5	87.8	89.5	77.7	84.6	70.1	81.2	94.4	86.4	88.1	87.9	80.4
90.9	86.2	89.6	90	78.2	88.6	72.8	82.2	91	90.6	94.6	91.5	84.3
91.3	85.7	90.9	91.4	83.7	95.9	74.4	84.9	92.3	93.8	94.2	91.2	87.8
86.1	81.8	87.1	81.7	87	91.9	75.4	88	84.1	86	83.3	86.7	86.6
87.5	75.1	77.9	81.6	85.7	81.8	70.2	88.6	82.5	73.2	89.9	93	80
1970	2280	182	938	31	838	101	55.3	2090	224	33.1	<9	51.2
716	224	101	78.9	<12	99.8	139	23.9	556	90.1	<12	<12	27.8
28.8	36.1	9.42	60.6	<8	79.2	<80	<8	<80	<8	20.6	<8	<8
132	159	19.8	98.1	<10	136	<100	<10	343	50.9	33	<10	<10
929	565	269	434	50.6	325	371	64.1	1680	372	176	20.5	95.5
591	127	79.3	101	<16	93.4	<160	20.4	860	187	29.4	<16	21.8
1280	350	701	542	166	562	828	149	4040	788	195	<17	166
946	291	539	388	127	499	618	125	3140	614	175	<15	132
686	161	417	185	67.6	185	434	102	1990	375	82.9	<14	112
537	128	361	166	70.4	197	487	116	1620	318	108	13.8	119
1330	235	593	270	129	202	799	186	2580	370	133	21.8	227
395	82	201	88.8	35.9	73.3	226	55.5	816	133	33	<14	75.5
870	187	385	147	62.7	178	455	117	1570	257	64.6	<15	110
1630	228	414	172	66.5	136	472	110	1220	179	60.2	<18	117
224	41	85.4	<23	<23	27.9	<230	<23	<230	41.3	<23	<23	25.2
2110	280	389	157	62.5	148	439	99	1070	165	59	<24	108
14400	5370	4740	3830	869	3780	5370	1220	23600	4160	1200	<118	1390
104	114	103	108	112	109	110	113	114	120	114	110	117
97	98.1	93.1	98.9	98.3	99.1	96.6	98.6	99	99.7	95.8	98.4	97.5
87.7	96.8	81.7	100	96.1	99.5	90.9	93.4	95.9	96.5	90.9	93	95.3
<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	692	<260	<2600	<260	1120	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<8000	<800	<800	<800	<800	<800	<800	<800	<800	<800

AJ13-2	AJ14-1	AJ14-2	AJ15-1	AJ15-2	AJ16-1	AJ16-2	AJ16-3	AJ17-1	AJ17-2	AJ18-1	AJ18-2	AJ18-3
2.00-2.00	0.50-0.50	2.00-2.00	0.50-0.50	1.60-1.60	1.00-1.00	1.50-1.50	2.50-2.50	0.80-0.80	1.90-1.90	0.70-0.70	1.10-1.10	2.30-2.30
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021
01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021	01/02/2021
210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68	210120-68
23577333	23577337	23577342	23577353	23577364	23577370	23577378	23577384	23577390	23577401	23577405	23577409	23577418
9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown
Sand	Sandy Loam	Sand	Sandy Loam	Sand	Loamy Sand	Sand	Loamy Sand	Sandy Loam	Loamy Sand	Sand	Sand	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
N/A	None	Brick	N/A	None	None	None	None	None	None	Vegetation	None	N/A
10	9.1	10	10	9.3	5.7	11	14	7.3	11	17	9.3	13
-	26/01/21	-	27/01/2021	-	26/01/2021	-	27/01/2021	-	26/01/2021	-	26/01/2021	-
-	Andrzej Ferfecki	-	James Richards	-	James Richards	-	James Richards	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
2	12.1	1.47	7.24	4.31	1.14	2.02	3.84	0.357	2.71	17.4	2.9	3.79
10	9	9.29	10.6	8.94	9.08	9.87	9.3	10	9.04	8.99	10.8	8.95
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<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
8.02	15.5	6.42	16.6	8.23	3.32	6.52	7.98	2.06	5.09	8.6	0.815	7.59
<0.02	1.04	0.163	0.0295	0.334	0.103	0.781	0.233	0.0357	0.0769	0.479	0.0389	2.18
9.74	<9	18.1	14.7	10.2	<0.9	24.7	84.6	4.6	30.4	77.2	6.03	18.3
19.5	21.5	17.9	19.3	19.6	8.96	18.2	19.7	<1.4	8.31	19.8	2.15	25.4
60800	190000	24100	64000	28800	49900	62000	44900	9660	22800	36700	15000	19900
13.2	151	20.9	50.7	11.6	14.4	10.5	21.8	4.64	9.28	20.4	6.8	15.3
2250	14500	1480	4480	888	4630	2940	1700	690	2840	4190	2800	746
<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
20.4	20.1	18.3	11.8	20.4	8.44	15.1	20.7	2.83	12.5	14.6	2.75	24
1	<10	<1	<1	<1	1.98	1.01	<1	1.29	1.65	1.73	1.18	<1
36.7	49.5	39	44.9	28.1	17.6	62.8	44.2	6.49	69.7	78.9	10.3	37
67	350	72.3	459	49.1	44.4	156	67	17	35.9	108	28.7	58.5
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.418	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.935	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.792	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	2.15	<0.035
<50	<50	<50	<50	<50	81.6	50.9	92.4	139	<50	<50	171	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	78.1	<50
<20	<20	<20	<20	<20	81.6	50.9	92.4	139	<20	<20	249	<20
118	104	86.8	59	73.1	79.7	96.5	100	110	86.4	104	97	86.7
<10	14.3	<10	<10	<10	26.5	14.7	21.1	31.3	<10	13.2	20.9	<10
<10	19.8	<10	<10	<10	29.7	18.1	35.1	59.3	<10	16.8	31.9	<10
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4210	125000	<1000	22500	1350	71300	7190	1310	2480	<1000	<1000	432000	3090
20000	828000	9430	66000	21100	292000	43600	12000	6340	<5000	5620	868000	5900
30600	902000	13500	156000	24800	343000	49800	16700	14500	<10000	168000	1340000	11500
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8830	60400	2820	77200	2670	43100	4780	3440	5280	2000	107000	315000	4000
1620	1830	<1000	8610	<1000	<1000	<1000	<1000	1080	<1000	21800	11800	1250
<1000	<1000	<1000	6030	<1000	<1000	<1000	<1000	<1000	<1000	2540	<1000	<1000
10600	73900	<5000	90100	<5000	50700	6240	<5000	8160	<5000	163000	471000	5560
30600	902000	<10000	156000	21100	343000	49900	12100	14700	<10000	168000	1340000	11500
91.9	87.7	78.2	88.5	88.2	84.6	84.9	88.3	88	83	72.4	96	87.9
91.7	89.5	80.9	93.4	90.1	89.5	89	88.9	90.1	90.4	73.4	94	89.8
93.2	89.2	82.9	93.9	87.4	89.2	86.6	85.7	89.5	95.5	73.6	94	88.9
85.2	81.1	82.8	86.2	83.4	79.9	82.8	75.7	87.7	88.8	75.9	83	81.3
87.6	72.5	80.3	87	78.8	71.2	78	71	85.1	91.5	75.5	88	73.6
15.9	56.1	12.8	142	<9	31.6	16.9	23.7	1010	87.7	376	26300	73.9
<12	17.1	<12	139	<12	101	14.6	<12	<12	<12	292	<600	<12
<8	14.8	<8	<40	<8	8.54	<8	<8	272	86.7	145	2960	<8
<10	38.3	<10	<50	<10	16.6	<10	<10	174	56.7	350	989	<10
42.5	204	32.2	329	29.3	89.2	48	55.7	522	312	4470	6190	107
<16	58.6	<16	113	<16	48.7	<16	<16	97	64.8	996	1240	<16
58.2	323	46.7	700	25.6	247	70.2	58.5	162	240	8020	1970	77.1
47.2	327	42.2	577	20.7	213	67.6	51.8	98.4	173	6310	1190	66.9
36.7	226	44.5	414	<14	194	50.3	31.1	38.9	109	4720	<700	43.4
36.5	221	49	398	18	277	51.1	33.9	30.2	103	5060	<500	51.1
61.3	443	82.4	865	17.6	373	84.8	31.2	47.2	172	7950	<750	79.9
19	99.3	27.3	237	<14	125	23.9	<14	<14	51.9	2280	<700	21.6
33.3	201	40.6	470	<15	237	47.7	25.8	29	94.7	4840	<750	42.8
31.1	175	41.6	595	<18	295	43.7	25.8	25.2	75.7	4370	<900	40.7
<23	51.3	<23	<115	<23	58.3	<23	<23	<23	<23	834	<1150	<23
34.5	186	38.1	532	<24	292	44.3	<24	26.8	75.7	4170	<1200	42.6
416	2640	457	5510	<118	2610	563	338	2540	1700	55200	40900	647
112	108	118	114	113	109	113	112	110	110	106	110	111
98.7	97.4	98.5	99.6	98	96.2	98.5	99.8	99	103	97.9	98.6	98.3
96.5	90.2	96.4	95.8	94.1	92.2	96.4	98.1	97.7	93.1	89	94.9	91.9
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
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<260	<260	<260	<260	<260	<260	<260	<260	286	1210	<260	4290	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AK10-1	AF2-1	AF2-2	AF4-1	AF4-2	AF5-1	AF5-2	AG2-1	AG6-1	AG6-2	AH2-1	AH2-2	AJ19-1
0.30-0.30	0.60-0.60	1.30-1.30	0.50-0.50	1.60-1.60	0.50-0.50	1.80-1.80	0.30-0.30	0.30-0.30	1.50-1.50	0.50-0.50	1.50-1.50	1.00-1.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
19/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	20/01/2021	19/01/2021
20/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021
20/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021
01/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021
210120-68	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44
23577310	23584634	23584642	23584623	23584630	23584610	23584617	23584648	23584593	23584600	23584664	23584669	23584575
9.6	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sand	Loamy Sand	Stone/Soil	Sand	Sand	Sandy Loam	Sand	Sand	Stone/Soil	Loamy Sand	N/A	Sand
Stones	None	Stones	None	None	None	Stones	None	Vegetation	None	Stones	Vegetation	None
Concrete/Aggregate	Stones	None	Stones	Stones	Stones	Brick	Stones	Stones	Stones	None	Stones	Stones
8.3	17	14	7.4	15	9.7	13	15	9.3	11	9.6	12	10
	-	-	-	-	-	-	<0.001	-	-	-	-	-
-	27/01/2021	-	27/01/2021	-	27/01/21	-	27/01/21	27/01/2021	-	-	27/01/21	27/01/21
-	Agnieszka Chelmowska	-	James Richards	-	Andrzej Ferfecki	-	Eva Guerra	Agnieszka Chelmowska	-	-	Eva Guerra	Andrzej Ferfecki
	-	-	-	-	-	-	<0.001	-	-	-	-	-
	-	-	-	-	-	-	None	-	-	-	-	-
	-	-	-	-	-	-	N/a	-	-	-	-	-
	-	-	-	-	-	-	<0.001	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Not Detected	-	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected
	-	-	-	-	-	-	loose fibres in soil	-	-	-	-	-
5.1	88.4	6.31	1.4	4.24	25.7	6.02	>100	28.1	4.17	18.4	2.52	1.88
9.07	8.68	8.61	12.1	11	11	9.37	8.15	9.09	9.44	9.53	9.68	9.98
<1	<1	9.96	<1	1.16	<1	5.96	3.08	<1	3.2	8.34	2.17	<1
<12	<12	<12	<12	<12	<12	<12	<12	38.8	<12	<12	<12	<12
6.06	5.02	8.62	2.13	5.76	3.55	10.5	11.2	5.96	7.36	9.47	7.52	3.87
<0.02	0.195	0.111	0.166	0.303	<0.02	0.335	0.256	<0.02	0.289	<0.02	0.136	0.173
<0.9	91.2	8.02	453	56.1	91.1	94.1	14.5	244	34.2	198	25.1	13.5
8.78	22.2	26.7	14.2	11.7	10.1	15.9	21.6	26.6	10.8	22.5	8.07	9.16
56700	36800	23500	120000	43300	66300	58300	45500	92600	25600	85300	30000	18600
28.4	22.3	22.1	16.7	19	66.1	28.5	51.7	26.1	34.5	29.3	7.77	17.7
1960	4380	920	33300	8530	8770	7040	1720	16900	2980	9410	2300	1090
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.622	<0.14	<0.14	0.558	<0.14	<0.14
11	13.7	29.2	6.83	16.5	6.26	17.8	11.3	10.8	10.6	23.4	18.4	6.88
1.17	2.02	<1	14.9	2.63	2.05	2.11	<1	3.86	1.81	1.83	<1	<1
19.1	96.1	23.1	396	107	99.2	85.8	21.1	185	45.2	129	26.6	14.9
98.8	72.7	81.8	37.5	62.3	89.8	114	112	136	126	137	42.8	67.3
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0118	<0.01	<0.01	0.0111	0.0113	<0.01
<0.01	<0.01	<0.01	<0.01	0.0118	<0.01	<0.01	0.0354	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.0472	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	147	<50	95.6	<50	51.8	183	<50	110	<50	324	152
<50	<50	94	<50	<50	<50	<50	82.6	<50	339	<50	967	<50
<20	<20	241	<20	95.6	<20	51.8	266	<20	449	<20	1290	152
76.6	72.5	94.5	93.6	127	47.8	98.9	39.7	74.2	88.2	84.9	107	117
<10	<10	34.8	<10	22.4	<10	<10	17.7	<10	21.3	<10	17	34.4
<10	<10	46.4	<10	36.6	<10	21.9	94.4	<10	32.5	<10	80.2	44.4
<10	<10	66.1	<10	36.6	<10	29.9	70.8	<10	56	<10	227	73.3
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<1000	<1000	1090	<1000	<1000	<1000	<1000	<5000	<1000	<1000	<1000	<1000	1550
1970	1260	5340	1000	1400	6320	7100	7990	2670	10600	2860	<1000	3640
11600	4340	3270	19800	8420	13800	3540	25700	3730	4410	7640	2060	2610
<1000	<1000	<1000	5420	1260	1840	<1000	<5000	<1000	<1000	<1000	<1000	<1000
14000	5680	10200	26300	11600	22800	11300	36300	6590	16000	11400	<5000	8140
55100	38300	21300	30000	16500	128000	62500	4000000	88400	40700	123000	47400	216000
<10	<10	27.8	<10	17.7	<10	<10	17.7	<10	288	<10	650	<10
<10	<10	22	<10	<10	<10	<10	17.7	<10	14.6	<10	166	<10
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30700	22000	4450	2390	3140	75300	35800	2610000	56600	15900	74200	30500	121000
10000	4180	<1000	<1000	<1000	10800	6480	284000	13100	6020	17400	3610	76700
2080	<1000	<1000	<1000	<1000	2140	<1000	32700	1570	<1000	2150	<1000	7740
41100	32600	11100	<5000	<5000	105000	51200	3960000	81800	24700	112000	44700	208000
55100	38300	21600	26300	11700	128000	62600	4000000	88400	41200	123000	45600	216000
86	84.5	91.9	84.4	86.8	76	81.6	84.3	83.5	85.1	82.4	84.5	75.1
89.1	84.1	92.3	86.5	86.4	81.1	85	88.7	86.8	89.1	86.9	87.3	80.4
92.5	81.8	96	88	86	76.5	86.4	87.1	88.2	91.6	90.4	89.6	80.6
81.4	75.4	85.5	82.9	79.5	71.4	81.2	80.4	83.4	84.3	85.7	85.6	72.7
70.2	71.4	84.2	81.7	82	72.2	77	73.8	80.1	82.8	81.9	84.2	71.2
26.4	55.2	381	35.7	182	446	207	1630	124	196	241	1070	1700
23.1	118	129	32.5	<12	543	150	3850	292	74.2	466	267	<60
<8	22.7	474	14.2	<8	<40	14.9	532	10.7	<8	<8	<8	235
<10	86.1	131	12.6	<10	127	40.2	4580	30	23.2	102	144	82
126	729	248	157	32.1	1700	405	37500	385	117	1130	1440	432
28.5	214	130	50.8	<16	678	135	10600	147	28.2	477	554	99.2
239	1230	1030	361	31.6	5070	1140	61100	2510	178	4330	3350	230
182	917	753	274	24.7	3980	903	40100	2280	146	3260	2350	166
158	570	499	190	<14	2610	644	24100	1600	121	2140	1430	84.9
140	631	495	209	15	2690	648	23200	1630	142	2120	1420	102
232	854	782	308	19.6	4580	1050	31300	3280	291	3470	2080	159
61	269	233	91.6	<14	1380	312	9560	899	92.2	1030	658	<70
124	487	428	168	<15	2480	581	17300	1820	191	1960	1150	<75
115	422	366	152	<18	2220	517	12900	1730	214	1730	996	<90
29.3	96.6	79	36.2	<23	507	112	3110	368	41	390	216	<115
107	374	383	147	<24	2140	493	11300	1610	243	1630	895	<120
1590	7080	6540	2240	305	31100	7350	293000	18700	2100	24500	18000	3290
111	115	105	107	111	102	107	106	113	110	108	113	114
98.7	96.1	104	98.6	100	96.7	97.9	94.8	97.2	98.9	98.7	98.6	99.7
92.8	78.7	93.3	96.8	95.4	87.4	96.7	77.4	91.9	99	93.7	95.6	99.1
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AJ19-2	AJ19-3	AK16-1	AK16-2	AK17-1	AK17-2	AK18-1	AK19-1	AK19-2	AK11-1	AK12-1	AK13-1	AK13-2
2.00-2.00	3.00-3.00	0.50-0.50	1.30-1.30	0.50-0.50	1.30-1.30	1.00-1.00	0.50-0.50	1.90-1.90	0.10-0.10	0.60-0.60	1.00-1.00	2.00-2.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	22/01/2021	22/01/2021	21/01/2021	22/01/2021
21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021
27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021
03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021
210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210121-44	210123-50	210123-50	210123-50	210123-50
23584656	23584678	23584719	23584584	23584702	23584710	23584698	23584684	23584691	23598989	23598983	23598972	23598976
5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	3.2	3.2	3.2	3.2
Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Sandy Loam	Sand	Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	Sand	Stone/Soil	Sandy Loam	Loamy Sand	Sand	Sand
Stones	Stones	None	Stones	Stones	Stones	Stones	None	None	Stones	Stones	Stones	Stones
None	None	Stones	None	Fibres	None	None	Stones	Stones	None	None	None	Brick
9.8	6.4	13	13	13	13	11	7.2	12	8.5	11	8.8	16
-	-	-	-	0.073	-	-	-	-				
-	27/01/21	27/01/2021	-	27/01/2021	-	-	-	27/01/21	29/01/21	-	-	29/01/2021
-	Eva Guerra	James Richards	-	Agnieszka Chelmowska	-	-	-	Andrzej Ferfecki	Andrzej Ferfecki	-	-	James Richards
-	-	-	-	0.0079	-	-	-	-				
-	-	-	-	None	-	-	-	-				
-	-	-	-	N/A	-	-	-	-				
-	-	-	-	0.0809	-	-	-	-				
-	Not Detected	Not Detected	-	Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected
-	Not Detected	Not Detected	-	Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	Not Detected	-	-	Not Detected
-	-	-	-	Loose fibres in soil	-	-	-	-				
1.24	3.74	9.52	2.28	8.96	2.67	1.29	5.9	4.72	20.3	0.945	2.16	3.29
9.2	9.02	10.6	10.6	10.4	10.1	11	10.7	10.6	9.07	9.83	11	10.7
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0.0462	0.271	0.878	0.28	0.939	0.0453	<0.2	0.173	0.231	0.936	<0.2	0.702	2.03
8.9	12.3	93.7	30.8	33.7	37.6	23.2	11.7	84.4	10.6	9.55	186	89.7
13.1	15	27.6	21.3	560	20.2	<14	6.14	11.9	<14	<14	19.8	38.6
20600	15200	137000	53400	180000	40000	21500	43700	138000	149000	38300	108000	49100
12.7	29.8	101	33.7	36.1	29	4.66	30.5	20.4	77.2	21.5	27.7	284
826	663	8070	2180	3420	2130	5550	1490	9730	3380	2070	11000	2920
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16.6	11.4	31.7	24.3	16.9	24.3	2.5	9.45	10.7	10.4	18.2	10.6	20.2
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23.2	15.4	128	56.9	248	57.2	28.9	32.6	69.2	47.1	27.8	176	66.8
42.6	68.2	301	86.9	178	73.5	54.7	77.5	50.3	150	59.4	75.7	1010
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71.1	74.2	81.5	121	83.2	83.2	72.4	72	77.4	114	107	86.4	145
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32500	21900	194000	41300	137000	26000	51000	91300	68900	70200	19100	117000	56300
83.4	83	80	84.6	73.5	84.3	83	95.6	84.4	84.7	88.5	83.2	84.1
87.9	85.2	82.4	83.9	78	88.2	88.2	97	85.8	83.6	87.5	86.6	89.9
91.1	88.1	81.6	82.2	74.9	91	90.8	92.6	84.9	82.2	86.4	93.4	88.1
81.2	81.6	78.1	75.7	71	83.1	81.2	84.6	78.2	71.3	82.9	106	97.9
78.1	81.2	75.5	75	70.2	79.3	78.3	79.6	78.8	70.3	80.7	97	92.6
112	16.3	31.5	19.1	<90	23.7	15.1	<45	33.8	23.1	27.2	<180	75.7
<12	<12	<24	17.4	<120	<12	<12	<60	17.9	<12	20.6	<240	112
15.4	<8	46.6	<8	<80	10.1	<8	<40	<8	<8	<8	<160	<40
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51.3	46.4	1490	149	<150	151	78.9	390	149	31.1	61.5	<300	713
30.7	27.7	953	71.9	<140	110	45.3	243	100	27.8	49.2	<280	435
42.7	34.3	892	75.1	<100	118	54.7	271	109	36.9	60.5	<200	401
56.4	42	1340	104	<150	186	79.6	395	166	45.7	76.2	<300	612
16	<14	459	33.5	<140	52.2	20.3	124	48.1	<14	20.7	<280	233
29.8	21.6	959	63	<150	109	43	218	98.6	22.4	40.8	<300	364
30.2	20.2	597	49	<180	90.7	39.1	209	77.1	23.8	37.9	<360	337
<23	<23	133	<23	<230	<23	<23	<115	<23	<23	<23	<460	<115
34.5	<24	594	54.6	<240	94.1	47.4	211	84.1	<24	40.7	<480	273
541	303	9670	1030	<1180	1290	582	2820	1180	289	558	<2360	5000
111	112	112	119	111	114	112	120	115	109	111	111	109
100	96.9	98.3	100	97.5	99.4	99.7	99.1	99.5	97.6	96.3	97.1	96.9
101	95.3	93.5	98.5	94.8	97.1	99.4	96	95.9	101	97.6	101	101
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AL3-1	AL6-1	AL7-1	AL7-2	AL10-1	AL10-2	AL15-1	AL15-2	AL16-1	AL16-2	AL16-3	AM5-1	AM5-2
0.30-0.30	0.80-0.80	0.40-0.40	1.50-1.50	0.50-0.50	1.80-1.80	0.50-0.50	1.40-1.40	0.60-0.60	1.50-1.50	3.00-3.00	1.00-1.00	1.90-1.90
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	22/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	21/01/2021	22/01/2021	22/01/2021
23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021
23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021	23/01/2021
04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021
210123-50	210123-50	210123-50	210123-50	210123-50	210123-50	210123-50	210123-50	210123-50	210123-50	210123-50	210123-50	210123-50
23598918	23598941	23598905	23598913	23598894	23598901	23598960	23598967	23598889	23598948	23598955	23598925	23598935
3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Loamy Sand	Sand	Rubble/Soil	Loamy Sand	Loamy Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Stones	Stones	Stones	None	Stones	Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones
Vegetation	None	Brick	None	None	None	Brick	Brick	None	Brick	Vegetation	Vegetation	Brick
11	7.8	9.4	5	11	8.7	12	11	7.9	9.3	7.4	10	8.2
-	29/01/21	-	29/01/2021	-	29/01/2021	-	29/01/2021	29/01/21	-	29/01/2021	29/01/2021	-
-	Eva Guerra	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Marcin Magdziarek	Eva Guerra	-	James Richards	Marcin Magdziarek	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
<0.35	1.39	<0.35	1.37	4.38	2.36	46.4	7.05	66.9	2.29	2.07	2.67	4.67
11.5	10.7	8.67	9.31	9.06	9.41	10.4	9.66	11.8	9.9	9.93	7.88	9.06
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6.59	<6	9.26	<6	9.07	6.06	7.4	10.3	6.59	7.87	7.95	<6	7.12
0.493	0.397	1.02	0.21	0.564	0.219	0.336	0.637	0.79	0.403	0.544	0.501	1.29
163	69.9	101	12.4	102	18.1	81.1	33.4	58	35	42.3	40.3	24.6
<14	<14	39.8	<14	51.4	15.5	41	26.9	18.7	14.3	16.6	<14	17.6
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18.3	16.3	57.4	13.4	32.2	17.4	167	37.7	30.8	21.2	11.1	8.47	27.6
16300	5360	2430	1980	3910	3930	4800	1510	4140	2260	2520	6760	4960
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14.4	5.06	15.9	8.87	16.9	13.3	13.9	26.9	15.8	16.3	17	7.31	11.2
13	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
256	94.1	73.4	46.4	139	33.4	73.6	65.1	73.4	56	69.4	69.8	157
86.2	73.9	146	38.6	99.1	47.5	115	129	185	80.4	55	297	147
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9140	11900	5350	36000	17400	6230	238000	19600	15700	12000	6700	211000	38800
14900	11900	<10000	36000	186000	<10000	344000	31600	87500	23000	17500	228000	49700
85	84.8	86.2	89.6	88.3	86.1	84.8	85	86.9	88.4	87.5	86.4	90.6
88.1	80.2	91.9	89.7	87.1	84.5	86.9	83.7	89	87.1	88.2	90.8	84.7
88.7	82.4	101	91.2	87.1	81.2	85.7	84.8	88.1	86.4	89.1	93.8	84.2
88.2	83.1	109	88.3	80.5	78.1	77.4	79.8	80.7	84.1	85.8	112	88.5
90.9	87.2	101	95.9	81.5	80.6	78.8	80.4	82.9	90	85.7	94.2	85.1
13.5	<45	<90	1930	30.9	43.2	<9	119	94.4	38.7	23.3	<180	<90
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153	<75	<150	89.1	245	109	20.2	9790	241	79.1	45.4	<300	<150
26.4	<80	<160	<16	34.6	20.2	<16	2670	59.2	18.1	<16	<320	<160
408	162	<170	99.4	241	241	26.3	15400	378	50	45.4	<340	<170
376	143	<150	72.2	166	161	21.8	10000	295	39.3	32.8	<300	<150
238	119	<140	60.4	90.5	86.3	16.3	4680	182	20.9	17.8	<280	<140
262	131	<100	62.8	81.5	70.3	15.9	3550	173	25.2	23.1	<200	<100
480	199	<150	89.1	119	118	19	3560	220	33	24.5	<300	<150
141	<70	<140	27	34.4	49.8	<14	1330	89.3	<14	<14	<280	<140
268	144	<150	51.6	90.7	72	<15	3160	167	16.7	<15	<300	<150
280	151	<180	51.3	78.8	70.1	<18	2420	140	<18	<18	<360	<180
38.8	<115	<230	<23	<23	<23	<23	514	27.7	<23	<23	<460	<230
273	153	<240	43.7	71.6	55.1	<24	2060	136	<24	<24	<480	<240
2970	1200	<1180	2670	1340	1120	120	60100	2260	376	212	<2360	<1180
110	109	108	108	108	109	110	113	108	118	108	113	110
98.9	98	98.3	98.7	98.4	97.6	97.3	98	98.4	98.8	99.3	97	98.7
102	105	102	102	101	102	96.7	98.4	103	104	103	103	105
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

P16-1	P16-2	P17-1	P17-2	Q17-1	Q17-2	Q18-1	Q18-2	R18-1	R18-2	R19-1	R19-2	R19-3	R20-1
0.30-0.30	1.30-1.30	0.30-0.30	1.50-1.50	0.30-0.30	1.50-1.50	0.30-0.30	1.50-1.50	0.60-0.60	1.80-1.80	0.40-0.40	1.20-1.20	2.50-2.50	0.50-0.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021
27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021
03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021
09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021
210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42	210127-42
23613950	23613957	23613928	23613934	23613939	23613943	23613920	23613924	23614011	23613914	23613985	23613991	23614001	23613973
5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Grey	Grey	Black	Black	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Sandy Loam	Loamy Sand	Sand	Sand	Sandy Loam	Loamy Sand	Loamy Sand	Sand	Sand	Sand	Sand	Loamy Sand
Stones	Stones	Stones	Stones	None	Stones	Vegetation	Stones	Stones	None	Stones	Stones	None	Vegetation
None	N/A	N/A	None	Stones	N/A	Brick	None	Brick	Stones	None	Brick	Stones	Brick
8.6	10	8.9	15	9.8	14	7.1	14	7.7	17	17	7.4	20	7.3
-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-
03/02/2021	-	03/02/2021	-	03/02/2021	-	03/02/2021	-	03/02/2021	-	-	03/02/2021	-	-
Paul Poynton	-	Paul Poynton	-	Paul Poynton	-	James Richards	-	Paul Poynton	-	-	Paul Poynton	-	-
-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-
-	-	-	-	-	-	None	-	-	-	-	-	-	-
-	-	-	-	-	-	N/A	-	-	-	-	-	-	-
-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	-	Not Detected	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-
Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	-
-	-	-	-	-	-	Fibre bundle in soil	-	-	-	-	-	-	-
18.8	2.16	>100	20.3	22.8	21.9	5.65	49.3	7.29	8.69	4.53	5.74	22.6	2.17
12.4	12.6	11.1	11.9	12.5	12.1	10.5	11.4	11.1	10.9	9.86	10.9	11.3	10.9
<1	<1	6.63	1.59	2.35	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	15.6	<12	<12	<12	<12
78.6	<6	<6	<6	<6	<6	13.8	6.15	9.32	12.1	14.7	7.6	10.8	21.4
<0.2	0.628	0.619	0.568	<0.2	0.685	0.687	0.882	0.432	0.221	1.27	0.261	0.244	0.956
378	546	123	506	522	426	103	61.5	58.1	45.8	21	32	30	101
54.4	22.5	15.7	<14	16.3	28.9	21.4	14.3	22.1	32.4	22.9	14.3	16.4	38.4
144000	127000	39700	104000	139000	114000	77200	104000	66600	33700	160000	25700	35900	103000
55.2	10.1	37.2	<7	26.4	25	73.3	55.3	52.2	29.8	182	18.2	26.8	107
93900	27400	8480	21400	24900	28600	10600	5430	4170	2950	5620	2130	2790	7530
<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
50.8	8.48	8.82	<2	12.6	14.9	21.7	12.7	20.2	24.4	12.5	14.2	16.7	22.9
71.3	12.7	<10	<10	19	14.7	10.1	<10	<10	<10	<10	<10	<10	<10
416	473	118	451	416	475	243	113	95.3	61.3	82.8	72.5	68.5	130
95.3	51.7	161	39.1	54.8	106	254	137	137	48.6	461	55.5	108	366
<0.01	<0.01	<0.01	<0.01	0.0111	0.0116	0.0108	0.0117	<0.01	<0.01	<0.01	<0.01	<0.01	0.0108
0.0109	<0.01	<0.01	<0.01	<0.01	0.0232	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
171	159	<50	116	58.8	122	106	109	<50	315	<50	<50	106	56.1
61.3	52.2	<50	<50	<50	<50	<50	<50	<50	190	<50	<50	<50	<50
232	211	<20	116	58.8	122	106	109	<20	505	<20	<20	106	56.1
102	61.5	2.8	15.5	9.6	77.2	106	5.4	11.7	80.9	74.3	81.5	83.2	82.9
35	32.2	<10	23.4	13.3	26.7	26.9	19.9	<10	10.9	<10	<10	20.2	17.2
42.7	72.2	19.8	53.8	30	45.2	37.7	53.8	10.8	52	<10	16.2	25.2	20.5
93	54.4	<10	38.6	15.5	49.9	40.9	35.1	<10	252	<10	32.4	60.5	18.3
<1000	<1000	6160	7940	<1000	<1000	<1000	5100	<1000	4650	<1000	<1000	<1000	<1000
1640	<1000	9650	9850	2100	2800	<1000	11200	3770	19700	<1000	<1000	<1000	3340
5250	3980	9640	7450	11800	6860	3810	29800	9540	81100	6890	<1000	5610	12700
38900	31300	23500	36500	118000	78500	16100	112000	31000	241000	25800	<1000	21500	47700
9520	6170	4550	8510	24400	56300	5060	35000	7110	34800	4970	<1000	3090	17300
56000	42600	53500	70300	157000	145000	26300	193000	52200	381000	38800	<5000	31100	81200
89800	62700	140000	150000	223000	391000	44800	382000	92700	429000	52700	<10000	40300	129000
<10	<10	<10	<10	<10	<10	<10	<10	<10	10.9	<10	<10	<10	<10
<10	16.7	<10	<10	<10	<10	<10	<10	<10	10.9	<10	<10	<10	<10
61.3	35.5	<10	25.7	<10	33.6	28	23.4	<10	168	<10	21.6	40.3	11.9
1400	<1000	1750	4050	1760	9430	<1000	5240	<1000	<1000	<1000	<1000	<1000	1830
3020	<1000	13600	12900	2250	21000	<1000	17800	3550	1070	<1000	<1000	<1000	1940
13700	6530	23900	26700	16000	76100	3110	54100	8580	2380	<1000	<1000	<1000	8290
14700	11700	44500	34500	41900	126000	13700	105000	26100	41900	11900	<1000	7870	31400
<1000	<1000	2690	1350	4040	13100	1060	5760	1950	2170	<1000	<1000	<1000	4020
<1000	<1000	<1000	<1000	<1000	1710	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1090
33800	20100	86400	79500	65900	246000	18500	188000	40500	47700	13900	<5000	9200	47500
90000	62900	140000	150000	223000	391000	44900	382000	92700	429000	52700	<10000	40500	129000
85.4	82.5	84.3	85.1	84.7	79.4	90	84.3	78.3	85.7	83.4	86.2	85.1	84.7
87.4	83.1	87.1	84.9	85.7	82	90.8	84.6	78.9	87.4	83.8	87.4	84.2	87.1
86.6	82.1	81.6	83.4	90	79.1	90.1	84.8	77.5	78.5	85.7	86.1	86.1	86.9
78.3	75.4	66.6	71.1	89.4	79.3	80.5	75.6	72	40.3	78.3	76.6	83.7	78.9
76.9	75	52.6	62.5	87.5	80.8	80.8	68.3	70.4	20.6	74.9	76.8	82	81.4
776	386	3080	2440	2760	24100	286	4560	269	126	178	19.5	67.4	1790
367	262	<12	468	607	14100	77.7	1980	<60	23	35.8	<12	18.3	330
14.5	19.7	127	85.1	76.1	880	23.6	405	102	27.9	15.9	<8	<8	84.5
83.7	153	941	644	313	16500	93.3	4350	176	38.6	37.2	<10	21.6	361
2430	3040	6200	3590	3390	60800	498	14800	974	209	282	46.7	156	2500
432	1220	1560	677	747	20900	120	3960	241	52	60.2	<16	35.2	599
1780	3660	8910	3030	5540	58300	685	15300	1340	244	332	41.2	221	3120
1130	2400	6700	2020	4030	39100	499	12900	1140	195	270	31.8	161	2190
563	1560	<14	1010	2690	20300	307	8840	922	100	182	24.2	104	1240
460	1320	3090	974	2470	16900	257	7310	789	88.7	174	24.8	102	1160
386	1530	4240	1160	2560	20400	245	9840	676	98.2	281	22.5	78.3	859
189	562	<14	339	1240	7620	140	3590	315	37.7	83.3	<14	34.8	540
349	1060	<15	670	2310	15300	256	6160	635	53	160	20.2	86.7	992
285	859	1750	527	1940	12200	231	5420	410	39.2	158	<18	73.3	901
56.2	157	391	102	427	2120	40.2	1130	<115	<23	29.9	<23	<23	149
225	653	<24	366	1880	10000	185	3920	360	29.4	123	<24	78.1	706
9530	18800	37000	18100	33000	340000	3950	104000	8350	1360	2400	231	1240	17500
104	108	106	105	94.9	106	112	106	105	119	104	119	110	108
96.4	97.4	94.6	97.7	87.8	97.1	98.1	97.4	94.9	96.8	97.8	97.1	96.6	97.4
93.3	99.8	83.8	92.2	73.6	96.1	93.5	92.3	86.7	83.9	96.3	93.9	97.4	99
<200	<200	<2000	<2000	<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200
<180	<180	<1800	<1800	<180	<180	<180	<1800	<180	<180	<180	<180	<180	<180
<140	<140	<1400	<1400	<140	<140	<140	<1400	<140	<140	<140	<140	<140	<140
<80	<80	<800	<800	<80	<80	<80	<800	<80	<80	<80	<80	<80	<80
<200	<200	<2000	<2000	<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200
<200	<200	<2000	<2000	<200	<200	<200	<2000	<200	<200	<200	<200	<200	<200
<260	<260	<2600	<2600	443	547	<260	<2600	<260	<260	<260	<260	<260	550
<0.4	<0.4	<4	<4	<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<8000	<8000	<800	<800	<800	<8000	<800	<800	<800	<800	<800	<800

R20-2	V4-1	V5-1	V5-2	AA1-1	AA1-2	AB1-1	AB1-2	AN6-1	AQ7-1	V1-1	V1-2
1.60-1.60	1.15-1.15	0.50-0.50	1.50-1.50	0.20-0.20	1.80-1.80	0.30-0.30	1.60-1.60	0.30-0.30	0.50-0.50	0.50-0.50	1.40-1.40
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
26/01/2021	25/01/2021	25/01/2021	25/01/2021	22/01/2021	22/01/2021	25/01/2021	25/01/2021	22/01/2021	22/01/2021	25/01/2021	25/01/2021
27/01/2021	27/01/2021	27/01/2021	27/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021
03/02/2021	03/02/2021	03/02/2021	03/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021
09/02/2021	09/02/2021	09/02/2021	09/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021
210127-42	210127-42	210127-42	210127-42	210126-90	210126-90	210126-90	210126-90	210126-90	210126-90	210126-90	210126-90
23613979	23613902	23613963	23613968	23610200	23610208	23610191	23610195	23610107	23610168	23610181	23610186
5.4	5.4	5.4	5.4	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Dark Brown	Grey	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown
Loamy Sand	Sand	Sand	Sand	Loamy Sand	Stone/Soil	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Sand	Sandy Clay Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones
Vegetation	Concrete/Aggregate	None	N/A	None	None	Vegetation	None	Vegetation	None	Stones	N/A
16	9.5	10	12	8.7	10	11	15	13	17	19	16
-	<0.001	-	-	-	-	-	-	-	-	-	-
03/02/2021	03/02/2021	-	03/02/2021	03/02/2021	-	03/02/2021	-	02/02/2021	-	-	03/02/2021
Paul Poynton	James Richards	-	James Richards	Paul Poynton	-	Paul Poynton	-	Marcin Magdziarek	-	-	Paul Poynton
-	<0.001	-	-	-	-	-	-	-	-	-	-
-	None	-	-	-	-	-	-	-	-	-	-
-	N/A	-	-	-	-	-	-	-	-	-	-
-	<0.001	-	-	-	-	-	-	-	-	-	-
Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Fibre bundle in soil	-	-	-	-	-	-	-	-	-	-
51.9	18.3	76.2	70.9	4.36	3.43	5.17	0.993	6.96	13.3	>100	29.1
11.1	12.4	11.2	12	11.4	9.77	9.71	10.4	8.8	8.88	10.4	8.23
<1	7.83	<1	4.43	<1	<1	<1	<1	<1	1.04	3.23	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
10	18.1	<6	8.39	14.4	6.63	9.16	8.89	12.5	6.99	11.2	7.26
0.372	0.425	0.544	<0.2	1.2	0.277	1.27	0.608	0.45	0.966	0.554	<0.2
211	411	151	443	212	17.3	115	42.1	32.1	217	115	17.9
22.6	63.8	22.6	27.2	60.7	<14	27.2	<14	23.7	24.6	44.3	27
121000	288000	59900	93500	98900	27100	108000	25600	48400	91300	39800	23200
80.6	93.9	26.2	29.7	80	14.5	77.9	11.5	62.9	81	23.8	35.6
9260	25800	11900	26700	11800	1360	8010	5150	2470	17200	6680	1080
<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<0.14	<1.4	<1.4	<1.4
21.7	54.2	8.64	16	31.2	20.7	25.1	14.2	22.2	15.9	18.4	30.7
<10	18.2	<10	22.3	10.2	<10	<10	<10	<1	<10	<10	<10
370	651	210	1020	239	25.4	132	78.4	58.7	303	117	34.3
188	378	125	226	238	58.4	243	65.8	182	2940	90.2	128
<0.01	0.0111	<0.01	<0.01	0.0219	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	0.0219	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	0.0329	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
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78.9	86.1	83.3	82.8	85.8	87.8	95	84.8	90	90.6	84.9	82.1
73	76.6	69.9	68.4	78.4	81.2	88.4	81.9	84.5	85.5	85.6	117
71.4	76.2	58.9	60.5	78.7	80.3	90.3	83.2	87.4	82	84.4	112
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Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

V2-1 1.20-1.10	W2-1 0.30-0.30	W2-2 1.30-1.30	X1-1 0.50-0.50	X1-2 1.10-1.10	Q1-1 0.80-0.80	X2-1 2.00-2.00	X2-2 0.50-0.50	Y1-1 0.30-0.30	Y1-2 1.30-1.30	Y2-1 1.00-1.00	Y2-2 0.50-0.50	Z1-1 1.20-1.20	Z1-2 0.40-0.40	Z2-1 1.30-1.30	Z2-2 0.50-0.50	T3-1 1.80-1.80	T3-2 0.30-0.30	T4-1 1.40-1.40	T4-2 1.80-1.80	P14-2 1.80-1.80
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2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2
6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	10.2	10.2	10.2	10.2	10.2	10.2
8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021						
2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2	2101126-90 2301116-34 6.2						
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4.1	12	11	5.7	3.7	6.9	13	6.2	8.1	16	13	6.2	14	6.2	26	6.9	16	10.2	8	5	9.8	4.2
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05/02/2021	01/02/21	01/02/2021	01/02/2021	01/02/2021	08/02/2021	01/02/2021	01/02/21	01/02/21	01/02/21	03/02/2021	05/02/2021	02/02/2021	05/02/2021	05/02/2021	05/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021	08/02/2021
Paul Poynton	Christian Hallam	James Richards	Marcin Magdziarek	James Richards	Marcin Magdziarek <0.001	James Richards	James Richards	Christian Hallam	James Richards	Paul Poynton	James Richards	Paul Poynton	James Richards	Paul Poynton	Marcin Magdziarek	Paul Poynton	James Richards	Paul Poynton	Marcin Magdziarek	Paul Poynton	James Richards
-	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
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Detected	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
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Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
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Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
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Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

P14-2 1.80-1.80	P15-1 0.30-0.30	P15-2 2.20-2.20	Q1-1 0.40-0.40	Q1-2 1.20-1.20	Q14-1 0.50-0.50	Q14-2 1.60-1.60	R14-1 0.10-0.10	R14-2 1.70-1.70	R15-1 0.50-0.50	R15-2 1.20-1.20	S1-1 0.70-0.70	S1-2 1.60-1.60	T1-1 0.40-0.40	T1-2 0.50-0.50	T2-1 1.80-1.80	T2-2 0.20-0.20	T3-1 1.80-1.80	T3-2 0.40-0.40	T4-1 1.20-1.20	T4-2 0.30-0.30	T5-1 0.70-0.70
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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28/01/2021	28/01/2021	28/01/2021	26/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021	28/01/2021
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2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2	2101128-35 2301116-34 10.2
6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	10.2	10.2	10.2	10.2	10.2	10.2
8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021	8/02/2021						
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11	11	8.5	7.1	7.9	9.1	13	6.2	13	6.3	11	7.5	10.2	6.3	15	6.3	5.4	10.2	8	5	9.8	4.2
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05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021
Paul Poynton	Christian Hallam	James Richards	Marcin Magdziarek	James Richards	Marcin Magdziarek <0.001	James Richards	James Richards	Christian Hallam	James Richards	Paul Poynton	James Richards	Paul Poynton	James Richards	Paul Poynton	Marcin Magdziarek	Paul Poynton	James Richards	Paul Poynton	Marcin Magdziarek	Paul Poynton	James Richards
-	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
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Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

T5-2	AG30-1	AG30-2	AG31-1	AG31-2	AH29-1	AH29-2	AH30-1	AH30-2	AH31-1	AH31-2	AI30-1	AI30-2
1.30-1.30	0.50-0.50	1.30-1.30	0.30-0.30	1.20-1.20	0.30-0.30	1.60-1.60	0.20-0.20	1.40-1.40	0.50-0.50	1.70-1.70	0.30-0.30	1.80-1.80
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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210128-35	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39
23621388	23630284	23630288	23630297	23630306	23630255	23630262	23630239	23630248	23630211	23630215	23630227	23630232
10.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
Grey	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Sand	Sand	Loamy Sand	Loamy Sand	Sand	Sandy Clay	Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	None	None	Vegetation	N/A	Vegetation	None	Vegetation	Vegetation	Fibres	N/A	None	None
5.5	11	9.5	6.7	11	13	11	15	11	9.8	12	12	14
05/02/2021	0	05/02/2021	-	05/02/2021	-	05/02/21	-	05/02/2021	-	08/02/2021	-	08/02/2021
James Richards	-	Paul Poynton	-	Paul Poynton	-	Eva Guerra	-	Paul Poynton	-	Marcin Magdziarek	-	James Richards
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
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Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
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Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	ACM debris in soil
12.4	76	4.76	3.53	0.436	13.8	13.8	1.28	7.6	11.3	6.91	3.86	8.36
12.2	9.4	8.91	8.98	7.94	10.6	11.5	8.63	9.7	9.75	10.5	9.97	10.5
1.06	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.13
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
<6	14	6.07	<6	16.2	8.79	6.58	10.3	65	9.28	7.6	6.78	<6
2.04	2.04	0.584	0.33	0.927	1.77	1.52	0.419	4.47	0.902	0.626	0.861	0.689
710	15.6	20.5	13.2	26.1	158	615	23.4	397	52.9	39.1	144	50.7
23.3	31.4	22	<14	27	34.5	15.1	19.2	220	20.5	27.7	14.4	21.8
182000	-	40100	-	-	151000	169000	27800	397000	40900	40600	82800	44500
<7	45.7	13.1	13	31	58.1	24.8	27.5	95.3	48.9	33	15.9	50.1
40900	4270	1140	3600	1900	10900	38400	1180	34200	3580	3130	13500	2670
<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
15.9	32	34.5	2.79	61	23.6	12.9	24.1	168	17.5	19.5	14.1	12.7
18.3	<10	<10	<10	<10	<10	18	<10	<10	<10	<10	11.8	<10
953	65.5	34.1	17.2	57.8	216	483	28.7	469	96.8	89.8	370	73
55.6	129	56.5	37.8	102	204	72.4	135	514	124	90.6	77.7	183
<0.01	<0.01	<0.01	<0.01	<0.01	0.0115	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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68.9	22.5	86.2	86.2	100	68.5	113	94.6	91	53.6	102	117	65.2
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
14.8	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	14.8	31.3
15.9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	27.4	59.2
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1160	2860	<1000	<1000	<1000	<1000	<5000	<1000	<1000	<1000	<1000	<1000	<10000
8220	18300	<1000	1640	<1000	3880	10300	<1000	1430	1340	2520	<1000	<10000
11000	46600	<1000	11000	<1000	15800	35500	<1000	5630	5350	7930	4750	16500
1710	15200	<1000	4750	<1000	5140	13600	<1000	<1000	<1000	<1000	<1000	32500
22200	83500	<5000	17900	<5000	25600	63200	<5000	7530	7140	10600	6370	56300
79100	121000	<10000	32300	<10000	50600	98800	<10000	15000	38700	50600	23500	227000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
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10.6	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	18.2	39.4
<1000	<1000	<1000	<1000	<1000	<1000	<5000	<1000	<1000	<1000	<1000	<1000	<10000
<1000	2490	<1000	<1000	<1000	<1000	<5000	<1000	<1000	<1000	<1000	<1000	<10000
8180	8030	<1000	1380	<1000	5240	<5000	<1000	<1000	2910	3460	2870	41600
42600	24900	<1000	11600	1030	17200	26800	<1000	5660	24400	30400	12300	112000
4740	1360	<1000	1460	<1000	1950	<5000	<1000	<1000	4080	5830	1710	13800
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56900	37100	<5000	14400	<5000	25000	35600	<5000	7510	31600	39900	17100	170000
79100	121000	<10000	32300	<10000	50600	98800	<10000	15000	38700	50600	23500	227000
76.2	-	81.6	80.2	83.4	77.8	81.2	82.4	78.7	81.7	80.1	84.2	78.5
81.7	-	82.3	80.8	82.9	80.3	83.1	84	80.7	82.3	80	82.8	82.1
86.3	-	81	78.4	81.5	85.4	83.8	85.4	80.3	82.1	78.5	80.4	85.8
76.7	-	72	71.3	77	89.8	74.9	80.1	82.6	79.3	73.5	80.2	79
72.4	-	71.7	70	78.6	86.4	75.5	76.6	80.8	77	72.2	81	72.8
378	-	39.1	36	<9	201	182	12.5	39.9	130	62.2	127	649
67.1	-	<12	24.4	<12	121	45.2	<12	26.5	102	82.2	101	560
63.2	-	<8	<8	<8	20.5	59.9	<8	<8	12.1	11.4	14.1	67.5
72.2	-	<10	<10	<10	60.3	52.5	<10	<10	63.6	17.2	107	455
719	-	24.1	85.8	<15	510	362	89.2	45.3	771	194	703	4260
164	-	<16	26.4	<16	156	87.6	27	<16	153	70.2	133	965
1360	-	21.2	158	<17	1030	590	174	80.1	1250	520	992	6720
1240	-	17.1	127	<15	831	520	129	69.5	901	371	737	4720
950	-	<14	89.9	<14	612	318	84.7	52.1	555	289	406	2830
970	-	14.3	103	<10	671	333	93.1	55.2	526	267	356	2360
1520	-	23.7	158	<15	1100	536	124	91.4	814	449	607	3870
555	-	<14	46.6	<14	305	189	39.1	29.1	261	149	206	1220
1110	-	<15	79.7	<15	604	333	68.3	56.9	493	298	377	2310
971	-	<18	78.6	<18	519	317	60.3	69.2	464	324	376	2310
146	-	<23	<23	<23	116	50.4	<23	<23	89.7	67.3	67.2	340
708	-	<24	72.8	<24	498	266	57.4	70.2	407	275	313	1710
11000	-	140	1090	<118	7360	4240	959	685	7000	3450	5620	35300
108	105	126	115	108	111	111	118	115	118	107	106	105
98.1	93.9	100	97.4	98.5	95.8	94.9	96.5	98.7	93	94.1	95.4	91.9
90.8	80.7	93.4	93.6	99.6	94.3	91.3	96.6	94.5	81.7	89.3	94.9	83.8
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	317	<260	<260	<260	<260	<260	<260	<260	<260	392
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800
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AI31-1	AI31-2	T6-1	T6-2	T6-3	T7-1	T7-2	AJ27-1	AJ29-1	AJ29-2	AJ30-1	AJ30-2	AK27-1
0.50-0.50	1.50-1.50	0.50-0.50	0.00-1.50	2.20-2.20	0.50-0.50	1.20-1.20	0.70-0.70	0.70-0.70	1.50-1.50	0.40-0.40	1.50-1.50	0.80-0.80
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
28/01/2021	28/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	27/01/2021	1/29/2021	1/28/2021	1/28/2021	1/28/2021	1/28/2021	1/29/2021
29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	29/01/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021
09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021
							2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021
210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210129-39	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32
23630219	23630223	23630206	23630267	23630280	23630271	23630275	23638988	23638943	23638959	23638993	23638999	23638980
11.2	11.2	11.2	11.2	11.2	11.2	11.2	8.7	8.7	8.7	8.7	8.7	8.7
Dark Brown	Dark Brown	Dark Brown	Black	Black	Black	Black	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown
Sandy Loam	Sand	Sand	Sand	Sand	Chalk	N/A	Sand	Sand	Sand	Sand	Sand	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Coal fragments	Stones	Stones	Stones	Stones	Stones	Stones
N/A	None	None	None	None	Vegetation	None	None	None	None	None	None	None
12	14	5.9	4.9	10	5.2	9	14	1.4	10	13	20	17
-	05/02/21	05/02/2021	-	05/02/21	08/02/2021	-	-	05/02/2021	-	05/02/21	-	05/02/2021
-	Eva Guerra	Marcin Magdziarek	-	Eva Guerra	James Richards	-	-	Marcin Magdziarek	-	Eva Guerra	-	James Richards
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-
12.8	10.7	6.71	10.2	4.14	1.42	90.3	1.31	3.95	4.22	>100	22.9	1.81
11.3	11.2	12.6	12.8	12.7	12.5	12.1	11.9	9.91	9.58	8.83	9.57	12.1
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	18.6	<12
8.19	7.92	<6	<6	<6	<6	<6	<6	14.2	9.37	7.95	11.5	<6
1.98	2.13	1.65	1.27	1.51	1.03	0.885	1.92	2.29	1.51	0.923	0.632	0.469
145	159	549	461	550	565	297	374	<9	<9	17.8	30.6	205
18.4	15	17.7	20.3	26.5	<14	<14	27.7	23.5	14.5	34.6	31.3	<14
119000	137000	157000	153000	126000	149000	95000	133000	338000	-	49600	-	49900
152	147	<7	<7	25.3	9.34	<7	53.6	39.7	24.7	52.8	47.6	39.6
18700	12800	24500	31200	27100	37000	18600	29500	4850	2970	1360	1360	14900
<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1	<1	<1	<1	<1	<1
16.4	14.7	8.24	14.7	10.5	6.07	6.66	15.3	36.9	21.7	17.5	33.3	4.61
12.4	<10	13.9	20.3	15.1	22.8	11.7	14	<10	<10	<10	<10	13.4
422	310	632	636	631	503	246	968	49.6	36.4	34.8	43	244
459	415	28.9	45.6	49.6	52.7	66	84.5	131	80.8	70.3	86.9	42.9
<0.01	0.0116	0.0106	<0.01	0.0112	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	118	82.9	<50	134	59.1	<50	<50	<50	<50	61	57.5	<50
<50	<50	<50	<50	88.5	<50	<50	<50	<50	<50	<50	<50	<50
<20	118	82.9	<20	223	59.1	<20	<20	<20	<20	61	57.5	<20
47.3	89.5	54.9	74.9	85.5	36.2	2	130	96.3	122	77.2	122	102
<10	12.8	<10	<10	14.6	<10	<10	<10	<10	<10	<10	15	<10
<10	42.9	42.5	<10	60.5	27.4	<10	<10	<10	<10	18.4	20	<10
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2300	6400	5430	18200	9070	2890	11100	<1000	1100	<1000	20900	6190	26300
13300	20300	35200	25800	33600	17300	23900	7440	5090	1410	27100	18600	66600
4060	7870	9100	6930	8670	2190	3790	3070	<1000	<1000	4980	5250	11200
19700	39000	51400	53000	53000	22800	60000	11500	6740	<5000	63900	31000	112000
57500	92900	101000	169000	109000	28300	120000	45000	<10000	<10000	101000	50800	123000
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<10	<10	18.1	<10	29.1	<10	<10	<10	<10	<10	<10	<10	<10
<10	41.8	26.6	<10	39.2	21.1	<10	<10	<10	13.3	28.8	15	<10
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7640	14000	6850	16900	7680	1160	18100	4410	<1000	<1000	4730	1870	1520
28300	34100	36800	85700	44100	3240	30900	28000	<1000	<1000	28800	16400	8940
1300	2990	4140	12600	3360	<1000	1290	<1000	<1000	<1000	2340	1030	<1000
<1000	<1000	<1000	1610	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
37800	53900	49300	116000	56100	5530	59900	33500	<5000	<5000	36900	19800	11700
57500	93000	101000	169000	109000	28400	120000	45000	<10000	<10000	101000	50900	123000
82.7	83.5	79.4	80.6	79	77.1	79.9	81.4	86.3	83	77.8	82.9	80.2
81.5	81	84.9	80.9	78.9	77.9	82.7	82.2	82.5	83.4	78	80.7	81.8
79.4	80.7	88.4	82.9	81.3	80.9	80.6	80.2	80.8	80.1	74.5	80.9	80.5
76.6	86	79.1	82	80.3	84.7	72.4	78.5	77.8	72.1	66.8	76.7	78
76.2	80.8	76.1	78.9	87.9	84.2	61.5	75.5	74.9	70.2	70.4	73.4	74.6
396	747	141	99.3	182	188	922	21	<9	<9	112	117	140
217	522	<12	<12	13.6	53.7	263	<12	<12	<12	173	191	62.7
50.5	104	98	70.1	86.5	<8	62.6	42.9	<8	<8	<8	<8	22.8
169	655	69.5	38	63.6	14.1	257	19.1	<10	<10	34.4	58.1	33.1
1590	3700	841	562	753	334	1460	458	43.8	22.3	233	350	306
486	820	169	104	119	87	336	112	<16	<16	71.2	99.1	78.5
2880	4860	1610	1220	1400	535	1740	1250	64.2	31.2	956	874	597
2140	3510	1520	1190	1310	397	1240	1190	46.4	27.1	892	727	462
1310	2050	1190	918	1070	279	666	715	29.7	30.7	732	484	330
1190	2070	1220	1020	1090	304	673	828	30.4	37.1	560	514	391
1910	2780	1970	1520	1550	415	566	1190	40.9	64.1	1450	937	587
642	841	700	579	652	127	236	376	<14	19.2	430	280	181
1220	1640	1380	1090	1480	240	484	775	24.1	35.1	1060	570	332
1120	1290	1230	823	904	207	284	618	23.6	38	972	566	318
219	268	207	155	154	44.4	64.8	103	<23	<23	164	108	68.9
961	1190	863	747	862	190	223	652	<24	35.9	860	524	298
16500	27000	13200	10100	11700	3420	9480	8350	303	341	8700	6400	4210
112	113	104	105	98.6	124	104	114	116	115	120	155	114
92.6	96.8	97.5	97.1	94.1	88	93.7	102	100	100	97.4	99.4	101
79.4	86.7	93.2	98.1	85.7	82.6	86	101	98	97.5	81.3	96.2	101
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370	498	<260	<260	<260	<260	<2600	<260	<260	<260	<260	626	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<8000	<800	<800	<800	<800	<800	<800
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AK28-1	AK30-1	AK30-2	AK31-1	AK31-2	AK32-1	AK33-1	AK34-1	AK34-2	AL28-1	AL28-2	AL29-1	AL30-1
1.00-1.00	0.20-0.20	1.00-1.00	0.10-0.10	1.10-1.10	1.00-1.00	0.20-0.20	0.80-0.80	1.60-1.60	0.50-0.50	1.20-1.20	0.80-0.80	0.50-0.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021
1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021
2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021
210130-32	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32	210130-32
23638976	23639025	23639030	23639015	23639020	23639060	23639067	23639071	23639077	23638964	23638970	23638954	23639034
8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Grey	Dark Brown	Grey	Dark Brown	Black	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey
Sand	Sand	Sand	Sandy Loam	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Stones	Stones	Stones	Stones	None	Stones	Vegetation	None	Vegetation	Stones	Stones	Brick	Stones
Concrete/Aggregate	None	Concrete/Aggregate	Concrete/Aggregate	None	None	Stones	Stones	Stones	None	None	Stones	None
7.5	12	13	11	23	16	12	11	13	6.9	6.9	9.3	12
-	05/02/2021	-	05/02/2021	-	-	05/02/2021	-	05/02/2021	-	05/02/2021	08/02/21	05/02/2021
-	Marcin Magdziarek	-	Marcin Magdziarek	-	-	Paul Poynton	-	Paul Poynton	-	Paul Poynton	Eva Guerra	Paul Poynton
-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-
2.6	12.1	38.4	17.2	-	31.5	9.43	10.1	4.14	<0.35	3.31	6.14	20.5
12	9.22	11.3	10.5	10.8	11.4	10.2	9.51	10.2	12.5	12.4	11.5	10.6
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.02	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
<6	7.22	11.2	10.3	6.83	6.44	9.69	13.6	15.9	<6	<6	<6	8.72
1.27	0.769	1.47	2.19	0.45	0.963	1.6	1.49	1.34	1.09	1.19	1.42	1.22
723	21.9	222	142	15.3	265	75	119	33.8	1080	936	836	235
37.9	<14	40.9	36.5	21.7	16.4	22.4	23.3	20.2	14.3	<14	23.3	19.2
152000	58900	54800	230000	-	-	134000	-	101000	-	163000	166000	90000
137	44.3	60.4	46.7	57.2	34.2	72	67.5	44.3	22.4	23.5	100	90
34000	1710	8170	5740	1150	3190	8420	8330	6690	48700	48700	43500	11800
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13.1	24.3	26.3	37.2	11.3	14.4	45.9	26.5	27.2	5.25	5.37	9.39	23.6
23.3	<10	<10	<10	<10	<10	<10	<10	<10	30.6	31.2	29.5	10.2
543	32.7	285	97.3	26	233	139	134	53.6	840	709	684	218
94.1	77.6	265	109	75.3	68.4	212	196	120	40.6	57.3	123	198
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109	84.7	89.2	55	48	81.2	123	132	95.1	121	101	102	76.6
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<10	<10	<10	<10	18.1	<10	<10	<10	<10	<10	<10	<10	<10
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2780	<1000	2160	<5000	4910	1960	<1000	<1000	<1000	<1000	<1000	<1000	<1000
14800	<1000	4490	10400	15300	18800	<1000	1100	<1000	<1000	1390	12600	3810
54900	2720	1940	16700	22700	12100	8240	8100	6570	12300	11800	44500	19700
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86200	<5000	8980	32000	45200	33900	9500	9880	8000	14900	15000	70200	32100
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94200	18900	40800	67600	67000	190000	21800	21600	16100	14900	15000	84600	70500
80.7	81.9	77.2	80.3	77.7	78.8	85.8	79.8	78.1	81	85.2	79.6	80.9
82.4	81	79.1	83.5	78.7	82.5	81.2	83.1	82.3	81.9	80.9	85.4	83.3
85.2	79.1	80.2	86.6	74.3	86.8	76.9	87	86.5	84.4	78	89.9	83.7
88	75.2	81.2	75.5	63.8	75.9	76.8	75.7	79.4	79.7	76.7	78.6	78
102	72.2	75.3	72.2	62.3	70.5	77.9	70	75.9	83.9	73.5	72.1	70.3
19.5	31.9	27	568	134	547	42.1	59.9	23	<9	24.4	141	190
<12	101	26.6	665	58.5	932	31.5	46.1	<12	<12	<12	47.2	164
<8	<8	<8	<80	14.4	64	<8	<8	<8	<8	<8	24.7	37
<10	<10	18.7	1050	89.5	562	<10	<10	<10	<10	11.2	45.4	136
101	128	151	6250	835	3770	92.3	120	42.8	17.3	107	409	943
17.8	49.4	30.8	2260	268	1440	27.6	33.6	<16	<16	38.9	96.7	303
339	511	225	7650	886	11200	193	301	89.1	48.4	184	776	1820
316	416	170	5150	659	9490	143	259	73.7	52.2	141	580	1330
177	317	115	2720	564	4800	104	184	55	22.7	86	307	857
195	316	115	2220	567	4920	101	157	60.6	32.9	97.2	309	838
295	675	184	3190	771	7250	186	388	104	50.2	130	473	1200
114	232	54.8	980	238	1710	61.5	104	29.5	18.5	47.9	140	380
190	429	106	2000	537	4080	111	195	56.7	<15	77	259	692
204	471	89.4	1850	377	4210	128	221	62.2	23.1	71.1	268	589
32.5	85.4	<23	324	99.1	686	<23	34.4	<23	<23	<23	47.1	132
162	407	85.1	1320	361	3360	113	169	50.2	<24	67.2	208	546
2160	4170	1400	38200	6460	59000	1330	2270	647	265	1080	4130	10200
116	115	121	112	110	113	119	115	116	114	111	117	118
101	97.9	99.3	96.1	96.5	102	101	102	102	102	99.4	101	101
98.9	91.7	96.7	85	81	95.2	95.3	98.9	101	100	95.8	99.4	98
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AL30-2	AL31-1	AL31-2	AL32-1	AL33-1	AJ21-1	AJ21-2	AK21-1	AK21-2	AK22-1	AK22-2	AL21-1	AL21-2
2.00-2.00	0.50-0.50	1.50-1.50	0.50-0.50	0.80-0.80	0.30-0.30	1.30-1.30	0.50-0.50	1.20-1.20	0.50-0.50	1.60-1.60	0.50-0.50	1.40-1.40
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
1/28/2021	1/28/2021	1/28/2021	1/28/2021	1/29/2021	1/29/2021	1/29/2021	1/29/2021	1/29/2021	1/29/2021	1/29/2021	1/29/2021	1/29/2021
1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021
1/30/2021	1/30/2021	1/30/2021	1/30/2021	1/30/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021
2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021
210130-32	210130-32	210130-32	210130-32	210130-32	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91
23639007	23639041	23639045	23639051	23638948	23652632	23652638	23652642	23652650	23652548	23652599	23652657	23652664
8.7	8.7	8.7	8.7	8.7	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Grey	Grey	Dark Brown	Black	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Sand	Sand	Stone/Soil	Loamy Sand	Sand	Sandy Clay	Loamy Sand	Loamy Sand	Silty Sand	Loamy Sand	Sand
Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Concrete/Aggregate	None	N/A	Concrete/Aggregate	Stones	None	None	None	None	None	None	None	None
9.3	21	12	9.4	11	6.7	9.4	14	13	12	15	20	11
-	05/02/2021	-	05/02/2021	-	09/02/2021	-	08/02/2021	-	08/02/2021	-	08/02/21	-
-	Marcin Magdziarek	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Paul Poynton	-	Marcin Magdziarek	-	Eva Guerra	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	bundle of fibres in soil	-
21.2	54.5	3.33	18.1	1.62	5.07	2.09	2.09	11.1	37.4	11.3	12	5.26
11.9	10.6	9.1	11.3	11.9	10.2	9.22	8.84	10.3	11.3	11.6	8.81	9.39
<1	<1	<1	<1	<1	<1	<1	<1	4.21	5.06	1.73	3.41	2.09
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1.45	1.11	0.662	1.87	1.01	0.394	1.72	0.353	0.439	1.04	0.52	1.89	<0.2
653	68.5	25.3	160	1170	132	11.6	14.4	31	<9	37.2	238	12
15.3	<14	24	20.4	53.3	15.9	11	16.7	<14	20.7	19.6	26.3	17.8
144000	95800	32100	138000	-	98000	15600	30300	43300	220000	76400	109000	18500
<7	23.3	19.8	37.6	26.8	43.1	80.1	32.4	76.3	382	127	167	27
35700	11400	1690	12900	16300	8510	2030	1050	5120	4060	2940	16900	1060
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5.78	22.8	26.6	34.6	496	23	8.83	24.3	10.8	36.9	24.8	18.7	19.6
19.7	<10	<10	<10	10.4	<10	1.71	<1	<10	<10	<10	<10	<10
544	94.3	40.1	157	255	70.4	34	26.4	38.5	280	62.9	208	25.6
39.5	81.3	64.9	98.7	70.7	131	573	117	237	641	236	546	75.6
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101	47	122	97.8	98.2	79.6	133	92.7	51.1	58.1	72.4	63.6	107
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81.1	78.5	81	82.1	83.7	78.6	78.3	79.7	75	81.1	80.8	81.6	79.4
82.4	79.8	78	82.6	83.1	80.4	81.9	80.5	79	82.9	80.8	79.4	77.9
79.6	77.5	78.6	83.1	81	85	86.4	84.3	77.5	86.2	85.7	80.9	80.1
73.6	69	72.3	80.5	78.6	86	95.4	91.7	74	85.8	87.7	77.2	75.5
70	69.1	70.5	86.3	77	79.2	89.5	90.9	73.5	74.4	79.4	74.3	72.6
52.4	143	11.5	44.7	70.5	217	11	<9	<450	232	329	87.2	85.9
59.9	63.9	<12	38.3	30.5	<240	<12	<12	<600	85	75.6	37.3	24.1
<8	11.9	<8	<8	<8	<160	67.9	<8	<400	22.9	17.5	16.1	<8
28.1	37	<10	11.6	12.4	<200	82.4	<10	<500	62.2	58.8	27	14.1
406	390	28.8	137	113	540	1450	54.5	4160	557	407	366	171
126	101	<16	43.6	30.8	<320	286	19.9	<800	148	112	88.5	39.9
666	704	38.5	354	208	1120	1720	142	4720	1200	596	672	264
496	526	30.4	276	163	864	1240	119	3890	969	468	550	215
255	409	23.2	243	126	577	601	85.4	1710	669	320	361	143
271	391	29.2	210	143	456	495	88	2280	709	359	391	156
340	525	38.3	426	247	859	455	110	2540	977	474	591	235
101	181	<14	130	74.6	<280	160	33.6	<700	300	136	208	70.9
201	382	20	271	149	480	259	67.3	1220	568	282	371	138
175	286	<18	269	175	407	137	42.2	1310	434	229	350	143
41.1	64.2	<23	47.6	31.1	<460	36	<23	<1150	103	51.1	70	26.5
175	261	<24	231	142	<480	126	40.3	<1200	399	211	318	132
3390	4480	220	2730	1720	5520	7130	801	21800	7430	4130	4500	1860
112	166	130	119	114	116	112	115	118	106	109	116	110
99.5	98.4	98.7	99.1	102	96	99.1	98.3	93.2	97.3	99.1	95.3	98
96.8	93.5	99.2	93	101	95.7	96.5	97.8	88.1	90	97.6	88.1	94.5
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P20-1	P20-2	P21-1	P21-2	Q20-1	Q20-2	Q21-1	Q21-2	Q22-1	Q22-2	R21-1	R21-2	R21-3	R22-1	R22-2
0.50-0.50	1.30-1.30	0.30-0.30	1.50-1.50	0.60-0.60	1.80-1.80	0.30-0.30	1.90-1.90	0.30-0.30	1.70-1.70	0.30-0.30	1.00-1.00	2.20-2.20	0.20-0.20	1.60-1.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021	2/1/2021
2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021
2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021
2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021
210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91	210202-91
23652671	23652552	23652557	23652561	23652565	23652571	23652577	23652581	23652618	23652623	23652585	23652589	23652594	23652609	23652613
6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Silt Loam	Sandy Clay Loam	Sandy Loam	Loamy Sand	Sandy Silt Loam	Stone/Soil	Sandy Silt Loam	Silty Sand	Loamy Sand	Loamy Sand	Sandy Loam	Sandy Loam	Silty Sand	Sandy Silt Loam	Sandy Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	None	None	None	None	None	None	Vegetation	None	None	None	None	None	None	None
9.8	23	13	9.8	8.9	17	9.1	15	13	11	8.8	12	11	11	13
08/02/2021	-	08/02/2021	-	09/02/2021	-	08/02/2021	-	-	09/02/2021	09/02/2021	-	09/02/2021	-	08/02/2021
Paul Poynton	-	Paul Poynton	-	Marcin Magdziarek	-	James Richards	-	-	Marcin Magdziarek	Marcin Magdziarek	-	Marcin Magdziarek	-	Paul Poynton
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.9	8.46	13.8	2.1	4.1	12.2	19.7	3.05	4.69	1.07	6.15	8.79	6.5	3.34	7.43
11.8	11.3	11.3	11.2	11.2	9.61	10.3	8.62	12.1	10.9	11.7	11.4	11	12.1	11.9
<1	<1	<1	<1	<1	<1	<1	<1	1.96	<1	<1	<1	<1	<1	<1
<12	51.8	<12	<12	<12	43.9	<12	27.8	<12	<12	<12	<12	<12	<12	<12
6.61	16	9.58	7.79	8.13	9.02	7.96	6.39	18.6	<6	17.8	9.45	6.58	9.05	<6
0.716	0.537	0.864	0.356	2.03	0.139	0.882	0.306	2.86	0.427	2.04	0.673	2.4	0.735	1.95
131	56.8	67.7	456	81.9	5.19	62	20.1	411	125	155	115	451	237	184
<14	21.9	17	27.5	21.3	23	19.4	<14	41.7	<14	21.3	19.8	16.4	47.9	<14
194000	116000	176000	176000	75700	20500	148000	37600	190000	80400	183000	101000	174000	117000	160000
47.9	44.2	63.2	34.9	109	20.2	80.6	22.1	369	21.4	35.6	68.4	57.8	102	11.1
7940	4390	6860	19500	7190	402	7410	2970	24500	8590	13900	9310	26200	12300	10000
<1	<1	<1	<1	<1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1
22.4	34.2	27.8	15.1	18.9	26.9	23.8	20.9	31.1	7.4	20.5	21	14.7	25.3	12.8
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154	106	121	408	98.3	18.6	125	43.6	414	244	184	162	337	220	209
168	131	191	107	467	50.1	222	81.3	1260	59.7	153	220	231	373	76.4
0.0111	0.0258	<0.01	<0.01	0.0549	<0.01	0.011	<0.01	0.023	<0.01	<0.01	0.0114	<0.01	<0.01	<0.01
0.0111	0.0129	0.0114	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	<0.01	<0.01	<0.01	0.0112	0.0112	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	0.0549	<0.035	<0.035	<0.035	0.046	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	65.8	<50	<50	<50	<50	<50	<50	<50	<50	80.1	<50	142	<50	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	65.8	<20	<20	<20	<20	<20	<20	<20	<20	80.1	<20	142	<20	<20
38.7	60.5	31.4	80.4	68.6	72	49.5	79.3	118	118	82.1	25.9	71.5	98.6	72.2
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	13.4	<10	<10
23.3	29.7	<10	<10	<10	<10	<10	<10	<10	<10	41.7	<10	61.6	<10	<10
22.2	36.1	<10	<10	<10	<10	<10	<10	<10	<10	38.4	<10	67.2	<10	<10
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1290	1290	2650	<1000	2330	<1000	<1000	<1000	1260	<1000	8050	1530	1210	3470	1330
6190	5960	15100	<1000	14300	<1000	1390	<1000	11700	<1000	19800	7720	5090	16200	47600
41300	23700	49900	5370	73900	<1000	13800	2530	76800	7910	76100	35700	25100	94200	22800
11000	5390	19100	<1000	35400	<1000	2230	<1000	26100	<1000	30000	10500	8860	42400	12500
59800	36300	86800	5800	126000	<5000	17900	<5000	116000	8850	135000	55500	40200	156000	84200
101000	54900	160000	<10000	169000	<10000	138000	<10000	133000	15100	189000	81600	68800	190000	150000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	12.1	<10	<10	<10	<10
14.4	24.5	<10	<10	<10	<10	<10	<10	<10	<10	25.2	<10	44.8	<10	<10
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1880	<1000	3450	<1000	<1000	<1000	2590	<1000	<1000	<1000	3640	<1000	<1000	<1000	<1000
10000	2190	14700	<1000	4300	<1000	32200	<1000	1390	1010	11000	4110	3750	3490	12900
27400	15000	49800	1610	35300	<1000	76000	2230	14700	4240	36300	19800	20900	28300	41600
1320	<1000	4550	<1000	3160	<1000	8600	<1000	<1000	<1000	2150	1530	2890	1300	10400
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41500	18600	73500	<5000	43600	<5000	120000	<5000	17300	6260	53700	26200	28600	33500	65900
101000	55000	160000	<10000	169000	<10000	138000	<10000	133000	15100	189000	81600	69000	190000	150000
77.7	77.7	72.3	79.5	82.3	82.2	79.7	81.8	79.9	81.2	80.1	78.6	80.5	87.8	78.5
81.3	80.5	77.9	81.7	84.6	79.9	81.4	83.4	78.7	79.8	79.9	82.6	82.5	86	81.6
87.4	81	79.1	82.5	84.3	81.5	86	85.2	80.7	81.5	82.5	89	82.9	90.5	84.9
92.4	78.8	85.5	85.8	88	73.8	90	89.9	74.3	76.7	79.6	94.8	78.4	111	91.5
82.8	70.2	76.4	81.2	79.6	70	82.9	85.1	70.1	72.7	75	85.5	73.4	102	88.5
722	249	1130	69.5	283	80.4	475	39.1	72	87.2	297	609	508	131	146
274	75.8	1710	21.8	<120	<12	371	<12	22.8	39.8	64.4	194	184	77.6	59.3
<8	<8	<40	<8	<80	<8	<8	<8	27.5	9.59	24.7	34.5	24.3	62.6	25.4
199	47	1980	15.1	116	<10	225	<10	23.3	32.5	54	154	162	77	47.6
2070	516	12900	166	864	166	2030	100	295	253	433	1350	1080	636	420
524	143	3240	37.9	233	<16	547	<16	65.3	61.2	109	364	231	144	132
2920	733	15400	235	1450	48.6	4190	89.7	506	362	619	2020	1190	1270	706
2140	567	10900	172	1150	35	3200	67.6	438	279	482	1510	852	1000	612
1190	320	5830	98	763	20.4	2100	52	257	161	299	1050	437	701	330
1150	336	5380	104	866	35.5	2010	76.5	323	169	337	1110	454	668	363
1580	404	6680	119	1190	33.6	3070	77.3	459	226	428	1490	576	983	464
464	123	2250	36.3	340	<14	945	22.2	142	74.4	158	462	205	351	135
904	227	4210	69.2	725	<15	1930	45.2	239	132	243	847	322	553	272
672	163	2960	51.6	559	<18	1540	38.3	242	118	220	681	281	426	208
150	37.8	655	<23	<230	<23	354	<23	49.1	<23	48	161	60.1	86.2	45.2
627	157	2720	48.3	549	<24	1480	40.2	223	110	201	628	250	401	198
15600	4100	78000	1240	9080	420	24500	648	3390	2120	4020	12700	6820	7570	4160
100	100	99.3	111	106	113	102	113	110	112	116	105	105	112	109
94.7	96.8	92.9	99.5	94.5	100	95.2	99.7	98.4	99.1	96.2	94.1	95	99.4	97.7
87.6	88	85.4	94.7	90.6	87.6	89.1	93.2	100	96.4	95.4	79.1	87.6	94.7	94.2
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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441	<260	320	<260	286	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
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P22-1	P22-2	T19-1	V12-1	V12-2	V13-1	V14-1	V16-1	V16-2	V16-3	V17-1
0.60-0.60	1.30-1.30	0.30-0.30	1.00-1.00	1.60-1.60	1.00-1.00	0.30-0.30	1.00-1.00	1.80-1.80	2.20-2.20	1.00-1.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
2/1/2021	2/1/2021	2/1/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021	2/2/2021
2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021
2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021
2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021
210203-41	210203-41	210203-41	210203-41	210203-41	210203-41	210203-41	210203-41	210203-41	210203-41	210203-41
23656269	23656315	23656320	23656304	23656309	23656299	23656291	23656275	23656279	23656284	23656355
8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Silty Clay Loam	Loamy Sand	Sandy Silt Loam	Gravel	Loamy Sand	Loamy Sand	Sandy Silt Loam	Sand	Sand	Sand	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	None	None	None	None	Vegetation	None	None	None	None	None
8.3	13	7.6	8.6	15	12	11	10	3.5	10	17
<0.001	-	0.0159	-	-	-	-	-	-	-	-
09/02/21	-	09/02/2021	09/02/2021	-	-	09/02/2021	-	09/02/2021	-	09/02/2021
Eva Guerra	-	Marcin Magdziarek	Paul Poynton	-	-	Paul Poynton	-	Paul Poynton	-	James Richards
<0.001	-	<0.001	-	-	-	-	-	-	-	-
None	-	None	-	-	-	-	-	-	-	-
-	-	N/A	-	-	-	-	-	-	-	-
<0.001	-	0.0159	-	-	-	-	-	-	-	-
Detected	-	Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected
bundle of fibres in soil	-	Loose fibres in soil	-	-	-	-	-	-	-	-
3.4	4.53	13.3	1.74	16.6	11.2	8.81	4.1	-	12.5	71.9
10.8	10.7	10.4	9.78	10.9	10.2	10.4	9.96	9.97	8.71	10.5
<1	<1	<1	<1	4.35	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
6.93	10.5	<6	<6	4.61	6.06	6.72	<6	<6	<6	<6
0.707	0.875	0.42	<0.2	0.295	0.232	0.745	0.283	<0.2	<0.2	0.592
316	103	17.6	<9	34.1	10.5	89.2	40.9	17.1	15.4	27.8
16.3	16.5	<14	<14	10.4	<14	14.3	<14	<14	<14	<14
114000	94700	60800	<10000	22400	20700	67200	41000	14100	15300	23100
57.5	61.9	26.9	<7	28.6	11.9	51.1	16.6	400	8.08	36.5
26200	9520	2630	5590	4620	2950	7640	6910	3220	3340	4840
<1	<1	<1	<1	<0.1	<1	<1	<1	<1	<1	<1
14.6	18.2	13.1	<2	5.65	6.82	13.8	5.54	4.98	14.3	6.84
16.9	<10	<10	<10	3.12	<10	<10	<10	<10	<10	<10
341	162	52.4	21	73.8	24.5	159	53.2	50.3	44.4	40.3
174	193	80	<19	93.2	52.7	167	63.2	20.2	27.6	78.7
0.0109	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0121
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.109
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0726
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.194
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<50	<50	<50	<50	62.5	<50	<50	<50	<50	<50	<50
<20	<20	53	<20	209	121	<20	<20	<20	<20	<20
68	121	27.5	114	58.6	63.2	63	74.6	79.3	83.5	73.4
<10	<10	<10	<10	14.2	11.4	<10	<10	<10	<10	<10
10.9	<10	29.2	<10	60.2	51.3	<10	<10	<10	<10	<10
<10	<10	23.8	<10	72	58.1	<10	<10	<10	<10	<10
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9980	<1000	6420	<1000	22400	25800	1400	<1000	<1000	<1000	13000
41200	4630	19700	<1000	45200	49500	6500	1710	10100	3200	48100
79600	28400	68100	2930	54100	84700	28300	8380	9920	7200	147000
32700	9780	60400	<1000	5900	20400	20600	4790	<1000	<1000	44800
164000	43600	156000	<5000	128000	182000	57400	15200	21000	11000	254000
199000	67900	233000	<10000	169000	234000	128000	42000	30300	48000	401000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	14.2	10.3	<10	<10	<10	<10	<10
<10	<10	16.2	<10	48.4	38.8	<10	<10	<10	<10	<10
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1970	<1000	5430	<1000	4070	7590	3880	<1000	<1000	<1000	15200
6660	5010	15000	<1000	10100	13000	15800	4560	3290	9300	21400
24800	17100	50700	<1000	23600	29000	44700	14900	4350	25600	104000
1330	1170	4240	<1000	1980	2220	5230	6230	<1000	1100	3540
<1000	<1000	<1000	<1000	<1000	<1000	1290	2600	<1000	<1000	<1000
35100	24400	76700	<5000	40200	52300	70800	26800	9300	37000	147000
199000	67900	233000	<10000	169000	235000	128000	42000	30300	48000	401000
82.2	86.3	81	83.9	91.9	81.1	74.6	87	99.5	85.2	90.7
87.6	85.6	83.3	85.2	91.7	88	84.8	86.8	97.8	83.9	89.3
91.4	86.5	81.9	91.1	91.8	95	81.6	89.7	91.6	87.4	89.4
92.2	92.3	79.8	89.9	84.5	85	75.6	87.5	69.1	80.5	75.9
87.5	88.9	71.4	84.6	89	76.9	71.8	83.6	53.9	71	70.2
384	257	531	26.1	472	263	632	113	166	68.8	1710
175	114	215	<12	61.6	113	315	55.8	25	15.6	38.7
53.8	21.8	24.8	<8	116	50.2	<160	<8	<8	<8	132
384	99.4	107	<10	138	167	326	46	48.1	21.5	152
2350	773	1260	88.4	991	1130	2030	334	247	139	2140
503	244	309	<16	235	282	683	107	55.5	25.8	311
2690	1470	1960	114	1240	1340	3150	484	187	125	1100
1900	1050	1480	98.4	901	968	2370	342	166	105	750
1080	624	940	73.5	572	529	1270	233	94.7	69.7	324
1100	586	990	90.3	571	535	1300	237	141	85	382
1430	817	1450	130	810	692	1670	323	137	101	506
425	246	423	36.3	244	220	491	100	41.5	28.5	127
886	490	779	63.6	485	386	938	178	66.3	53.6	277
622	336	537	53.1	362	281	642	131	58.2	37.7	241
148	75.5	138	<23	70	76.7	<460	29.7	<23	<23	51.2
583	318	529	54.8	310	270	618	132	58.3	41.4	240
14700	7510	11700	828	7580	7300	16400	2840	1490	917	8470
105	104	102	107	107	106	110	105	104	105	116
97.2	97.5	90.6	97.8	97.3	97.2	94	95.4	99.2	97.4	97.9
88.8	89.2	72.7	97.8	88.7	89.2	89.9	88.8	97.5	93.1	91.5
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	<260	<260	373	<260	320	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

V18-1	V18-2	V19-1	V20-1	V21-1	S16-1	S16-2	S18-1	S19-1	S19-2	S21-1	S21-2	S22-1
0.50-0.50	1.50-1.50	0.50-0.50	1.30-1.30	0.50-0.50	0.90-0.90	2.20-2.20	0.70-0.70	1.00-1.00	2.00-2.00	0.50-0.50	1.80-1.80	0.50-0.50
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
2/2/2021	2/2/2021	2/1/2021	2/1/2021	2/1/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	05/02/2021	05/02/2021	05/02/2021
2/3/2021	2/3/2021	2/3/2021	2/3/2021	2/3/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021
2/10/2021	2/10/2021	2/10/2021	2/10/2021	2/10/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021
2/17/2021	2/17/2021	2/17/2021	2/17/2021	2/17/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021
210203-41	210203-41	210203-41	210203-41	210203-41	210206-39	210206-39	210206-39	210206-39	210206-39	210206-39	210206-39	210206-39
23656342	23656346	23656336	23656330	23656325	23677975	23678020	23678025	23678034	23678039	23677997	23678005	23678009
8.4	8.4	8.4	8.4	8.4	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Silt Loam	Loamy Sand	Sandy Loam	Sand	Sandy Silt Loam	Loamy Sand	Sand	Sand	Loamy Sand	Sand	Sandy Loam	Loamy Sand	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation
Vegetation	Vegetation	Vegetation	None	None	None	Crushed Brick	None	Vegetation	Vegetation	Vegetation	Vegetation	Brick
11	21	7.8	12	10	11	19	11	14	16	16	20	15
-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
09/02/2021	-	-	09/02/2021	-	15/02/2021	-	12/02/2021	-	15/02/2021	12/02/2021	-	12/02/2021
Marcin Magdziarek	-	-	James Richards	-	Marcin Magdziarek	-	Marcin Magdziarek	-	Marcin Magdziarek	Marcin Magdziarek	-	Paul Poynton
-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
-	-	-	-	-	-	-	-	-	None	None	-	-
-	-	-	-	-	-	-	-	-	N/A	-	-	-
-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Detected	-	Not Detected
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	Loose fibres in soil	Soil containing ACM debris	-	-
5.9	50.7	3.43	4.41	11	61.7	32.1	4.47	62.9	33.6	45.2	16.5	21.7
8.53	10.5	11.4	11.1	10.1	11.1	8.96	12.6	10.1	11	10.5	11.2	10.2
20.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
<6	6.22	15.5	<6	14.5	<6	6.47	<6	7.62	9.93	<6	10.9	<6
0.497	0.711	0.563	0.348	0.609	<0.2	<0.2	<0.2	0.459	<0.2	0.956	1.44	0.592
<9	86.9	66.1	10.5	<9	83.6	11.7	458	51	123	120	182	133
<14	<14	44.2	71.7	<14	<14	22.6	<14	<14	28	29.9	44.7	19.9
128000	33800	96400	53700	232000	40100	24200	134000	34500	47100	59200	70900	65500
23.2	27.3	32.4	12.8	41.1	22.2	20.2	9.23	66.1	64.8	52.4	75	44.6
8720	10500	8110	3330	4560	4880	4100	29000	3280	8070	9620	4170	6900
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
5.69	7.15	17.4	6.41	22.9	8.99	19.9	2.79	11.7	18.1	10.9	24.9	17.8
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
21.9	87.3	131	52.3	80.1	94.1	31.1	458	57.3	134	245	101	122
98.1	44.8	110	44	87.3	55.3	73.8	60.5	88.3	113	183	239	89.9
<0.01	0.0126	<0.01	<0.01	<0.01	0.0113	<0.01	<0.01	0.0116	<0.01	<0.01	<0.01	<0.01
0.0224	0.0126	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0116	0.0119	<0.01	0.0124	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
101	402	<50	<50	<50	725	125	61	<50	69	<50	148	87.8
52.6	214	<50	<50	<50	403	53.3	<50	<50	<50	<50	<50	<50
153	616	<20	<20	<20	1130	179	61	<20	69	<20	148	87.8
72	115	75	74.3	76	14.8	134	59	9	88.5	15.6	15.4	73
<10	25.2	<10	<10	<10	71.2	14.9	<10	<10	<10	<10	13.6	<10
22.4	156	<10	<10	<10	359	45.9	18.1	<10	29.8	14.3	65.7	32.8
78.4	221	<10	<10	<10	295	64.5	42.9	<10	39.3	11.9	68.2	55
3510	1610	<1000	<1000	<1000	17600	<1000	<1000	2780	<1000	1270	<1000	<1000
34000	18700	4240	2990	1740	77200	8060	<1000	6670	1800	4620	10400	<1000
37900	31000	13100	11000	12000	87500	15800	2800	19800	9370	10400	29900	<1000
48200	36000	84200	32200	47500	60000	16600	37000	42500	32100	38700	90400	2400
34700	25600	86900	7040	20700	12000	3110	4790	6510	8590	10900	21200	<1000
158000	113000	189000	53300	82200	254000	43600	45200	78200	52200	66000	153000	<5000
370000	220000	327000	61500	112000	323000	59500	59400	249000	120000	187000	226000	52400
<10	17.6	<10	<10	<10	91.5	<10	<10	<10	<10	<10	<10	<10
<10	49.1	<10	<10	<10	115	11.2	<10	<10	<10	<10	<10	<10
52.6	147	<10	<10	<10	197	42.2	28.3	<10	26.2	<10	44.6	36.3
1960	2400	<1000	<1000	<1000	4410	<1000	<1000	4810	2530	2110	1380	<1000
17400	10200	3250	<1000	1900	31500	2420	1860	12400	4920	7470	9270	<1000
42900	12900	11700	1200	3320	14500	2830	1930	48400	19700	27800	19900	14000
96200	42400	80100	5660	22100	17200	9700	9170	100000	38200	77400	41600	31200
52900	39000	42500	<1000	2100	<1000	<1000	<1000	4810	2880	6620	1290	2610
13200	11300	19000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
211000	107000	138000	8170	29700	68800	16000	14200	171000	68300	121000	73400	48700
370000	220000	327000	61500	112000	324000	59700	59500	249000	121000	188000	226000	48700
84.4	91.4	81.2	82.8	85.5	101	98.6	95.8	104	82.9	79.9	82.7	98.5
86.4	91.6	90.8	88	86.2	102	98.4	96.6	108	86.8	82.7	83.5	96.4
85	91.3	82	93	100	101	98.2	94.5	98.6	87	86.4	86.1	97.5
84	78.3	85	88.4	123	89.9	86.3	89.9	96.8	77.8	75.8	84.1	99.5
75.6	76.2	76.8	82.7	109	77.3	87.3	86.1	83.3	75.7	72.7	80.6	106
864	1900	<180	42.9	292	376	169	450	3270	3630	1170	1130	577
<240	56.4	<240	<12	82.3	28	39.1	61.8	1810	5690	464	226	604
669	168	<160	11	12.2	53.7	17.1	10.2	184	415	79.3	527	36.5
<200	196	<200	24.1	42.4	150	43.7	55.8	1220	6780	751	460	463
10900	2670	1000	137	431	649	257	592	11800	36400	5970	1650	3250
1100	495	<320	25	93.3	72.7	46.9	89.2	2370	7660	1380	436	1790
6420	1980	2480	126	503	358	287	526	16900	42000	8180	1880	6500
4340	1370	2120	100	397	298	216	372	12000	28900	6080	1460	4690
1470	791	1030	61	299	165	120	233	7070	13700	3000	776	2500
1680	908	1330	79.5	375	286	131	248	6690	12000	2890	775	2470
2270	1460	1630	81.9	553	271	114	377	8550	15700	3730	1030	3430
637	359	526	23.2	165	78.3	51.6	118	3230	5310	1140	324	1130
1240	826	800	41.5	276	135	98.8	185	5230	10100	2310	673	2320
1130	813	601	30.9	294	87.3	89.1	162	3040	7000	1890	474	1830
<460	122	<460	<23	71.1	34.4	<23	42.7	811	1170	365	90.9	335
1210	716	618	33.3	305	127	82.9	179	3230	6440	1530	456	1580
33900	14800	12100	818	4190	3170	1760	3700	87300	203000	40900	12400	33500
112	104	109	102	106	100	112	98.8	96.7	104	109	105	105
98.2	95.3	95.6	97.1	98.7	92.9	97.6	96.1	88.3	94.8	95.7	95.1	95.7
95.1	85.3	92	89.2	91	76.8	94.3	89.9	72.2	87.7	86.8	82.9	88.2
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<200	<200
<180	<180	<180	<180	<180	205	<180	<180	<180	<180	<1800	<180	<180
<140	<140	<140	<140	<140	380	<140	<140	<140	<140	<1400	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<800	<80	<80
<200	<200	<200	<200	<200	271	<200	<200	<200	<200	<2000	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<200	<200
769	5880	<260	<260	<260	<260	<260	<260	341	337	4140	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<4	<0.4	<0.4
<800	<800	<800	<800	<800	856	<800	<800	<800	<800	<8000	<800	<800

S22-2	T21-1	T21-2	U19-1	U20-1	U20-2	U21-1	U21-2	O32-1	O32-2	P31-1	P32-1	P32-2
1.30-1.30	1.00-1.00	2.00-2.00	0.30-0.30	0.80-0.80	1.30-1.30	0.50-0.50	1.40-1.40	0.30-0.30	1.20-1.20	0.90-0.90	1.00-1.00	1.30-1.30
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021
06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	06/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021
15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021
19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021					
210206-39	210206-39	210206-39	210206-39	210206-39	210206-39	210206-39	210206-39	210210-75	210210-75	210210-75	210210-75	210210-75
23678013	23677984	23677989	23678044	23678051	23678058	23678064	23677979	23699005	23699009	23698981	23698985	23699001
8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	3.0	3.0	3.0	3.0	3.0
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Light Brown
Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Stone/Soil	Loamy Sand	Loamy Sand	Loamy Sand	Stone/Soil	Sandy Loam	Gravel	N/A
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	None	Vegetation	Vegetation	Coal fragments	Vegetation	Brick	None	None	None	None	None	None
21	16	17	11	8.4	15	11	13	12	11	9.2	9.4	9.7
-	-	-	-	-	-	-	-					
-	15/02/2021	-	-	12/02/2021	-	12/02/2021	-	-	18/02/2021	18/02/2021	-	18/02/2021
-	Agnieszka Chelmowska	-	-	Paul Poynton	-	Paul Poynton	-	-	Paul Poynton	Paul Poynton	-	Paul Poynton
-	-	-	-	-	-	-	-					
-	-	-	-	-	-	-	-					
-	-	-	-	-	-	-	-					
-	-	-	-	-	-	-	-					
-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-
24.3	37.2	36.7	8.26	7.57	4.86	33.1	9.09	6.62	0.465	1.06	0.817	0.503
9.63	10.8	10.4	12	10.9	10.1	9.8	10.4	9.6	11	11.7	11.4	11.8
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
11.6	<6	6.59	<6	<6	6.86	7.16	7.62	11.8	<6	9.8	<6	6.98
1.44	<0.2	0.597	0.889	0.349	0.645	<0.2	0.892	<0.2	<0.2	2.61	<0.2	3.48
85.7	44.9	179	476	<9	64.2	21.5	14	76.5	<9	170	35	<9
23.6	25.4	18.6	<14	<14	15.6	33.3	16.8	29	<14	30.9	<14	<14
122000	66400	59400	154000	17100	51900	215000	81800	239000	58100	201000	49200	307000
114	58	51.7	31.5	24.6	424	169	91.7	213	8.79	57.1	9.06	<7
7740	2400	8280	28200	1380	6270	3200	6760	6760	3290	18600	6520	1190
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23.8	17.9	16.4	10.1	12.4	12.4	42	13.1	33.2	2.12	18.6	3.59	3.33
<10	<10	<10	12	<10	<10	<10	<10	<10	<10	<10	<10	<10
183	48.5	245	409	19.1	89.5	49.8	78.8	137	9.38	267	221	<2
353	127	107	86.1	57.9	95.3	117	108	928	30.5	170	66.3	28.4
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0.0127	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0114	<0.01	<0.01	<0.01	<0.01
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61	<50	<50	<50	131	<50	<50	210	<50	114	<50	<50	<50
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44.8	26	31.1	56.2	87	122	15	81	57.6	95.2	94.8	89.7	102
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27.9	<10	13.3	11.3	66.6	<10	<10	84	<10	26.9	<10	<10	<10
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21.6	<10	<10	<10	32.7	<10	<10	72.5	<10	58.2	<10	<10	<10
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97	82.1	82.6	98.9	104	102	91.2	84.5	94.4	90.1	97.3	93.5	95
94.5	81.9	83.3	97	101	98.4	94.9	85.6	98.4	94.4	93.5	98.3	94
96	83.2	84.2	97.8	97.1	98.4	94.4	87.6	103	92.8	94.8	103	94.7
94.6	75.6	80.8	96.7	93	95.5	89.8	84.5	90.2	86.8	90.8	92.8	88.1
100	70.7	75.7	101	90.7	104	78.1	82.2	83.6	94.2	86.5	89	84.7
649	720	420	282	157	55.6	1080	198	323	36.2	104	37.1	<9
347	269	210	98.6	<12	14.7	394	73.7	200	14.7	30.6	16.9	13.8
38.4	<40	19.8	<8	13.4	10.2	28.6	12.6	33.4	<8	12.6	<8	<8
220	194	131	55.9	41	13.2	232	49.3	144	<10	26.7	11.7	16.4
1910	1670	1130	1040	225	130	2850	403	1230	59.7	230	102	132
616	352	269	234	32.6	23.7	758	96.6	330	<16	52	42.5	25.8
3600	2120	1810	1600	114	173	5170	579	2060	84.2	459	165	234
2660	1540	1330	1090	87.1	145	3580	428	1500	90.1	391	127	207
1490	823	776	652	60	122	2220	284	919	54.8	222	73.6	110
1270	859	793	680	97.2	146	1940	301	856	61	266	70.2	114
1610	1020	1030	617	86.2	152	2870	398	837	96.2	368	53.2	172
606	322	341	293	19.6	73.4	893	140	379	32.1	104	28.2	55.4
1340	627	660	505	44.8	145	1600	243	774	49.7	191	61.1	106
1060	448	498	429	31.3	139	1130	182	596	49.1	163	48.5	80.6
194	<115	88.9	79.3	<23	28.2	266	37	155	<23	32	<23	<23
929	445	494	378	45	129	1050	210	681	47	184	56.7	97.4
18600	11400	10000	8040	1050	1500	26100	3640	11000	675	2840	894	1360
97.9	108	108	106	104	112	98	109	104	107	105	104	105
95.3	99.7	101	97	98.6	97.9	93.3	97.1	99.1	99.7	101	101	100
82.3	98.4	96.9	92.6	91.1	95.2	79	90.6	90.1	99.1	98	100	99.1
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Q30-1	Q31-1	Q32-1	Q32-2	Q33-1	Q33-2	R30-1	R30-2	R31--2	R31--1	R32-1	R32-2	AJ5-1
1.00-1.00	1.00-1.00	0.50-0.50	1.30-1.30	0.40-0.40	1.40-1.40	0.30-0.30	1.30-1.30	1.30-1.30	0.50-0.50	0.50-0.50	1.40-1.40	0.60-0.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	09/02/2021	10/02/2021
10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	11/02/2021
10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	18/02/2021
												24/02/2021
210210-75	210210-75	210210-75	210210-75	210210-75	210210-75	210210-75	210210-75	210210-75	210210-75	210210-75	210210-75	210211-154
23698977	23698972	23699042	23698968	23699033	23699037	23698964	23699013	23699029	23699025	23699017	23699021	23709291
3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown
N/A	Sandy Loam	Loamy Sand	Sandy Loam	Loamy Sand	N/A	Sandy Clay Loam	Silty Clay Loam	Loamy Sand	Loamy Sand	Sandy Clay Loam	Sandy Clay Loam	Stone/Soil
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	None	None	None	Vegetation	None	Vegetation	None	None	None	Vegetation	None	None
21	12	6.7	9.3	13	12	13	11	24	9.9	8.5	14	5.4
												-
-	18/02/2021	18/02/2021	-	18/02/2021	-	18/02/2021	-	-	18/02/2021	16/02/2021	-	-
-	Paul Poynton	Agnieszka Chelmowska	-	Paul Poynton	-	Agnieszka Chelmowska	-	-	Paul Poynton	Marcin Magdziarek	-	-
												-
												-
												-
												-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
0.574	1.43	3.31	1.38	3.02	0.476	3.79	1.44	14	1.66	2.84	2.34	0.779
11.3	11.5	11	10.5	11.3	11.1	9.41	11.3	9.44	11.6	11	9.79	8.49
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7.69	15.6	11	<6	11.2	21.7	18	8.89	16.6	11.8	11.6	7.28	<6
<0.2	<0.2	2.75	<0.2	2.45	2.93	0.316	10.3	0.696	2.35	<0.2	<0.2	<0.2
<9	<9	205	13.9	44.2	13	273	80.1	11.3	20.1	229	14.1	120
24.4	33.8	38.5	18.5	14.9	<14	45	33.6	28.6	<14	16.1	49.1	<14
89700	235000	179000	407000	154000	243000	239000	168000	42200	178000	139000	102000	32300
14.9	58.5	87.7	<7	85.7	12.2	73	44.4	16.7	15.8	350	34.8	7.03
4140	6570	11800	3170	5750	20400	9330	13700	837	4740	67300	4090	8150
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23.4	114	434	77.7	91.2	36	337	127	37.5	67.5	363	109	82.4
44.8	174	300	122	331	65.9	327	268	50.9	89.6	352	117	40.2
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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96.9	88.4	96.5	100	97.6	98.1	93.5	97.9	73.7	95.2	92.9	94.8	95.7
94.9	94	97.6	94.9	95.3	95.3	98.2	99.8	71.1	99.7	97.4	95.6	97.5
96.8	94.5	99.8	94.5	96.7	95.4	105	96.4	42.3	107	100	102	98.3
90.3	85.2	90.2	87.2	91.6	89.9	96.1	91.3	16	102	89.6	92	88.8
89.1	89.9	91.4	83.1	87.5	88	90.7	88.7	8.33	94.8	85.7	90.1	90.4
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AS5-1	AS5-2	AT5-1	AT5-2	AU5-1	AU5-2	AU5-3	AU6-1	AU6-2	AV6-1	AV6-2	AV6-3
0.50-0.50	2.00-2.00	0.40-0.40	1.30-1.30	0.70-0.70	1.60-1.60	2.30-2.30	0.50-0.50	1.70-1.70	0.50-0.50	1.20-1.20	2.00-2.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021
18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021
24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021
210211-154	210211-154	210211-154	210211-154	210211-154	210211-154	210211-154	210211-154	210211-154	210211-154	210211-154	210211-154
23709374	23709378	23709365	23709370	23709347	23709357	23709361	23709332	23709339	23709308	23709319	23709328
3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Dark Brown	Dark Brown	Light Brown	Red	Light Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Loamy Sand	Loamy Sand	Sandy Loam	Silty Clay Loam	Sandy Silt Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Brick	None	None	Brick	None	Vegetation	None	Vegetation	Vegetation	None	None	None
20	23	14	14	16	23	24	25	22	13	6.9	31
-	-	-	-	<0.001	-	-	-	-	-	-	-
-	17/02/2021	-	19/02/2021	18/02/2021	-	18/02/2021	19/02/2021	-	-	18/02/2021	-
-	Paul Poynton	-	Barbara Urbanek-Walsh	Agnieszka Chelmowska	-	Agnieszka Chelmowska	Agnieszka Chelmowska	-	-	Marcin Magdziarek	-
-	-	-	-	<0.001	-	-	-	-	-	-	-
-	-	-	-	None	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	<0.001	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-
-	-	-	-	Fibre Bundle in soil	-	-	-	-	-	-	-
4.98	6.93	4.43	10.3	6.55	9.28	6.62	39.1	18.3	2.79	2.72	8.83
10.4	8.78	10.4	10.7	10.6	10.7	9.18	7.7	11.4	12.5	11.4	9.84
<1	18.7	<1	6.9	<1	23.1	37.2	1.11	9.79	4.42	6.99	184
<12	<12	<12	<12	<12	<12	<12	123	<12	<12	<12	<12
6.61	14.3	7.08	9.76	10.2	19.7	17.7	17.7	13.7	<6	16.9	22.2
1.96	13	0.95	3.38	2.12	21.9	16.5	0.913	12.6	6.38	7.44	24
129	579	138	39.6	588	267	115	17.2	551	430	172	104
27.3	63.6	34.6	88.3	64.7	85.3	63.7	52.8	55.3	38	117	82
62800	258000	45100	47100	104000	349000	261000	22100	254000	192000	467000	417000
163	1040	56.4	255	135	1920	1370	564	1070	494	447	2070
8480	29900	5900	1940	12700	23600	13400	624	26300	33500	14600	14400
<1	<1	<1	1.97	<1	<1	<1	<1	<1	<1	1.39	1.34
20.1	41.3	22.7	29.4	26.1	52.3	44	21.2	28.5	39.2	40.1	59.2
<10	<10	<10	<10	<10	<10	<10	<10	<10	11.8	<10	<10
247	593	107	56.9	490	945	460	23.6	485	1490	472	379
618	5270	208	1260	559	9230	6550	187	5520	2100	1920	10600
0.0375	<0.01	0.0468	0.0117	<0.01	0.013	0.0132	<0.01	<0.01	0.069	0.172	<0.01
<0.01	0.026	0.0117	<0.01	<0.01	0.013	0.0132	0.0134	<0.01	<0.01	0.0107	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	0.0585	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.069	0.183	<0.035
<50	<50	<50	<50	75	<50	<50	<50	<50	<50	105	<50
<50	<50	<50	<50	<50	<50	0	<50	<50	<50	<50	<50
<20	<20	<20	<20	75	<20	<20	<20	<20	<20	105	<20
74.4	86.3	94.9	87.7	117	79.1	87.7	61	100	95	89.1	134
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10.7	<10
<10	<10	<10	<10	23.8	<10	<10	<10	<10	<10	31.1	11.5
<10	<10	<10	<10	51.2	<10	<10	<10	<10	<10	63.4	15.8
<1000	<1000	<1000	<1000	<1000	<1000	1990	<1000	<1000	<1000	<1000	<1000
2940	<1000	<1000	1790	1120	1740	1090	1260	1320	10800	6030	6340
12800	5670	3460	5670	5800	11100	5430	5180	7110	31000	20700	20600
102000	31700	19800	28100	80100	45800	29400	32200	16800	122000	91200	50300
36600	7010	5270	13900	22600	12900	7770	5390	1270	47100	45200	12900
154000	45200	29300	49800	110000	71700	45700	44700	26600	211000	164000	90700
197000	60200	43200	71400	135000	94700	84700	212000	36700	273000	221000	118000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	34.5	<10	<10	<10	<10	<10	41.9	10.1
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2030	1610	1940	2490	3370	1540	3700	18900	<1000	9720	6530	3160
37600	12300	11000	17500	20000	19800	26800	122000	7840	46800	46800	22900
2220	<1000	<1000	<1000	2190	1530	1330	23000	<1000	3990	3030	<1000
<1000	<1000	<1000	<1000	<1000	<1000	<1000	2670	<1000	<1000	<1000	<1000
42500	15000	14000	21600	25600	23100	38900	167000	10100	61200	57200	27500
197000	60200	43200	71400	135000	94700	84700	212000	36700	273000	221000	118000
103	100	102	101	100	99.3	89.5	98.7	98.9	95.4	97.1	93.7
101	97.4	101	98.5	99.3	93.7	94.3	98.4	95.3	98.1	94.9	91.5
106	98.2	101	98	98.7	91.9	94.2	95.5	94	99.4	94.6	83.3
94.2	102	96.6	103	92.3	72.9	83.6	90.6	88.1	88.5	100	72.4
88.4	93	97.6	98.5	91.6	59.6	83.1	90.6	73.7	87	88.5	58.6
60.6	31.5	175	57.6	69.4	28.1	47.2	41	20.7	44.1	121	28.7
21.8	<12	21.6	<60	17.6	<12	<12	20.7	<12	<12	93.5	<12
25.8	<8	143	54.2	47.5	<8	26.5	36.1	<8	74	77.6	<8
34.1	<10	105	<50	58.5	<10	33.1	45.7	<10	37.4	54	<10
219	68.6	1160	410	352	119	301	339	80.9	691	662	64
56.2	<16	236	189	99.5	23.9	67.1	66.8	<16	122	197	<16
423	114	1460	1720	499	233	508	675	149	1320	1820	92.3
373	101	1180	1540	430	217	424	523	109	1240	1900	100
227	68.8	636	1450	249	121	285	402	69.2	705	1290	58.1
278	78.6	519	1570	245	153	311	461	70.1	710	1620	71.7
379	121	896	2060	410	219	416	712	120	1160	2410	97.3
108	38.2	318	717	126	66.4	143	219	31.6	373	707	28.1
202	67.2	570	1130	244	108	250	371	51.4	837	1530	42.8
173	51.7	449	799	207	92.7	185	307	43.7	592	1170	35.6
38.1	<23	68.4	218	36.2	<23	33.4	65.6	<23	84.1	222	<23
178	58.7	402	748	188	84.9	182	260	49.3	550	1200	39.9
2800	799	8330	12600	3280	1470	3210	4550	794	8540	15100	658
107	113	105	105	105	107	105	104	104	110	104	95.6
100	99.2	100	99.5	99.4	100	98.9	99	98.7	100	99.3	99.6
100	99.4	101	99.3	101	98.4	101	95.5	98.2	102	98.9	101
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

SPIA-1	SPIA-2	U30-1	U31-1	U32-1	SPLA-1	SPLA-2	SPLA-3	SPLA-4	SPLP-1	SPLP-2	SPLP-3	W213-1	W213-2	W213-3
0.20-0.20	0.20-0.20	0.60-0.60	1.00-1.00	0.50-0.50	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
10/02/2021	10/02/2021	09/02/2021	09/02/2021	09/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021
11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021
18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021
24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021
210211-154	210211-154	210211-154	210211-154	210211-154	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101
23709389	23709398	23709303	23709298	23709286	23716424	23716430	23716436	23716443	23716403	23716409	23716417	23716468	23716473	23716480
3.5	3.5	3.5	3.5	3.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Silt Loam	Silt Loam	Loamy Sand	Loamy Sand	Loamy Sand	Sandy Silt Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Silt Loam	Sand	Sandy Loam	Sandy Loam
Vegetation	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	Stones	Brick	Brick	None	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation
29	25	7.6	5.1	8.7	32	22	35	27	27	20	28	13	12	18
-	-	-	-	-										
-	19/02/2021	18/02/2021	-	18/02/2021	-	23/02/2021	-	23/02/2021	18/02/2021	-	18/02/2021	22/02/2021	-	23/02/2021
-	Barbara Urbanek-Walsh	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Paul Poynton	-	Paul Poynton	Paul Poynton	-	Agnieszka Chelmowska	Paul Poynton	-	Paul Poynton
-	-	-	-	-										
-	-	-	-	-										
-	-	-	-	-										
-	-	-	-	-										
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21.7	13.8	2.55	1.55	0.91	5.34	9.22	3.71	15.9	31.2	6.78	11.1	6.74	7.69	6.02
8.2	8.25	11	10.4	10	7.89	8.44	8.18	8.31	8.57	9.36	8.52	8.9	8.74	8.59
69.9	49.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.04	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
36.5	21.3	<6	15.2	6.14	12.1	18.7	13.5	10.4	9.96	12.2	11	14.4	13.1	20.2
37.5	24.6	0.689	2.56	<0.02	<0.2	1.09	<0.2	0.706	0.826	<0.2	0.856	1.11	0.356	1.39
135	547	25.3	62.3	6.78	38.6	32.1	39.8	22.4	90.8	50.9	312	59.7	50	68.5
96.9	70.9	<14	46.9	16.6	18.6	13	<14	25.2	12.3	25.8	21.6	31.8	81.9	30.7
301000	234000	38800	284000	40100	75000	129000	47200	21300	93700	98100	116000	65400	52400	76900
6320	3260	25.7	<7	1.55	36.6	32.7	32.8	56	19.8	85.6	21.5	90.7	142	121
11200	24000	3590	5660	4120	1590	2120	772	1760	11600	3540	14300	4490	2850	4420
1.1	<1	<1	<1	<0.1	<1	0.154	<1	<0.1	<0.1	<1	<0.1	<0.1	<1	<0.1
59.4	42.5	6.52	27.3	12.1	33.4	24.6	39.6	22.2	14.5	25.8	24.1	21.7	27.2	31.9
<10	12.1	<10	<10	2.38	<10	<1	<10	<1	3.31	<10	3.43	1.1	<10	<1
156	467	38.5	71.4	40.3	63.8	80.8	57.3	28.4	192	101	701	61.6	91.2	142
21100	11800	132	58.6	29.4	135	129	133	254	74.2	267	148	267	376	401
0.0141	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0137	<0.01	<0.01	<0.01	<0.01	<0.01
0.0282	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
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72.6	70.1	47	57	85.5	74.1	125	70.9	90	79	82.8	84	80.5	88.3	86.9
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43100	26500	17300	2330	9870	<1000	4780	<1000	2370	11000	5670	1480	1150	3670	1620
209000	136000	81500	17900	57200	2020	19700	1560	14100	30800	20700	3920	4520	10700	11700
85100	54900	27100	5600	25200	<1000	3390	<1000	2560	6470	3760	<1000	<1000	<1000	2070
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1470	<1000	2570	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1670	<1000	1970	<1000	<1000
9760	8070	5150	2350	1890	<1000	2090	<1000	5920	2750	14300	6920	20100	4800	7800
83400	64500	66000	12600	10800	7860	17600	1360	24500	27500	54000	15600	108000	35700	40200
1610	1480	2230	<1000	1180	<1000	1860	<1000	5150	3280	6340	<1000	10200	12400	4940
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	1020	<1000	1870	3820	1170
96200	74600	76300	16400	14200	8860	21800	<5000	36500	34200	77400	24100	141000	53200	53800
435000	294000	207000	42600	108000	<10000	49800	<10000	55500	86200	109000	29500	147000	68000	69500
98	96.6	107	100	96.9	96.9	93.2	92.9	93.7	93.8	98.2	98.5	93.1	91.7	91.4
94.7	94.5	105	103	100	97.5	93.2	90.9	93.7	93	97.7	98.3	88.1	91.2	87.1
88.6	86.2	108	105	102	100	86.9	85.6	92.6	89	101	103	85.6	87.9	87.3
68.4	72.6	96.2	97.7	93.1	82.8	85.8	87.5	90.3	88.1	89.8	87	82.7	88.4	89.7
52.1	55.4	94	101	96.2	81.1	84.3	90.8	88.2	92	87.5	85.2	77.7	83	88.6
88.4	126	110	113	91.5	41.3	184	<9	409	56.4	1300	215	181	160	304
<12	27.1	40.9	62.1	34.9	20	78.3	<12	213	<12	933	117	137	215	265
48.9	53.8	<8	8.43	71	<8	<8	<8	24.9	17	157	22.8	230	121	334
91.1	117	21.5	42.4	45.5	<10	44.4	<10	153	23.2	1270	82.6	212	236	439
748	1020	208	367	294	67.2	262	<15	990	178	7770	637	1740	1800	2920
158	226	49.4	93.8	68.2	<16	73.9	<16	273	37.3	1610	185	452	1110	808
899	1140	281	520	359	171	466	<17	1680	248	10200	1310	4590	12700	5250
761	981	219	370	344	122	342	<15	1230	211	7290	966	3610	10400	3730
515	577	132	312	170	74.6	256	<14	713	115	3450	520	2580	9050	2900
648	700	168	300	170	67.6	217	<10	552	102	2800	426	2410	9160	2600
1110	1430	249	508	247	94.4	381	<15	973	161	4780	747	3850	12300	4250
318	325	73	154	75.7	29.2	135	<14	324	53.3	1470	245	1480	4190	1270
453	552	114	283	131	58.5	238	<15	581	108	2850	448	2310	7010	2440
350	433	125	264	123	47.1	215	<18	449	79.5	2320	339	1730	4940	1930
78.5	116	26.6	46.8	<23	<23	34.6	<23	71.4	<23	471	74.8	337	1050	362
382	447	133	229	105	40.3	180	<24	367	70.4	1980	303	1450	3810	1570
6650	8270	1950	3670	2330	834	3110	<118	9000	1460	50600	6640	27300	78200	31400
107	116	98.9	102	103	108	107	112	106	106	107	108	105	106	105
98.2	98.7	97.5	99	101	95.6	95.7	94.4	97.8	97.9	98.1	98.3	96.6	97.3	96.3
96.1	99.7	86.4	91.7	98.3	88.7	90	87.3	94	93.9	96.9	97.4	90.9	93.9	92
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

W213-4	W213-5	W213-6	W213-7	W213-8	W300-1	W300-2	W300-3	W300-4	S14-1	S14-2	S15-1
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.50-0.50	1.30-1.30	0.70-0.70
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	04/02/2021	04/02/2021	04/02/2021
12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	05/02/2021	05/02/2021	05/02/2021
12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	12/02/2021	11/02/2021	11/02/2021	11/02/2021
24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	24/02/2021	23/02/2021	23/02/2021	23/02/2021
210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210212-101	210205-65	210205-65	210205-65
23716485	23716489	23716387	23716392	23716399	23716382	23716449	23716453	23716459	23672951	23672957	23672963
2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	9.0	9.0	9.0
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown
Sand	Sandy Loam	Sand	Sandy Loam	Sand	Sandy Loam	Sand	Sandy Loam	Sandy Loam	Sand	Sand	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	None	Vegetation
9.8	13	14	14	11	10	14	17	15	13	14	9.9
									<0.001	-	-
-	22/02/2021	-	18/02/2021	-	22/02/2021	-	18/02/2021	-	11/02/2021	-	11/02/2021
-	Paul Poynton	-	Paul Poynton	-	Paul Poynton	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Paul Poynton
									<0.001	-	-
									None	-	-
									-	-	-
									<0.001	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	Loose fibres in soil	-	-
22.2	8.21	7.55	7.76	25.2	2.6	2.67	5.6	2.78	71.2	29.3	17.1
8.63	8.86	8.56	8.68	10.7	8.95	10.2	9.46	8.97	9.3	10.6	10.6
<1	<1	1.43	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
9.93	67	14.6	13	6.51	4.93	17.7	47.2	10.5	5.83	<6	9.45
<0.2	0.577	0.326	1.39	<0.2	0.281	<0.2	1.28	1.64	0.325	0.477	1.59
34.2	18.6	111	162	267	9.54	256	127	100	39.2	27.4	89.9
27.8	91.4	29.7	26.3	20.8	12.3	34.9	52.8	17.7	16.2	<14	33.9
33400	45900	86800	86900	105000	10500	169000	119000	174000	30800	53800	171000
42.6	253	174	85.1	54.2	62.1	79.9	89.5	66.4	29.9	61.7	97.3
2050	657	5460	12000	12600	271	11300	9550	7920	4130	3230	8150
<1	<0.1	<1	<0.1	<1	<0.1	<1	<0.1	<0.1	<0.1	<1	<0.1
18.9	24.5	28.5	19.3	13.3	9.02	22.8	20.3	17.1	11.8	8	22
<10	<1	<10	3.36	<10	<1	<10	1.35	<1	1.8	<10	<1
45.4	34	164	385	380	11.2	252	156	147	59.5	46.4	134
103	207	400	278	141	58	225	444	344	87	143	380
<0.01	<0.01	<0.01	<0.01	0.0113	<0.01	<0.01	<0.01	<0.01	<0.01	0.0116	<0.01
<0.01	<0.01	<0.01	<0.01	0.0113	0.0111	0.0116	<0.01	0.0234	<0.01	0.0348	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.0464	<0.035
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
34	82.4	101	70.3	20	107	112	94.5	80.1	3.8	13.4	17.3
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
3270	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	6370	1080	<1000
11300	<1000	<1000	<1000	3160	<1000	<1000	<1000	<1000	13600	5430	1900
50500	1730	1410	1160	17300	<1000	6060	1560	1480	18500	9240	5490
2660000	6160	10500	8800	42200	23300	54500	24300	21400	37300	18400	24000
319000	<1000	1140	<1000	12000	5000	18500	6460	4470	9370	4800	6700
3040000	8340	13300	10600	74900	29100	79500	32500	27400	85100	38900	38700
3090000	204000	85900	62500	228000	36900	99200	47000	80700	145000	98600	79300
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<1000	<1000	<1000	<1000	9950	<1000	<1000	<1000	<1000	1670	<1000	<1000
4440	<1000	<1000	1230	6320	<1000	<1000	<1000	1810	11500	5350	2160
15300	7290	10700	9350	33400	<1000	1810	1310	20300	15000	11500	9310
24800	183000	55000	38100	93200	5460	16100	11300	28800	30900	39600	27600
<1000	5270	6290	2870	10400	1430	1770	1670	2210	<1000	2300	1070
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46200	196000	72600	51800	153000	7860	19800	14400	53300	60100	59700	40600
3090000	204000	85900	62500	228000	36900	99200	47000	80700	145000	98600	79300
93.1	95.8	92.3	101	95.2	94.6	96.2	91.6	94.6	97.3	79.3	77.1
98	92.2	89.3	103	98.4	92.3	97.3	91.5	91.7	103	84.5	82.8
95.3	88	85.7	103	102	87.9	102	91.6	83.8	107	84.6	80.6
83.5	75.6	84.2	83.1	81.3	85.9	83.6	99.5	82.2	97	81.2	81.1
77.9	70.2	80.2	79.7	75.5	83.7	80.9	100	81.5	82.8	72.5	70.4
431	<180	248	307	8430	102	63.7	129	167	614	734	726
277	<240	195	201	1290	58.9	35.5	52.2	71	129	253	313
21.1	<160	99.7	<80	268	19.9	29.6	14.9	23.3	27.2	25.7	<40
198	<200	141	125	838	59.2	27.6	33.6	44.4	118	138	181
1940	989	1090	990	5740	476	372	298	459	1120	1380	1670
478	<320	314	289	1810	121	105	78.6	98.9	152	322	485
3700	1980	2660	2600	8490	662	794	513	744	1120	2170	2690
2580	1510	2040	1970	6290	489	665	398	571	822	1570	2010
1100	1120	1660	1360	3520	338	430	315	399	512	951	1260
982	1110	1510	1440	3580	299	451	276	433	602	805	1180
1400	1850	2670	2260	4870	514	723	489	730	796	1300	1730
476	606	961	772	1600	188	250	154	210	244	410	559
779	954	1640	1270	3220	318	439	284	433	383	698	1020
690	792	1340	1090	2530	275	359	233	346	280	623	878
124	<460	230	276	549	43.9	78.1	41.6	73.5	98.7	140	184
581	686	1140	990	2310	262	370	214	327	328	502	689
15800	11600	17900	15900	55300	4230	5190	3520	5130	7340	12000	15600
99.5	108	108	106	90.8	105	105	106	108	112	114	98.5
91.2	96.9	97.3	98	91.5	97.5	97.4	98.8	96.5	102	100	93.6
81.3	92.9	91	95.1	77.8	93.7	94	96.6	93.8	100	98.8	73.9
<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<2000	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<1800	<1800	<180
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<80	<80	<80	<80	<80	<80	<80	<80	<80	<800	<800	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<2000	<200
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<260	<260	<260	<260	1770	<260	<260	<260	<260	<2600	<2600	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<4	<4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<8000	<8000	<800

S15-2	T12-1	T15-1	U12-1	U12-2	U14-1	U14-2	U15-1	U16-1	U16-2	U17-1	S30-1	S30-2	S31-1
1.40-1.40	0.15-0.15	1.00-1.00	0.60-0.60	1.90-1.90	0.30-0.30	2.00-2.00	1.00-1.00	1.00-1.00	2.00-2.00	1.00-1.00	0.60-0.60	1.50-1.50	0.30-0.30
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
04/02/2021	04/02/2021	03/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	03/02/2021	04/02/2021	04/02/2021	03/02/2021	05/02/2021	05/02/2021	05/02/2021
05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	10/02/2021	10/02/2021	10/02/2021
11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	11/02/2021	22/02/2021	22/02/2021	22/02/2021
23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	23/02/2021	26/02/2021	26/02/2021	26/02/2021
210205-65	210205-65	210205-65	210205-65	210205-65	210205-65	210205-65	210205-65	210205-65	210205-65	210205-65	210210-40	210210-40	210210-40
23672967	23672946	23672941	23673002	23673008	23672993	23672997	23672977	23672982	23672987	23672972	23697366	23697371	23697355
9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	4.1	4.1	4.1
Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Black	Dark Brown	Black	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Sand	Sand	Sand	Sand	Stone/Soil	Sand	Sand	Sand	Sand	Sand	Sandy Clay Loam	Sandy Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	None
None	None	Vegetation	None	Vegetation	None	None	Vegetation	Vegetation	Vegetation	Vegetation	Stones	None	Stones
32	3	4.1	9.9	9.7	11	6.8	0	3.6	12	9.7	5.7	17	11
-	-	-	-	-	-	-	0.0039	-	-	-	-	-	-
-	-	11/02/2021	-	11/02/2021	-	11/02/2021	11/02/2021	-	11/02/2021	-	18/02/2021	-	18/02/2021
-	-	Christian Hallam	-	Christian Hallam	-	Marcin Magdziarek	Paul Poynton	-	Christian Hallam	-	Paul Poynton	-	Paul Poynton
-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-
-	-	-	-	-	-	-	None	-	-	-	-	-	-
-	-	-	-	-	-	-	N/A	-	-	-	-	-	-
-	-	-	-	-	-	-	0.0039	-	-	-	-	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	Degraded textile ACM debris in soil	-	-	-	-	-	-
65.9	2.17	55.7	27.8	4.52	30.2	<0.35	41.4	44.3	31.7	36.7	1.16	2.02	6.02
8.33	10.7	9.93	9.05	9.87	9.24	10.9	9.51	8.89	9.84	10.3	**11.7**	11.6	10.1
<1	<1	<1	<1	<1	<1	<1	<1	4.06	1.46	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
<6	<6	3.72	2.68	<6	2.71	<6	3.49	<6	5.23	4.04	<6	<6	18.5
<0.2	<0.2	0.3	0.0911	<0.2	0.108	<0.2	0.234	<0.2	0.363	0.38	<0.2	1.04	2.17
11.9	29	22.7	36.9	11.5	9.06	46.2	14.1	93.7	25.2	150	73.2	51.8	307
27.4	<14	8.49	7.98	<14	6.92	<14	6.65	16.7	11.9	12.1	14.5	<14	62.2
41300	11200	20400	<10000	<10000	<10000	<10000	12000	49100	24500	57500	106000	38000	105000
32	<7	14	27.1	8.31	3.62	<7	15.9	89.4	408	<0.7	13.5	15.5	191
724	5290	3200	3880	831	3530	4430	1080	4590	2040	5440	9180	5140	20300
<1	<1	<0.1	<0.1	<1	<0.1	<1	<0.1	<1	<0.1	<0.1	<1	<1	<1
28.2	2.01	6.21	4.33	8.92	3.24	<2	4.15	10.2	10.8	9.07	21.4	8.95	24.1
<10	<10	1.59	2.89	<10	2.11	<10	<1	<10	<1	1.27	<10	<10	<10
33.8	47.5	32.6	32.4	24.5	20.3	29.9	31	56.6	23.4	73.1	196	93.7	430
55.9	<19	66.3	52.7	23	36.9	<19	33.5	207	107	42.9	81.4	129	300
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
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<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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86.5	78.6	80	98.8	79.2	102	81.7	79.3	78.5	77	96.3	93.3	96	92.3
86.3	80.7	83.8	106	83.3	108	83.3	81.5	84.8	82.9	99.3	95.7	96.4	91.5
59.3	83.1	89.5	104	83.6	90.6	83.9	83.2	82.8	81.9	106	96.9	98.3	90.1
34.2	80.5	87.8	96.8	79.6	86.6	78.6	79.7	83.4	83.4	97.1	96	98.1	87.9
25.5	73.1	74.8	86.4	73.1	77.4	72.1	70.7	70.2	74.1	88.1	94.1	98.3	82.2
102	118	528	851	48.4	662	30.7	258	1150	780	202	139	33.5	191
<12	30.5	140	267	22.2	200	15.7	97.2	567	459	30	99.4	<12	145
16.4	11.7	28.3	32.1	<8	<80	<8	23.6	45.1	<40	24.4	15.3	<8	<40
44.4	40.6	101	166	17.9	123	13.8	91.9	236	195	39.6	53.3	<10	75.6
150	338	1060	1720	151	1150	92.4	644	2680	2090	318	493	77.7	650
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68.1	480	1650	2520	242	1450	132	820	5140	4030	231	1360	130	1400
57.4	342	1260	1840	175	1100	91.7	614	3800	2920	184	1110	124	1340
36.8	228	886	1300	118	686	56.5	506	2360	1810	95.1	705	70.6	806
54.6	259	875	1410	113	843	58.7	568	2140	1790	119	656	68.6	741
55.9	295	1330	2050	153	1030	59.7	705	3440	2620	154	940	117	1140
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25.5	162	725	985	81.8	534	39.1	397	1910	1440	76.2	578	66.8	668
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611	2770	10500	16100	1350	9150	692	5720	29200	22100	1700	7580	858	8730
106	107	104	105	107	113	108	105	104	99.8	107	110	110	110
94.6	100	101	99.9	98.6	99.5	100	98.5	99	92.6	98.3	97.7	96.5	98.2
75.7	92.5	101	96.3	90.6	99	95	87.8	92.4	74.1	86.5	97.5	92.9	94.5
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S31-2	S32-1	S32-2	S33-1	S33-2	T30-1	T30-2	T30-3	SPDL-1	SPDL-2	SPJB-1	SPJB-2	SPJB-3	W106-1	W177-1	W177-2	W191-1
1.40-1.40	0.50-0.50	1.90-1.90	0.40-0.40	1.90-1.90	0.70-0.70	1.70-1.70	2.90-2.90	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	05/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021	15/02/2021
10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021
22/02/2021	22/02/2021	22/02/2021	22/02/2021	22/02/2021	22/02/2021	22/02/2021	22/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021
26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	25/02/2021	25/02/2021	25/02/2021	25/02/2021	25/02/2021	25/02/2021	25/02/2021	25/02/2021	25/02/2021
210210-40	210210-40	210210-40	210210-40	210210-40	210210-40	210210-40	210210-40	210217-69	210217-69	210217-69	210217-69	210217-69	210217-69	210217-69	210217-69	210217-69
23697362	23697346	23697351	23697316	23697339	23697376	23697323	23697332	23740650	23740666	23740683	23740687	23740693	23740604	23740671	23740678	23740700
4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sandy Loam	Sand	Sand	Sand	Sand	N/A	Stone/Soil	Sandy Loam	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
None	Stones	Stones	None	Vegetation	None	None	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	Vegetation	None	Stones	Stones	Stones	Stones	Stones	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation
15	14	11	9	16	20	13	9.5	7.3	10	7.8	8.7	11	17	12	13	13
-	-	-	<0.001	-	<0.001	-	-									
-	16/02/2021	-	19/02/2021	-	19/02/2021	-	-	-	24/02/2021	-	23/02/2021	-	24/02/2021	-	23/02/2021	24/02/2021
-	Marcin Magdziarek	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	-	-	Barbara Urbanek-Walsh	-	Paul Poynton	-	Barbara Urbanek-Walsh	-	James Richards	Agnieszka Chelmowska
-	-	-	<0.001	-	<0.001	-	-									
-	-	-	None	-	None	-	-									
-	-	-	N/A	-	N/A	-	-									
-	-	-	<0.001	-	<0.001	-	-									
-	Not Detected	-	Trace	-	Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
-	-	-	Loose fibres in soil.	-	Soil containing asbestos debries.	-	-	-	-	-	-	-	-	-	-	-
6.6	3.31	1.26	3.97	3.33	5.78	1.44	1.78	15.9	20.7	3.81	35.5	52.6	4.97	49.7	25	13.9
11.4	11.1	12.4	10.2	11.1	11.1	10.4	10.6	9.22	9.51	12.8	10.6	9.09	9.83	9.19	8.79	9.02
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.23	2.62	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
11.1	10.6	<6	<6	8.8	8.03	6.97	<6	10.4	8.01	<6	2.6	5.24	10.5	10.6	9.39	10.4
<0.2	0.639	<0.2	<0.2	4.17	<0.2	<0.2	<0.2	<0.02	<0.02	<0.2	<0.02	<0.02	0.0526	<0.2	0.342	<0.02
25.4	18.4	47.4	100	69.5	65.1	<9	<9	144	30.7	398	301	164	52.9	40.1	66.6	98
18	18.4	<14	14.9	15	16.2	19.7	21.9	14.6	12.8	28	7.04	18.2	18.4	24.7	84.2	18.8
153000	110000	53200	113000	140000	113000	40500	76000	44300	19500	142000	131000	96200	61800	88600	121000	87900
39.5	46.2	22.1	39	57	29.7	20.4	20.4	17.6	8.89	22.2	<0.7	14.8	93	85.1	90.5	101
6100	9810	4460	7510	8770	7150	2190	1770	9390	3080	46900	23400	18900	7400	3570	3910	9370
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15.2	29.5	20.2	23.8	51.6	31.9	24.7	32.5	12.7	9.22	14.1	0.802	18.3	15.7	25.4	26	19
<10	<10	<10	<10	<10	<10	<10	<10	3.41	1.75	22	4.55	7.23	2.89	<10	<10	3.13
177	169	89.1	113	117	137	28.5	111	79.3	25.6	662	284	219	125	78.7	59.1	279
99.3	145	96.2	157	452	131	57.2	65.2	85.5	90.7	110	41.1	78.6	443	235	285	378
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<50	<50	<50	<50	<50	<50	88.6	64.9	<50	<50	<50	<50	<50	62.4	<50	<50	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	<20	<20	<20	<20	88.6	64.9	<20	<20	<20	<20	<20	62.4	<20	<20	<20
126	80.9	105	73	83	71	91	89.4	56.6	45.6	116	51.3	54.3	74.6	52.7	45.6	39.4
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20.1	<10	<10	<10	<10	<10	54.1	46.2	<10	<10	<10	<10	<10	43.2	<10	<10	<10
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21400	67800	37200	54100	27200	257000	14800	211000	7000	<5000	121000	22200	18400	40400	20000	18500	31500
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31100	126000	54600	131000	63900	372000	14900	228000	123000	78400	231000	128000	226000	144000	505000	289000	101000
95.7	93.7	95.9	87.8	94.1	95.7	93.8	93.4	94.8	93	97.3	94.9	97.2	94.4	90.4	96	92.4
98.9	100	95.7	91.6	94.9	94.3	97.5	97.6	89.8	89.7	96	92.9	97.3	91.5	84	92.4	87.6
103	104	98.1	91.2	97	95.2	101	98.1	88.5	89.8	97.3	91.6	97.2	91.6	82.1	91.4	85.8
106	96.6	97.6	91.5	96.3	93.9	90.3	89.9	85.6	91.7	85.3	89.7	80	82.8	80.5	94.4	83.2
104	92.8	94.9	87.7	94.5	92.2	85.3	87	85	90.2	81.4	90.3	72.7	87.3	81.1	92.6	81.6
241	863	240	380	86.9	206	<9	17.7	419	512	169	432	919	280	624	519	383
274	426	104	290	37.7	145	<12	<12	642	587	50.7	541	1660	43	1020	968	233
21.6	62.5	13.8	<40	12.6	<40	<8	<8	30.5	37.4	228	49.7	89.7	13.2	70	42.4	37.1
136	270	59	219	26.3	90	<10	<10	174	252	123	138	542	34	371	312	129
1250	1790	504	1330	199	1060	26.5	45.9	2380	2620	2270	1760	6360	201	3190	2830	1210
402	569	149	452	55.2	251	<16	<16	561	734	441	517	1920	68.5	1060	1320	344
2860	3340	886	2170	394	1850	34.4	56.7	6150	6520	4710	4050	15600	415	10500	10500	2140
2090	2950	774	2540	374	1610	29.1	47.7	4600	5000	4150	3040	10700	362	7760	7570	1590
1270	1590	435	1180	214	1040	22.1	32.2	2860	3570	2380	2270	6690	216	5150	5200	1160
1070	1440	429	1060	212	931	22.2	34	2420	2990	2790	1960	6140	219	4410	4350	1080
1860	2250	652	1430	327	1660	<15	50.2	4510	5330	4030	3710	8580	340	8690	7780	1770
580	815	208	493	107	546	<14	16.1	1440	1740	1480	1150	3040	127	2490	2630	572
1070	1360	377	820	190	994	19.3	25.7	2620	3500	2770	2170	5940	222	5120	4830	1030
759	1020	289	601	137	713	<18	21.6	2550	3180	2150	2230	5100	217	5140	4470	1080
193	248	69.9	145	32.9	191	<23	<23	508	614	401	458	1040	38.5	990	887	216
808	1060	308	617	162	821	<24	<24	2020	2610	1930	1790	4450	195	3920	3420	816
14900	20100	5500	13700	2570	12100	154	348	33900	39800	30100	26300	78800	2990	60500	57600	13800
122	110	106	111	112	114	112	116	102	102	103	103	101	106	109	96	99.1
97.8	98.4	104	97.2	97.8	95.7	98.8	96.9	94	98.7	98.5	94.3	86.3	99.3	99.2	95.4	80.1
98.5	97.2	99.7	93.3	98.2	93.3	95.4	98	81	88.4	94.7	78.4	82	96.1	87.2	81	79.4
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W192-1	W192-2	W204-19	W204-20	SPAN-1	SPAN-2	SPAN-3	SPAN-4	SPLF-1	SPLF-2	SPLF-3	SPLF-4	SPLF-5	SPLF-6	SPLF-7	SPLF-8	SPLF-9	SPLF-10
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
15/02/2021	15/02/2021	15/02/2021	15/02/2021	2/11/2021	2/11/2021	2/11/2021	2/11/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021	2/12/2021
17/02/2021	17/02/2021	17/02/2021	17/02/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021	2/13/2021
17/02/2021	17/02/2021	17/02/2021	17/02/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021
25/02/2021	25/02/2021	25/02/2021	25/02/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021	3/2/2021
210217-69	210217-69	210217-69	210217-69	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65
23740611	23740619	23740629	23740639	23722437	23722485	23722565	23722622	23722477	23722481	23722489	23722493	23722500	23722507	23722517	23722524	23722532	23722541
4.6	4.6	4.6	4.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Light Brown
Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Clay Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	Vegetation	Vegetation	None	None	None	None	None	None	Brick	Vegetation	None	Vegetation	None	None	Vegetation	None	Vegetation
13	13	21	14	8.1	8.9	8.1	8.5	25	15	12	27	16	13	20	21	18	25
				-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
-	23/02/2021	-	23/02/2021	22/02/2021	-	22/02/2021	-	-	22/02/2021	-	22/02/2021	-	22/02/2021	-	22/02/2021	-	22/02/2021
-	James Richards	-	Agnieszka Chelmowska	Paul Poynton	-	Agnieszka Chelmowska	-	-	James Richards	-	Marcin Magdziarek	-	Paul Poynton	-	Marcin Magdziarek	-	James Richards
				-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
				-	-	-	-	-	None	-	-	-	-	-	-	-	-
				-	-	-	-	-	-	-	-	-	-	-	-	-	-
				-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	-	-	Fibre bundles in soil	-	-	-	-	-	-	-	-
7.86	6.5	12.9	6.83	3.07	2.64	2.29	2.98	9.79	5.45	6.78	4.26	5.33	2.62	2.5	3.65	5.47	7.62
8.87	8.75	9.41	9.27	11.4	11.5	11.4	11.6	8.45	9.37	9.76	10.5	10.6	10.4	8.65	8.93	9.47	8.72
<1	<1	1.25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
11.6	9.5	8.67	11.3	16	14	14.1	13.2	9.78	23.1	13	10.6	17.8	12.4	12.3	19.5	13.2	14.2
<0.02	<0.02	<0.02	0.321	1.38	2.62	1.14	2.75	0.944	1.17	1.26	<0.2	1.78	<0.2	1.25	<0.2	1.81	0.283
45.9	64.6	162	90.4	117	141	121	189	59.4	126	141	47.7	82.7	35.7	15.9	40.3	57.1	60.4
16.8	14.1	19.4	22.9	18.3	37.1	23.7	47.6	18.1	28.9	26.9	23.7	28.1	28.8	53.7	41.8	40.4	26.1
88800	69600	121000	77600	227000	248000	205000	267000	56900	104000	102000	149000	166000	188000	137000	137000	177000	37300
69.3	70.1	119	106	92.4	110	52.9	122	76.3	60.1	65	62.8	46.3	40.2	36.1	77.7	54.8	83.3
5290	4380	11600	8500	10900	13600	11200	15100	3060	8790	10200	4980	10300	6500	2830	6420	4020	2880
<0.1	0.103	<0.1	<0.1	0.141	<0.1	<0.1	<0.1	0.35	<0.1	<0.1	<1	<0.1	<1	<0.1	<1	0.122	<1
15.9	17.9	17.8	23.5	15.5	32	16.6	29.6	24.7	21.5	17.9	17.1	16.4	18.4	17.9	26.4	22.4	30.6
<1	<1	1.71	3	<1	<1	<1	<1	<1	2.08	2.64	<10	<1	<10	<1	<10	<1	<10
86.9	141	398	157	309	234	210	310	105	124	188	99.9	173	81.2	54.1	73.8	76.5	89
314	289	453	429	424	456	219	483	330	370	315	222	241	155	193	254	198	204
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0123	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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54.7	44.6	52.3	6.4	74.8	92.3	77.5	97	81	80.1	92.1	119	82.7	82.3	97.5	94.6	88.4	68.9
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90.4	95.7	95.7	91.9	98.2	97.7	97.5	95	92.3	97.4	92.7	94.8	92.9	92.6	92.9	95.2	93.9	94.2
87.4	89.6	89.3	91.4	99	97.8	95.2	93.1	94.6	98.6	93	91.9	90.1	98.4	93.8	87.3	88.7	95.6
86.4	82.6	84	90.2	103	102	97.5	97.1	99.3	102	101	93.4	92.4	103	94.1	84.4	90.5	96.7
86.9	72.1	75.4	86.9	93.3	96.4	100	85.3	87.7	95.4	90.8	83.7	82.2	88.2	88.5	71.8	82.6	89.6
88.2	75.6	74.7	83.8	98.8	100	95	81.8	89.4	101	87.7	82.4	78.4	89.7	91	71.6	81	89.5
342	242	443	492	247	269	195	203	125	655	366	315	287	123	16.7	41.1	53	135
441	138	165	317	92.1	91.2	108	90.1	70.1	243	325	280	213	67.9	<12	<12	15.1	23.7
30.1	17.9	41.3	42.1	35.8	25	52.9	22.6	<8	698	44.4	<40	40.6	35.5	<8	<8	<8	21.5
404	94.3	173	196	49.8	44.3	48.9	33	50	1030	166	132	119	196	<10	<10	<10	35.4
3340	655	1030	1570	544	643	569	504	429	9520	1290	989	976	951	31.4	55.4	82.7	209
858	204	290	523	149	164	158	147	91.6	2380	502	362	310	178	<16	<16	22.4	47.7
5110	1270	1680	3560	1150	1280	1280	1110	869	11100	2840	2450	2120	1080	46.3	68.3	146	272
3490	873	1150	2570	925	995	1050	860	622	8200	2160	1840	1660	751	37.4	56.5	116	243
1940	551	656	1820	486	562	597	562	339	4840	1280	1010	938	413	21.3	26.8	65.9	147
1690	543	659	1550	515	514	530	638	277	4500	1260	981	893	348	18.2	28.6	67.3	159
2530	807	887	2560	804	987	955	847	487	5950	1960	1510	1360	529	26.1	42.5	94.2	193
789	257	277	844	207	289	306	280	116	1570	621	499	451	174	<14	<14	28.5	55.9
1580	497	435	1520	423	521	568	442	262	4040	1150	840	817	305	<15	23	53.7	121
1420	386	384	1390	434	531	428	386	236	3200	926	700	652	262	<18	<18	41.6	94.8
278	78.3	<23	292	80	93.6	95.6	93.1	39.2	259	197	162	136	44	<23	<23	<23	<23
1070	385	319	1120	368	459	394	356	166	2550	824	658	593	199	<24	<24	40	78.4
25300	7000	8580	20400	6510	7460	7330	6570	4180	60700	15900	12700	11600	5650	197	342	827	1840
109	109	106	97.6	105	110	105	105	118	105	105	104	108	95.6	112	104	115	103
98.3	96.6	92.4	85.4	98	95.5	97.7	97.3	100	98.6	98.4	99.1	99.2	99.4	99.3	98.4	99.8	98.8
87.6	85.6	92	74.5	97.7	95.1	93.8	96.3	95.9	95	90	92.9	90.8	96.4	95.4	92.1	93.8	97
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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SPLF-11	SPLF-12	SPLF-13	SPLF-14	SPLF-15	SPLF-16	SPLF-17	SPLF-18	SPLF-19	SPLF-20	SPLF-21	SPLF-22	W127-1	W127-2	W127-3	W127-4	W127-5	W127-6
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
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1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Light Brown	Light Brown	Light Brown	Light Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Light Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Silty Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	None	Vegetation	None	None	Vegetation	Brick	Vegetation	None	Vegetation	None	Vegetation	None	None	Vegetation	None	Vegetation	Vegetation
14	26	16	13	14	14	11	20	20	15	27	16	21	25	21	23	15	16
-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	<0.001	-	-	-
-	22/02/2021	-	22/02/2021	-	22/02/2021	-	22/02/2021	-	22/02/2021	-	22/02/2021	22/02/2021	-	24/02/2021	-	22/02/2021	-
-	Paul Poynton	-	Paul Poynton	-	Agnieszka Chelmowska	-	James Richards	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	Paul Poynton	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-
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-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Not Detected	-	Trace	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
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-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	Loose fibres in soil	-	-	Loose fibres in soil.	-	-	-
3.83	3.14	4.98	7.21	6.74	6.5	1.37	2.98	3.15	2.78	4.41	2.95	35	36.7	44.1	32.9	13.3	13.6
10.7	8.12	9.8	10.1	10.8	10.1	9.86	8.82	9.11	9.54	8.47	10.5	8.21	8.25	8.18	8.31	8.53	8.82
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19	10.7	13.9	10.5	12.8	13.9	11	12.7	16.8	13	16.6	15.3	41.7	43.3	44.9	34.4	15.4	19
1.02	<0.2	0.919	0.864	1.4	1.11	0.805	<0.2	2	0.898	0.557	<0.2	34.3	38.2	36.8	31.9	9.49	12.3
130	46.7	97.3	96.2	83	29.6	13.9	30.4	12	35	51.2	257	<9	53.7	<9	49.6	82	32.9
23.9	20.8	24.1	23.4	26.2	32.3	60.1	32	44.3	25.7	22.5	25.3	65.3	82	71	73.1	28.5	35.5
92000	32800	64800	81500	120000	200000	220000	137000	214000	198000	49400	109000	298000	367000	325000	346000	232000	200000
63.7	39.7	63.8	57.3	62.3	41.6	12.3	36.9	41.5	28.8	43.8	64.7	4970	7150	5320	4980	1580	1800
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18.9	29.8	19.9	13.1	15.3	12.4	11.5	22.4	18.5	10.1	40.2	24.8	59.7	49.9	64.6	43.2	16	28.9
3.39	<10	1.92	2.14	1.58	<1	<1	<10	<1	<1	<1	<10	<10	<1	<10	<1	<1	<1
268	56.4	135	163	130	82.3	88.5	61.8	69.4	81	81.4	485	176	176	216	172	129	108
231	135	270	243	303	215	118	123	184	142	169	232	14700	21600	16000	16900	5140	6110
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93.5	94.4	95.5	90.3	91.4	92.9	101	92.3	94.3	90.5	91.8	87.3	94.1	91.6	92.4	90.7	92.8	91.9
90.7	89.9	92.4	93.4	89.6	99.3	107	97.4	89.9	87.8	93.5	89.7	93.5	90.4	91.1	90.7	89.6	91.6
93.1	92.2	89.4	98.6	93.6	103	111	102	87.4	89.3	94.3	89.1	88.9	87.8	87.4	86.9	87.9	89
83.2	84.2	86.2	81.2	83.8	87.6	92.2	85.6	74.4	82.3	86.6	78.6	58.7	59.3	56.9	56.8	66.8	67.7
81.6	85.6	82.8	80.9	81.8	85.2	93.2	83.9	73.1	83.7	88.6	80.7	39.3	40.7	38.4	36.6	51.2	53.5
324	75.7	176	388	247	280	107	31.8	18.8	58.9	192	198	89.9	102	91.4	78.6	47.8	49.4
224	22.9	196	320	219	366	47.4	<12	<12	24.7	26.7	86.1	<12	<12	<12	<12	<12	<12
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268	23.4	198	232	144	347	43.5	<10	<10	18.9	44.2	82.4	54.1	59.7	48	43.7	20.8	23.5
1380	202	1120	1650	1040	2970	276	62.4	39	117	160	536	409	506	395	403	207	238
323	38.4	398	489	338	782	77.5	<16	<16	33.9	35.4	145	113	178	110	139	57.8	67.6
1830	365	1550	3380	2060	5580	489	101	55.1	217	167	875	297	378	283	288	205	249
1420	260	1100	2520	1620	3690	391	82.7	41.5	173	136	689	293	332	282	253	192	231
783	114	652	1600	888	2120	229	47.5	22.1	99.3	97	419	147	181	153	136	109	123
758	95	617	1210	827	1670	193	39.1	22.2	103	86.8	378	234	301	255	238	175	185
1180	153	1010	2250	1270	2710	340	68.1	29.3	159	153	615	389	500	387	399	236	257
376	51.1	294	693	433	753	92.7	19.3	<14	48.5	50.5	179	59.4	116	80.6	80.3	48.1	60.3
735	90	560	1310	741	1480	190	39.8	<15	82.8	93	346	61.9	97.4	70.3	65.5	57.6	74.9
570	71.2	454	1210	579	1350	173	33.2	<18	68.2	78.2	308	75.2	108	84.2	82.8	68	76.5
117	<23	93.2	192	129	235	27.1	<23	<23	<23	<23	41.4	<23	37.7	<23	<23	<23	<23
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114	105	111	104	113	104	105	109	117	105	116	105	96.1	113	102	112	104	109
98.6	97.8	99.4	98.2	98.7	97.4	98.9	98.8	101	97.3	100	98.3	93.1	99.5	96.8	98.6	97.6	98
93.5	91.6	90.1	88.8	87.8	92.3	96	92.6	95.5	93.6	96.1	99.3	80.2	87.3	88	88.6	95.4	88.5
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W210-1	W210-2	W210-3	W211-1	W211-2	W211-3	W211-4	SPIX-1	SPIX-2	SPIX-3	W104-1	W125-1	W125-2	W204-1	W204-2	W204-3	W204-4	W204-5	W204-6
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/24/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021
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210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210213-65	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60
23722445	23722449	23722454	23722458	23722462	23722466	23722473	23732928	23732934	23732940	23732922	23732766	23732878	23732945	23732951	23732960	23732779	23732793	23732810
1.5	1.5	1.5	1.5	1.5	1.5	1.5	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Light Brown	Light Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Loam	Sandy Loam	Loamy Sand	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Loamy Sand	Loamy Sand	Sandy Loam	Sand	Sandy Loam	Sandy Clay Loam	Sandy Loam	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones
None	None	None	Vegetation	Brick	None	Brick	Vegetation	Vegetation	Vegetation	Vegetation	None	None	None	Stones	Vegetation	None	None	None
9	12	6.4	9.8	6.2	9.6	11	19	18	19	13	14	13	13	15	14	18	12	11
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-
22/02/2021	-	22/02/2021	-	22/02/2021	-	22/02/2021	-	23/02/2021	-	23/02/2021	23/02/2021	-	23/02/2021	-	23/02/2021	-	23/02/2021	-
James Richards	-	Paul Poynton	-	Paul Poynton	-	James Richards	-	Marcin Magdziarek	-	James Richards	James Richards	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.006	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Additional component of Chrysotile detected. Fibre bundles in soil.	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.016	-	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Loose fibres in soil	-	-	-
3.41	6.74	4.67	1.28	9.95	1.69	2.55	4.72	3.55	4.26	8.22	2.26	8.95	30.5	38.3	3.09	4.88	62.2	62.8
9.23	9.3	9.36	10.3	10.9	10.4	10.5	8.57	8.73	8.74	8.65	9.96	9.75	11.4	11.4	9.21	9.11	11.9	12
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.93	2.47	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
11.4	13	11.1	15.5	20.8	11.8	10.3	25.3	10.6	11.9	11.3	5.08	8.01	5.29	6.5	12.1	8.93	2.08	1.67
<0.2	1.39	1.08	1.55	0.494	1.43	1.15	0.623	<0.2	0.33	<0.02	<0.02	<0.2	<0.02	1.1	0.889	3.72	<0.02	0.512
101	161	192	26.8	51.2	58.1	24.6	55.6	78.3	48.5	159	238	214	232	332	126	156	310	304
26.9	32.3	22.3	14.5	22.1	11.4	14.7	14.3	15.2	16.5	24.7	21.5	23	17.9	17	22.7	21	9.9	7.53
124000	128000	131000	181000	233000	229000	188000	54000	54300	45400	80600	142000	108000	117000	107000	133000	125000	130000	92300
68.7	62.2	50.9	3.98	9.69	<0.7	34.9	34.5	56.8	55.3	98.3	29.3	56.1	42.5	253	283	393	<0.7	1.66
9110	12500	17500	13100	5380	23400	5900	4950	3420	2520	12400	17500	15500	17300	15300	17000	12600	24900	16200
<1	<0.1	<0.1	<0.1	0.578	<0.1	<0.1	<0.1	<1	<1	<0.1	<0.1	<1	<0.1	<0.1	0.207	<0.1	<0.1	<0.1
19.2	18.4	9.91	12.3	4.34	7.18	16.9	19.4	24.6	23.9	20	6.22	14.2	9.57	27.9	20.1	13.9	2.89	3.66
<10	2.78	4.78	1.47	<1	3.7	<1	1.64	<10	<10	5.69	3	<10	3.75	3.83	4.94	3.94	4.96	5.97
153	268	331	72.9	165	120	96.9	91.1	111	56	354	248	254	248	326	490	662	233	228
275	417	247	65.8	124	67.6	207	164	176	208	354	171	180	189	248	1310	1580	48.3	48.1
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0114	0.0118	<0.01	<0.01	<0.01	0.0113
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0123	<0.01	<0.01	<0.01	0.0228	0.0354	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0236	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.0708	<0.035	<0.035	<0.035	<0.035
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	69.6	<50	<50	<50	104
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77.9	77	75.8	85.3	85.3	107	78	99	89	79	85	99	84	22.6	32.3	95.9	115	8.2	10.9
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10.2
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	16	34.2	<10	<10	23.9	50.9
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1770	2190	1600	9510	<1000	12700	1890	<1000	<1000	<1000	<1000	1070	1680	5500	2730	<1000	<1000	7370	5750
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60100	66800	44800	128000	63700	145000	43500	8720	<1000	8800	7680	12400	26800	54600	29900	66000	56400	69900	106000
19400	21400	15600	119000	23200	132000	22500	1700	<1000	5710	<1000	1400	4230	9230	4600	17300	6900	5120	6240
91700	103000	69700	280000	93400	318000	74500	11100	<5000	14900	15900	20500	45600	102000	50000	103000	83400	95800	140000
154000	183000	120000	348000	126000	395000	107000	22300	<10000	29100	99300	64800	147000	449000	281000	131000	123000	174000	652000
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9590	14300	8630	5190	5150	6010	4150	1150	<1000	1400	7590	3830	14200	109000	78200	2200	3010	23600	202000
47700	56800	37400	57600	24600	64900	25300	8880	2860	11400	57300	36900	76900	185000	116000	23700	34000	39500	246000
4360	6220	3200	4260	1630	4810	2900	<1000	<1000	1280	18600	3410	8360	20700	12400	<1000	2130	1040	22200
<1000	1570	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	2110	<1000	<1000	1400	<1000	<1000	<1000	<1000	<1000
62500	79700	50100	67900	32200	77000	32900	11200	<5000	14200	83400	44300	101000	347000	231000	27500	39500	78300	512000
154000	183000	120000	348000	126000	395000	107000	22300	<10000	29100	99300	64800	147000	449000	281000	131000	123000	174000	652000
95.3	92.2	96.3	96.1	94.3	101	91.8	94.1	92.1	94.8	96.2	96.8	96.4	97.3	96.5	95.7	97.5	93.1	95.5
102	97.7	98.8	97.1	89.7	98.3	91.1	95.8	92.5	93.7	92.5	97.7	94.8	99.1	97.8	94.9	96.5	90.8	96.7
105	102	103	98.7	84.4	96.6	95.8	97.6	93.3	95.1	95.7	97.9	97.3	94.8	97.4	97.5	97.9	91.4	92.9
87.7	87	92.9	91.3	76.8	98	87.3	86	77.3	79.9	90.2	82	83.8	77.9	84.8	83.3	83.3	81.5	75.6
86.2	86.1	96.5	96.1	75.2	105	84.9	86.4	71.6	73.9	80.4	79.8	78.4	77.5	83.2	74.1	84	70.3	68.8
385	298	341	153	259	143	556	90.9	77.2	75.1	24.2	23	523	11900	5890	237	206	3580	2630
353	248	241	129	219	148	242	55.8	43.4	49.7	<12	<12	746	4510	1760	21.9	20.2	816	820
44.5	40.7	38.2	<40	<40	<80	1980	21.6	13.9	16.5	21.4	29.5	42.5	280	151	20.1	24.5	65.2	61.6
194	135	141	55.8	104	<100	1310	48.1	29.1	30.8	16.3	12.1	141	4750	1140	34.9	32.8	479	614
1510	1030	1160	459	847	739	5160	401	278	289	184	199	1820	29300	8110	276	255	4270	6050
471	344	382	158	273	223	1600	97.6	76.8	94.8	40.7	49.4	1090	10000	2130	78.5	104	1000	2170
3090	2260	2570	1240	1460	1640	5580	699	591	684	289	696	6380	31500	9520	561	539	5940	8380
2340	1690	1920	1150	1120	1470	4530	526	458	518	279	733	5060	21200	6430	561	531	4210	5910
1520	1130	1170	594	684	798	2380	312	268	322	165	568	2940	9910	3310	328	314	2100	2600
1270	914	968	673	652	730	1950	283	250	297	151	590	3140	8260	2690	349	348	2030	2170
2350	1740	1850	991	1030	1250	2500	492	370	425	238	1160	4850	11100	4300	572	552	2440	2930
681	495	458	296	319	447	1010	150	116	142	74.7	401	1570	4220	1340	176	177	759	924
1350	991	1110	555	627	707	1700	283	222	268	178	839	3220	7240	2550	358	346	1430	1930
1280	926	1010	540	537	697	1010	285	195	252	169	743	2700	6530	2450	305	308	1170	1430
196	146	177	<115	<115	<230	168	43.1	40.5	49.3	<23	111	513	993	414	62.2	43.7	232	236
972	711	844	477	450	637	891	218	180	211	157	662	2390	4360	1690	279	257	867	1030
18000	13100	14400	7460	8580	9630	32600	4010	3210	3720	1990	6810	37100	166000	53900	4220	4060	31400	39900
101	118	104	122	103	105	105	111	134	107	110	109	109	103	94.7	114	122	105	105
96	99.7	95.7	98.7	97.4	96.7	99	99.9	99.4	98.2	98.3	99.8	98.7	92.1	95.1	105	100	97	95.1
89.4	91.2	90.2	94	93.9	96.2	94.9	94.7	97.7	91.9	92.6	95.7	97.9	76.3	77.4	104	97.9	102	101
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<2000	<2000
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W204-7	W204-8	W204-9	W204-10	W204-11	W204-12	W204-13	W204-14	W204-15	W204-16	W204-17	W204-18	AI-I-1	AI-I-2	AI-I-3	AI-I-4
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	2/15/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021
2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	2/16/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021
2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	2/23/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021
3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	3/1/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210216-60	210220-45	210220-45	210220-45	210220-45
23732822	23732828	23732837	23732845	23732852	23732863	23732870	23732887	23732892	23732898	23732908	23732914	23766846	23766851	23766859	23766864
6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	8.9	8.9	8.9	8.9
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Silt Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
None	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	None	Vegetation	Vegetation	None	None	Stones	Brick	Vegetation	Vegetation	None	None	Vegetation	Concrete/Aggregate	Vegetation	None
13	14	15	14	13	15	14	16	14	16	12	14	12	11	15	12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23/02/2021	-	23/02/2021	-	23/02/2021	-	23/02/2021	-	23/02/2021	-	23/02/2021	-	26/02/2021	-	26/02/2021	-
Agnieszka Chelmowska	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
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49	38.1	52.9	47.6	26.5	18.4	7.98	24.3	41.4	41	6.43	11.4	4.48	3.21	5.26	4.07
11.3	11.6	11	11	10	9.39	11.1	11.1	9.59	10.4	11.1	11.4	10.9	10.6	10.7	11.3
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<0.02	0.81	<0.02	0.946	<0.02	0.847	0.465	0.329	<0.02	0.727	1.86	4.03	1.45	1.21	3.56	0.436
269	198	219	237	196	392	132	96.4	226	286	213	93.2	104	116	27.3	144
18.1	18.2	23.1	14.7	13.8	11	15.1	18.5	15	14.4	22.1	23	91.9	177	193	106
107000	120000	102000	90400	84900	149000	119000	136000	84800	83300	209000	231000	62800	29800	26300	98200
39.8	34.5	49.8	66.5	32.8	40	255	381	48.5	36.3	486	1050	106	91.9	98.8	140
23300	12500	17200	13400	12200	21900	13000	13700	12600	14600	24300	18300	6080	3210	1750	8790
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10.9	10.3	13.2	8.17	10.5	4.57	9.94	12.3	11.4	8.48	23.3	11.4	23.9	31.4	38.6	30.7
6.56	3.35	4.16	5.48	3.21	5.44	2.59	1.9	5.26	6.36	10.2	<1	<10	<10	<1	<10
259	316	252	204	175	404	671	364	202	327	1180	857	132	93.9	49.8	199
174	174	213	260	141	122	901	1250	170	162	1100	2360	462	517	730	674
0.0115	0.0234	<0.01	<0.01	<0.01	<0.01	<0.01	0.0119	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0115	<0.01	<0.01	<0.01	0.0115	0.0117	<0.01	<0.01	0.0116	0.012	0.0342	<0.01	0.0114	0.0224	0.0118	<0.01
0.506	<0.015	<0.015	0.269	<0.015	<0.015	0.789	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
0.529	<0.035	<0.035	0.269	<0.035	<0.035	0.789	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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80.5	<20	52.7	<20	<20	<20	<20	89.3	<20	<20	138	59.7	<20	89.6	<20	<20
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28600	44100	36200	29600	25200	44200	21800	12300	5980	41900	59300	49500	82300	34700	60800	96700
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271000	308000	165000	164000	207000	274000	77200	118000	57200	245000	712000	1790000	180000	125000	151000	231000
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271000	308000	165000	164000	207000	274000	77200	118000	57200	245000	712000	1790000	180000	125000	151000	231000
98.9	96.1	94.8	97.7	93.1	94.1	95.7	99.2	94.7	96.1	90	88.5	89.6	94.8	87.2	94.5
97.2	92.6	95.4	97.4	85.4	91.9	96.6	98.1	93.4	97.1	89.8	90.5	85.7	91.2	83.7	91.3
94.9	93.8	92.9	98.4	87.2	95.1	97.8	99.9	94.3	94.6	88	89	86.7	88.6	82.1	90.3
78.2	92.7	76.4	80.4	78.2	79.1	82.1	81	78.2	78.4	75.6	93.5	74.1	72.9	72.4	78.7
77	85.1	72.9	70.3	73.3	70.8	80	74.5	70.6	76.2	76.6	83	72.8	73.2	70.1	77.9
8470	6180	2620	2770	3670	3020	2910	4580	1860	2680	4350	7170	124	<90	53.3	165
2550	2210	884	1040	1170	864	625	1330	663	864	9020	32300	<60	<120	<60	<120
232	163	76.2	96.1	65.2	60.3	134	159	69.7	101	685	2030	<40	<80	<40	<80
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6240	6200	2760	3210	3340	2270	2600	4930	1900	2450	34900	109000	429	396	208	261
5260	4760	2490	2710	2850	1920	2360	4270	1610	2020	34600	84600	452	435	220	333
7940	7670	3550	3950	4090	2620	3650	6310	2540	3310	39800	121000	592	565	295	522
2650	2290	1050	1240	1430	836	1060	1590	855	1040	13600	36500	184	195	107	177
4750	4490	2070	2280	2570	1590	2180	3210	1580	1920	24400	71900	354	339	176	314
4300	3770	1840	1950	2260	1340	2040	2570	1230	1820	18600	56700	266	273	140	349
682	728	311	373	415	253	296	588	273	296	4280	12000	<115	<230	<115	<230
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93000	85900	37800	45400	50500	34300	37600	70500	28200	35900	529000	1470000	4450	4570	2440	3770
99.8	96.3	90.7	97.5	109	95.6	107	106	109	98	107	107	106	114	110	105
94.1	93.7	90.5	91.3	96.3	91.7	98.1	98.5	94.3	94.2	98.3	97.8	97.6	99.4	99.1	97.7
77.8	72.8	73.9	73.5	98.1	76.6	88.5	92	104	79.1	93.2	90.3	91.9	91	91.6	89.2
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AI-I-5	AI-I-6	SPHR-1	SPHR-2	SPHU-1	SPHU-2	W212-A-1	W212-A-2	W212-A-3	W212-A-4
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021
20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021
02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021
05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021
210220-45	210220-45	210220-45	210220-45	210220-45	210220-45	210220-45	210220-45	210220-45	210220-45
23766870	23766764	23766759	23766818	23766832	23766839	23766768	23766774	23766780	23766784
8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Loam	Sand	Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Sandy Silt Loam	Sandy Loam
Stones	Stones	Vegetation	Vegetation	Stones	Stones	Stones	None	N/A	Stones
Vegetation	Concrete/Aggregate	Stones	Stones	None	Vegetation	None	Stones	Stones	N/A
13	17	18	19	14	14	8.5	14	19	14
-	-	-	-	-	-	-	-	-	-
26/02/2021	-	26/02/2021	-	26/02/2021	-	01/03/2021	-	25/02/2021	-
Marcin Magdziarek	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
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Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
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Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-
1.84	3.34	8.72	8.98	6.34	25.7	3.19	3.47	2.97	3.38
11.3	10.9	8.9	8.74	9.67	9.4	11.1	10.6	10.9	11
<1	<1	7.65	12.2	2.48	2.35	<1	<1	<1	<1
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6.86	<6	10.1	<6	7.53	<6	8.4	<6	10.7	<6
1.5	1.38	<0.02	<0.2	<0.2	<0.2	0.173	<0.2	0.41	<0.2
33	95.7	149	108	386	414	133	144	72.4	97
179	200	21.8	28.2	47.1	34.5	30.2	27.2	339	25.2
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111	389	53.8	65.8	64.3	69.2	42.3	73.4	81.7	65.6
816	2470	7720	4640	33400	26400	4320	8070	4710	5520
<0.1	<1	0.253	<1	<1	<1	<0.1	<1	<0.1	<1
40	45.9	25.6	30.9	23.9	23	18.5	20.7	21.9	21.9
<1	<10	3.55	<10	12.3	18.1	1.75	<10	2.19	<10
25	63.9	127	98.9	662	544	75.8	216	86.1	117
1340	1020	187	185	282	317	213	269	284	237
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91.7	103	77.7	72.5	85.5	81.9	77.8	81.7	111	77.9
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35.7	20.4	19.5	<10	<10	<10	30.6	332	71.3	17.4
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7920	11900	198000	371000	18300	15000	2500	1780	3550	<1000
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324000	231000	2560000	3440000	163000	131000	43200	145000	75200	<10000
88	85.9	92.2	91.4	87.9	89.6	91.5	89.3	92.7	95.5
87.1	87.3	94.2	95.2	85.7	87.5	89.7	87.5	92.4	95.3
85.3	86	95.6	96.8	86.2	88.5	93.2	88	96.4	100
71.1	71.9	85.6	88	75.9	76.8	84.6	92.7	85.7	96.4
70.3	70.7	77	81.8	72.8	73.9	78.9	88.7	78.3	90.9
39.4	<45	6080	5320	94.3	95.4	136	276	291	170
<24	<60	31300	27100	133	139	44.3	147	104	81.3
32.8	<40	1770	1270	37	48.8	10.7	<80	25.2	19.2
31.2	<50	28200	21000	57.6	57.8	37.4	<100	85.1	66.8
206	231	188000	153000	646	642	250	880	543	400
47.9	<80	85300	76300	252	254	71.5	226	152	129
328	419	278000	262000	2160	2500	398	1520	929	740
270	346	188000	179000	1780	2130	292	1260	701	582
141	171	94300	88800	1090	1330	154	581	373	317
139	175	96500	92800	1080	1370	136	552	382	329
193	229	107000	105000	1800	2100	201	761	480	469
58.3	<70	38600	36800	579	761	61.7	263	173	133
118	148	71600	68500	1160	1450	115	487	287	263
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89.9	<120	48700	48200	780	936	91.1	372	211	189
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115	116	105	115	112	112	114	119	122	106
98.3	100	95.8	98.5	97.8	99.6	99.2	99.5	101	97.6
93.6	91	86.9	87	91.1	93	92.7	90.5	92.9	91.2
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<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	1280	726	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

W212-B-1	W212-B-2	W212-C-1	W212-C-2	W212-C-3	W212-C-4	T8-1	T9-1	T9-2	T10-1
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.50-0.50	0.50-0.50	1.50-1.50	0.30-0.30
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021
20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021	20/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021
02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021
05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021	05/03/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021
210220-45	210220-45	210220-45	210220-45	210220-45	210220-45	210204-77	210204-77	210204-77	210204-77
23766789	23766795	23766800	23766808	23766812	23766824	23666078	23666087	23666105	23666051
8.9	8.9	8.9	8.9	8.9	8.9	8.8	8.8	8.8	8.8
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black
Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Loam	Sand	Sand	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones
N/A	None	None	None	None	None	None	Stones	None	Vegetation
13	13	14	13	15	14	18	4.4	3.8	1.1
<0.001	-	-	-	-	-	-	-	-	<0.001
01/03/2021	-	26/02/2021	-	26/02/2021	-	-	10/02/2021	-	10/02/2021
Agnieszka Chelmowska	-	Marcin Magdziarek	-	Marcin Magdziarek	-	-	Christian Hallam	-	Christian Hallam
<0.001	-	-	-	-	-	-	-	-	<0.001
None	-	-	-	-	-	-	-	-	None
-	-	-	-	-	-	-	-	-	-
<0.001	-	-	-	-	-	-	-	-	<0.001
Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Detected
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Detected
Fibre Bundle in soil	-	-	-	-	-	-	-	-	Fibre bundles in soil.
3.78	5.5	4.74	6.34	3.55	3.47	14.8	2.14	0.828	34.8
10.3	10	9.86	9.94	9.93	10.1	11.8	12.7	12.7	10.9
<1	<1	<1	<1	<1	<1	1.32	<1	3.88	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
6.82	<6	3.17	<6	9.61	<6	6.55	<6	<6	5.87
0.141	<0.2	<0.02	<0.2	0.231	<0.2	0.204	1.09	<0.2	0.783
31.4	110	43.4	172	229	265	617	841	1090	214
20.4	30.9	7.73	39.4	38.6	64.6	19.7	18.4	19.6	15.4
27900	72200	30600	71900	77600	81500	132000	134000	162000	59900
47.4	98.2	6.92	88.3	71	77.7	40.8	34.3	<7	41.1
4010	8580	758	6250	6350	8170	28100	49200	46300	13300
<0.1	<1	<0.1	<1	<1	<1	<1	<1	<1	<0.1
17.3	28.4	47.6	29.1	29.6	26.5	13.1	6.5	<2	10.5
1.39	<10	<1	<10	<10	<10	14.7	25.2	24.4	4.5
65.1	158	39.5	195	128	150	493	571	658	222
215	293	66.8	326	241	325	118	101	45.2	151
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<1	<1	<1
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<1.5	<1.5	<1.5	<1.5
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<3.5	<3.5	<3.5	<3.5
<50	<50	<50	<50	<50	<50	114	<50	<50	217
<50	<50	<50	<50	<50	<50	<50	<50	<50	82.9
<20	<20	<20	<20	<20	<20	114	<20	<20	300
101	78.1	79.5	123	82	77.2	113	87	73	16.8
<10	<10	<10	<10	<10	<10	<10	<10	<10	17.2
<10	<10	<10	<10	<10	<10	64.1	<10	22.9	95
11.5	<10	<10	<10	<10	<10	49.6	<10	17.7	105
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	4740
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	17500
4680	4700	<1000	2840	<1000	1800	7120	5700	7190	26900
23300	26500	5140	17400	<1000	10700	17400	59900	67800	35500
8740	9580	<1000	5010	<1000	3460	5950	13500	16400	21700
37100	41300	5620	25800	<5000	16000	31300	79700	92100	106000
64300	79200	20100	45900	<10000	42800	189000	130000	162000	302000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	13.1
<10	<10	<10	<10	<10	<10	32.7	<10	11.4	69.8
<1000	<1000	<1000	<1000	<1000	<1000	2620	<1000	<1000	4490
<1000	<1000	<1000	<1000	<1000	<1000	5440	<1000	<1000	13800
4610	7200	3710	2880	1280	7160	39500	5700	9970	58100
20800	27600	9320	15400	2050	18000	97500	37600	49900	111000
1400	2350	<1000	1520	<1000	<1000	13000	6120	8430	8350
<1000	<1000	<1000	<1000	<1000	<1000	2630	1120	1450	<1000
27200	37900	14400	20100	<5000	26700	158000	50300	70000	196000
64300	79200	20100	45900	<10000	42800	190000	130000	162000	303000
88.6	92.6	89.4	92.1	92.8	89.9	85.4	96.9	96.7	83.2
89	90.5	88.3	89.1	89.3	88	86	94.9	101	87.7
89.9	95.6	90.4	90.1	91.5	88.7	87.2	96.6	101	84.8
81.2	88.6	78.8	80.5	77.9	78.2	97.7	101	104	76.6
77.5	82	77.2	81.7	80.1	78.6	93.2	110	99.3	71.3
277	413	123	103	164	105	1500	780	1090	6900
194	165	47.2	34.3	89.4	33.4	1040	357	626	7740
22.5	26.2	10.1	<8	14.6	<8	144	79.8	57.3	834
78.9	113	40.3	26	78.4	27.7	665	109	167	8800
934	805	269	194	552	182	4660	1030	1120	44400
390	276	87.2	61.6	137	51.4	1720	320	348	14200
2130	1520	495	399	972	325	10500	3330	4080	47300
1560	1140	366	318	712	246	7920	3110	3420	32800
756	614	189	170	348	123	4830	2380	2040	15500
681	505	183	163	332	109	4400	2340	1510	11800
907	776	238	219	492	164	7440	4190	3840	17200
314	259	77.4	81.3	175	53.7	2220	1400	1170	5660
607	455	143	130	297	95.6	4620	3410	2560	11400
521	370	117	101	243	81.4	3780	2780	2110	8560
102	83.9	<23	<23	53	<23	737	490	411	1840
454	336	95.3	91.8	208	70.6	3430	2550	1880	7180
9930	7860	2480	2090	4870	1670	59600	28700	26400	242000
						0	0	0	0
105	116	118	113	115	115	104	99.5	88.9	111
97.1	101	100	100	99.8	98.7	97.1	98	96.4	94.1
89.6	85	92.7	95.8	95.6	92.6	86.6	93.3	87.1	74.4
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	<260	<260	<260	<260	<260	<260	1710	937
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

T10-2	T10-3	T13-1	T13-2	T14-1	T14-2	U10-1	U10-2	U11-1	U11-2
1.00-1.00	2.90-2.90	0.40-0.40	1.10-1.10	0.30-0.30	1.40-1.40	1.00-1.00	1.50-1.50	1.00-1.00	1.40-1.40
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021
04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021
10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021
26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021
210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77
23666060	23666068	23666114	23666124	23666133	23666144	23666173	23666182	23666154	23666163
8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Black	Black	Black	Dark Brown	Grey	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Silt Loam	Sand	Sandy Loam	Sandy Loam	Sand	Sandy Loam	Sand	Sand	Sand
Stones	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	None	Stones	N/A	None	None	Crushed Brick	Vegetation	Vegetation	None
11	35	9.7	14	12	32	10	14	1.6	4.4
-	-	-	-	-	-	-	-	-	-
-	10/02/2021	10/02/2021	-	11/02/2021	-	10/02/2021	-	09/02/2021	-
-	Christian Hallam	Christian Hallam	-	Paul Poynton	-	Christian Hallam	-	James Richards	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-
35	-	24.3	7.57	36.5	84	13.1	28.1	6.24	1.64
11.8	11.7	10	8.67	9.03	9.22	9.58	10.2	10.5	10.9
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	30.6	<12	<12	<12	<12	<12	<12	<12	<12
<6	<6	2.47	6.48	<6	6.93	6.33	7.37	3.37	<6
<0.2	0.315	0.0984	<0.2	0.328	<0.2	0.317	<0.2	0.385	<0.2
59.9	31.4	20	42.9	10.3	12.4	42.9	95.3	144	302
<14	18.6	5.72	<14	<14	29	19.7	15.6	14.8	<14
20900	17400	12400	19600	14700	14800	60300	47000	85900	76300
18.2	23.9	14.4	27.3	30.2	27.8	41.3	47	1.08	<7
4060	2810	4480	3430	2760	5500	5150	5410	13300	11300
<1	<1	<0.1	<1	<1	<1	<1	<1	<0.1	<1
5.86	6.74	3.76	15.3	6.21	30	14.2	12.6	8.82	9.85
<10	<10	3.55	<10	<10	<10	<10	<10	4.9	10.1
65.9	41.6	39.9	98.2	25.3	28.3	90.2	138	277	265
57.6	82.8	61.5	60.5	74.2	61.6	117	161	30.8	40
<1	<1	<1	<1	<1	<0.1	<1	<1	<1	<1
<1	<1	<1	<1	<1	<0.1	<1	<1	<1	<1
<1.5	<1.5	<1.5	<1.5	<1.5	<0.15	<1.5	<1.5	<1.5	<1.5
<3.5	<3.5	<3.5	<3.5	<3.5	<0.35	<3.5	<3.5	<3.5	<3.5
311	97	<50	<50	<50	<50	<50	53.4	128	<50
148	<50	<50	<50	<50	<50	<50	<50	56.9	<50
459	97	<20	<20	<20	<20	<20	53.4	185	<20
13.6	0.7	58	65	23.2	26	55	53	89	103
22.6	10.8	<10	<10	<10	<10	<10	<10	<10	<10
134	58.5	28.9	<10	<10	<10	<10	19.7	42.7	15.7
154	27.7	20	<10	<10	<10	<10	33.6	85.3	16.7
5800	52300	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
20600	186000	4360	<1000	5130	<1000	1440	1780	1280	<1000
42200	811000	7640	<1000	13100	1360	6320	7410	4200	<1000
78600	778000	19800	<1000	19600	10600	14800	17300	7580	1670
38500	188000	3740	<1000	<1000	<1000	2230	2690	1120	<1000
186000	2020000	36400	<5000	39200	12400	24900	29200	14200	<5000
323000	2690000	66200	<10000	91400	23200	249000	101000	41700	29700
19.2	<10	<10	<10	<10	<10	<10	<10	<10	<10
26	<10	<10	<10	<10	<10	<10	<10	<10	<10
103	18.5	13.3	<10	<10	<10	<10	22	56.9	11.5
3420	26800	<1000	<1000	1010	<1000	1140	<1000	<1000	<1000
14900	151000	3470	<1000	5070	<1000	9130	3360	<1000	<1000
37200	265000	5080	<1000	7270	1300	68800	16800	3790	6660
78200	224000	19000	1510	33300	8190	133000	47100	21200	18600
4070	9970	1860	<1000	5570	<1000	11800	3760	2230	1840
<1000	1250	<1000	<1000	<1000	<1000	1810	<1000	<1000	<1000
138000	677000	29800	<5000	52200	10800	224000	71900	27600	27300
324000	2690000	66300	<10000	91400	23200	249000	101000	41900	27300
95.7	89.5	93.9	88.1	85.2	75.6	96.2	82.1	95.9	79.9
101	97.6	89.1	86.7	83.9	71.7	93.6	85.3	93.3	80.1
104	85.8	85.9	90.2	84.1	52.4	96.9	85.1	94.7	80.6
90.9	53.6	78.3	116	79.4	38.7	96.2	77.9	95.8	79.3
77.5	29.7	78.3	111	70.8	38	98.1	71.1	101	77.8
2900	12300	313	71.1	359	115	676	606	36.1	24.4
675	1710	79.2	26.5	94.1	29.5	391	400	15.3	<12
195	754	<40	<8	13.8	<8	58.4	53.1	28.5	81.4
852	3550	66.7	27.2	66.2	35.2	280	320	24.2	64.1
4890	11900	566	185	623	230	2460	2630	515	1270
1220	2100	124	43.8	104	<16	739	637	82.3	206
6420	8250	678	259	689	234	5050	4150	1680	2010
4810	5860	511	202	490	165	3340	2740	1480	1660
2680	2120	299	135	350	107	2440	1640	1120	882
2630	2230	378	151	394	104	2320	1580	1220	841
4010	1960	447	218	592	109	3140	2090	1410	1160
1360	566	147	66.4	174	<14	1060	652	701	444
2280	900	273	112	259	94.4	1930	1210	1230	799
1620	376	255	92.5	250	93.5	1570	1050	1170	727
449	168	<115	<23	63.3	<23	356	234	214	133
1650	412	251	94	231	82.7	1270	892	1000	591
38600	55200	4390	1680	4750	1400	27100	20900	11900	10900
0	0	0	0	0	0	0	0	0	0
103	95.3	96.1	106	107	107	104	124	113	152
92.1	78	91.9	97.6	94.9	94.6	96.9	101	102	102
70.6	52.9	72.7	87.1	71.2	70.8	86.1	92.5	88.8	97.2
<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200
<180	<1800	<180	<180	<180	<180	<180	<180	<180	<180
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<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200
<200	<2000	<200	<200	<200	<200	<200	<200	<200	<200
4400	<2600	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<8000	<800	<800	<800	<800	<800	<800	<800	<800

V6-1	V7-1	V8-1	V8-2	V9-1	V9-2	V10-1	V10-2	V11-1	V11-2
0.80-0.80	1.00-1.00	0.50-0.50	2.00-2.00	0.90-0.90	1.50-1.50	0.30-0.30	1.50-1.50	0.50-0.50	1.60-1.60
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
03/02/2021	03/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021
04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021
10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021
26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021
210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77
23666040	23666033	23666013	23666022	23666213	23666003	23666192	23666203	23665991	23666096
8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Black	Black	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sand	Sand	Sand	Sand	Sand	Sand	Sandy Loam	Sand	Sand	Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
None	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	None	Vegetation	Vegetation	None
11	1.6	4	6.8	9.7	5.3	12	13	0.38	14
-	-	-	-	-	-	-	-	-	-
-	09/02/21	09/02/21	-	10/02/2021	-	09/02/2021	-	10/02/2021	-
-	Christian Hallam	Christian Hallam	-	Christian Hallam	-	Paul Poynton	-	Christian Hallam	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-
24	15.7	20.2	6.22	2.45	12.5	22.9	9.09	9.67	42.8
11.7	9.55	11.5	11.5	10	10.9	10.7	11.6	11	11.1
3.85	5.16	4.16	1.67	1.57	<1	1.7	2.67	<1	1.18
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
<6	8.22	7.15	<6	<6	<6	8.2	<6	4.94	<6
<0.2	0.473	0.663	<0.2	<0.2	<0.2	0.538	0.201	0.812	<0.2
342	69.4	319	390	70.9	146	94.3	82.7	127	56.5
23.8	14.6	19.2	20	<14	18.2	25.1	<14	13.1	<14
92100	16200	79900	143000	29400	79000	74200	38300	68300	44800
<7	34.6	59.4	25.6	9.93	7.22	92.3	26.5	35.3	19.4
19500	4490	19600	30600	5240	10300	8280	5260	16600	5360
<1	<0.1	<1	<1	<1	<1	<1	<1	<0.1	<1
10.9	14.6	13	9.7	20.2	17.4	17.5	8.48	8.72	8.36
11.6	2.01	11.2	16.8	<10	<10	<10	<10	4.4	<10
1030	181	549	1190	101	352	234	184	443	128
46.4	65.6	57.1	67.2	73.1	46.7	288	207	177	83.6
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5
<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5	<3.5
283	255	<50	<50	74.4	<50	<50	50.6	55.2	169
91.8	244	<50	<50	<50	<50	<50	<50	<50	73.1
375	499	<20	<20	74.4	<20	<20	50.6	55.2	242
18.1	65.4	71	92	99	109	55	77	59	87
57.1	12.2	<10	<10	<10	<10	<10	<10	<10	15.1
165	48.8	19.8	<10	40	18	<10	31.1	30.1	67.3
61.6	194	17.7	<10	34.4	18	<10	19.6	25.1	87
<1000	<5000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
5130	105000	2120	<1000	<1000	<1000	3130	1230	<1000	2080
16300	1730000	21900	8200	2640	4040	33800	16000	2440	10200
49900	545000	26800	18000	8010	6070	30500	53600	14900	42800
16400	7810	7000	5240	1600	1370	7460	13400	4930	13600
88000	2390000	58000	31600	12800	12000	75000	84400	22800	68700
148000	2770000	89900	66700	34200	46200	581000	146000	49000	98500
19	102	<10	<10	<10	<10	<10	<10	<10	<10
31.4	13.2	<10	<10	<10	<10	<10	<10	11	15.1
41.4	129	11.5	<10	23.3	12.7	<10	12.7	17.1	58
<1000	10200	<1000	<1000	<1000	<1000	1600	<1000	<1000	<1000
2680	40300	1790	<1000	<1000	<1000	13900	1970	<1000	1490
5760	247000	7590	4080	3970	8000	134000	7020	6060	4560
49300	73200	20600	29700	15600	23200	317000	47900	17800	22500
2310	<5000	1440	<1000	1300	2600	40000	4350	<1000	<1000
<1000	<5000	<1000	<1000	<1000	<1000	6880	<1000	<1000	<1000
60300	376000	31900	35100	21500	34200	506000	61600	26200	29800
149000	2770000	89900	66700	34300	46200	581000	146000	49100	98800
79.8	80.4	84.8	97.5	78.3	96.8	86.4	79	93.1	96.8
80.8	83.4	86.7	94.9	80.7	91.7	84	83.4	92.8	95.7
86.2	90.9	88.8	94.3	77.1	90.3	86.5	87.2	97.7	98.2
77	75.5	79.3	97	70.8	92.9	99.4	82.5	99.9	97.2
73.8	70.6	74.2	104	70.1	98.5	95.7	77.4	101	97.2
270	5880	431	52.1	248	242	944	321	724	322
80.4	1270	179	<12	112	475	904	209	314	178
23.8	1940	33.4	17.8	59.6	64.3	86.4	64.1	58.6	38.3
70	1800	91.5	<10	91.6	302	486	153	267	132
547	5090	1400	174	972	8520	3550	1340	2260	1220
145	848	422	36	277	1410	1610	417	576	322
968	2090	2460	396	1950	13100	7750	2550	3590	2690
862	1720	1820	412	1590	8470	5700	2240	2600	2100
607	614	1200	273	1060	5040	5950	1660	1680	1880
655	610	1070	292	860	4960	5360	1450	1580	1750
991	747	1510	448	1440	5490	8620	2220	2240	1960
310	274	515	142	520	1930	2820	791	714	741
681	519	912	330	933	4280	4850	1510	1430	1710
579	437	756	276	822	3530	4020	1270	1130	1360
125	113	183	44.4	176	717	972	303	247	295
524	374	663	277	737	2920	3390	1110	1010	1150
7440	24300	13600	3170	11800	61500	57000	17600	20400	17800
0	0	0	0	0	0	0	0	0	0
108	116	112	119	107	116	104	106	102	107
97.3	97.9	98.8	99.9	98.7	99.9	97.6	97	95.3	97.6
82.2	87.5	89.8	98.1	87.3	94.4	86.8	88.3	77.2	87.8
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	4310	<260	<260	<260	<260	<260	<260	290	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

AG15-1	AG15-2	AG19-1	AG19-2	AH15-1	AH15-2	AH15-3	AH18-1	AH18-2
0.60-0.60	2.00-2.00	0.50-0.50	1.70-1.70	0.50-0.50	1.10-1.10	2.00-2.00	1.00-1.00	2.00-2.00
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
15/01/2021	15/01/2021	18/01/2021	18/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021	15/01/2021
19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021	19/01/2021
26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021	26/01/2021
02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021
210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85	210119-85
23572845	23572849	23572760	23572764	23572724	23572780	23572827	23572854	23572858
6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown
Sand	Sandy Loam	Sandy Loam	Stone/Soil	Sand	Sandy Loam	N/A	Sandy Loam	Loamy Sand
Stones	Stones	Stones	Oil/Petroleum	Vegetation	Stones	Stones	Stones	Stones
None	None	None	Stones	Brick	None	Oil/Petroleum	None	Brick
7.6	11	9.8	12	11	17	6.5	8.6	10
-	<0.001	-	-	-	-	-	-	-
-	26/01/2021	26/01/2021	-	26/01/2021	-	26/01/21	-	26/01/2021
-	James Richards	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Andrzej Ferfecki	-	Agnieszka Chelmowska
-	<0.001	-	-	-	-	-	-	-
-	None	-	-	-	-	-	-	-
-	N/A	-	-	-	-	-	-	-
-	<0.001	-	-	-	-	-	-	-
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Loose fibres in soil	-	-	-	-	-	-	-
0.459	12.4	13.6	6.38	6.22	7.84	6.6	3.78	6.38
12	12.1	9.3	9.47	9.76	11.5	11.1	9.04	9.06
<1	4.19	6.82	104	<1	<1	<1	<1	<1
<12	<12	<12	17.4	<12	<12	<12	<12	<12
<6	3.07	27.9	9.15	3.52	13.9	6.97	3.86	8.95
0.32	0.146	0.949	0.38	<0.02	0.609	0.259	0.0643	0.408
855	776	77.8	101	388	164	72.4	30.6	25.6
<14	17.8	29.4	<14	7.96	21.6	13.3	9.31	18.3
180000	183000	174000	89300	73600	65000	41300	27800	40400
10.4	8.54	81.1	14.8	9.8	27.6	16.3	13.1	73.9
32600	32900	8420	5740	16900	4490	4260	3830	2970
<1.4	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14
4.08	8.86	40.3	17.4	4.7	19.3	18.8	5.53	15.3
15	8.46	<10	<10	6.78	3.15	2.21	2.81	2.55
470	399	107	78.5	256	144	75.5	48.2	62.2
70.1	49	230	79.4	65.4	134	61.2	92.9	359
<0.01	<0.2	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01
<0.01	0.339	<0.01	0.0114	<0.01	0.0121	0.47	<0.01	<0.01
<0.015	<0.3	<0.015	0.0342	<0.015	<0.015	0.609	<0.015	<0.015
<0.035	<0.7	<0.035	0.0456	<0.035	<0.035	1.08	<0.035	<0.035
<50	-	<50	20100	<50	<50	-	<50	<50
<50	-	<50	14900	<50	<50	-	<50	<50
<20	-	<20	35000	<20	<20	-	<20	<20
94.9	-	75.1	96.8	74.3	95.2	-	93.4	109
<10	-	<10	866	<10	<10	-	<10	<10
<10	-	<10	1270	<10	14.5	-	<10	<10
<10	-	<10	18000	<10	20.6	-	<10	<10
<1000	<10000	<1000	11000	<1000	<1000	<10000	<1000	<1000
<1000	510000	<1000	77700	<1000	1860	389000	1500	<1000
<1000	4500000	8350	245000	3110	18300	3340000	4860	<1000
<1000	514000	26000	2260000	13300	7710	348000	3160	1830
<1000	10800	2100	665000	<1000	1180	<10000	<1000	<1000
<5000	5540000	37100	3260000	17000	29100	4070000	9920	<5000
<10000	21900000	158000	4360000	135000	68700	42600000	132000	56000
<10	-	<10	1300	<10	13.3	-	<10	<10
<10	-	<10	1560	<10	<10	-	<10	<10
<10	-	<10	12000	<10	13.3	-	<10	<10
<1000	2310000	1550	591000	<1000	1040	6920000	<1000	<1000
<1000	1900000	1470	142000	<1000	1840	5300000	<1000	<1000
<1000	6220000	8310	132000	4290	12500	13600000	3550	<1000
5610	5350000	87600	231000	96100	21500	11200000	66500	40300
<1000	615000	21900	9510	17100	2810	1420000	50700	11700
<1000	117000	1060	1530	4020	<1000	285000	16500	<1000
7600	16400000	121000	1110000	118000	39700	38500000	122000	52900
<10000	-	158000	4400000	135000	68800	-	132000	52900
87.3	91	84.2	96.2	84.6	90.9	80	86.4	90.8
87.1	125	89.1	108	89.6	89.9	145	90	94.4
86.6	101	91.2	117	82.6	96.3	115	83	93.6
85.4	95.5	92.6	105	82.2	95.3	150	79.8	89.4
87.3	95	81.2	103	80.8	91.8	80	81	89
53.2	2420000	1200	127000	<180	684	4480000	335	135
96.6	616000	228	1480	374	242	108000	<240	<12
<8	39500	43.5	919	<160	34.9	1130000	<160	<8
21.6	501000	101	1140	<200	186	751000	<200	<10
161	2090000	2570	1900	<300	829	3100000	436	66
47.4	474000	593	392	<320	162	577000	<320	<16
423	1630000	4240	2270	2280	1070	2360000	1070	115
414	1100000	2960	1500	2140	1570	1540000	843	103
337	464000	1890	1180	1590	576	693000	647	72.3
297	439000	1680	1070	1670	561	565000	664	79.1
623	520000	2320	1670	2850	834	772000	1130	127
183	168000	817	489	900	244	265000	332	29.6
394	361000	1570	945	1780	485	555000	710	75.8
399	255000	1440	721	1700	413	429000	701	62.2
75.1	55400	278	<230	<460	75.1	72700	<460	<23
390	241000	1340	647	1630	376	370000	662	63
3920	11400000	23300	144000	16900	8340	17800000	7530	928
111	115	106	112	111	115	108	112	113
98.8	88.1	96.6	94.8	97.2	101	98.7	98.7	101
99.4	74.9	89	85.1	95.5	98.5	96.4	95.3	96
<200	<200	<200	<200	<200	<200	<2000	<200	<200
<180	823	<180	1220	<180	<180	<1800	<180	<180
<140	851	<140	1520	<140	<140	<1400	<140	<140
<80	157	<80	704	<80	<80	3070	<80	<80
<200	1530	<200	4590	<200	<200	6110	<200	<200
<200	332	<200	1690	<200	<200	<2000	<200	<200
<260	>550000	351	>550000	1090	409	>550000	<260	<260
<0.4	1.86	<0.4	6.28	<0.4	<0.4	6.11	<0.4	<0.4
<800	3690	<800	9720	<800	<800	9180	<800	<800

AH18-3	AH19-1	AH19-2	AI11-1	AI11-2	AI11-3	AI12-1	AI12-2	AI13-1	AI13-2	AI14-1	AI14-2	AI14-3	AI15-1	AI15-2	AI16-1	AI16-2	AI17-1	AI17-2	AI18-1	AI18-2	AI19-1	AI19-2	SPDL-1	SPDL-2	SPDL-3	SPDL-4	SPJJ-1	SPJJ-2	SPJJ-3	SPJJ-4	SPLB-1	SPLB-2	SPLB-3	SPLB-4	W35-1	W35-2	W35-3	W35-4	W35-5	W35-6	W129-1	W129-2	W131-1
3.00-3.00	0.90-0.90	1.50-1.50	0.70-0.70	1.30-1.30	2.60-2.60	0.50-0.50	1.80-1.80	0.20-0.20	1.50-1.50	0.30-0.30	1.00-1.00	2.00-2.00	0.20-0.20	1.60-1.60	0.20-0.20	1.80-1.80	0.40-0.40	1.30-1.30	0.50-0.50	1.50-1.50	1.00-1.00	2.00-2.00	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
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23572862	23572866	23572728	23572831	23572836	23572840	23572819	23572823	23572811	23572815	23572798	23572802	23572807	23572789	23572794	23572776	23572784	23572768	23572771	23572747	23572754	23572733	23572738	23748251	23747881	23747887	23747896	23748172	23748234	23748241	23748245	23747877	23747944	23748025	23748100	23747902	23747909	23747914	23747921	23747924	23747930	23748130	23748135	23747982
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Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Blue	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Loam	Sandy Loam	Sand	Loamy Sand	Sand	Sand	Sand	Sand	Stone/Soil	Sandy Loam	Sandy Loam	Sandy Clay Loam	Loamy Sand	Stone/Soil	Sandy Loam	N/A	Sand	Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Loamy Sand	Sandy Silt Loam	Loamy Sand	Sand	Sandy Clay Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Clay Loam	Sandy Clay Loam	Clay	Loamy Sand	Loamy Sand	Sandy Silt Loam	Loamy Sand	Loamy Sand	Loamy Sand	Sand	Loamy Sand	Sandy Clay Loam	Sandy Loam	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Brick	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones
None	None	None	None	N/A	Oil/Petroleum	Brick	Brick	Brick	None	N/A	N/A	None	None	N/A	N/A	Concrete/Aggregate	N/A	Stones	Concrete/Aggregate	None	None	N/A	None	Stones	Vegetation	Stones	None	Brick	Brick	Vegetation	Brick	Vegetation	Brick	Vegetation	None	Vegetation	Vegetation	Vegetation	Stones	Vegetation	Vegetation	Vegetation	Brick
21	12	15	6.5	10	15	11	12	9.3	7.9	10	15	7.8	14	15	10	7.2	5.3	6.1	9.5	11	18	11	14	18	14	14	12	10	12	15	17	26	16	16	13	12	11	15	10	12	11	12	11
-	<0.001	-	-	-	-	-	-	-	-	-	-	-	0.0308	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	<0.001	-	<0.001	-	-
-	26/01/2021	-	-	26/01/2021	-	-	26/01/2021	-	26/01/2021	25/01/21	-	25/01/21	26/01/2021	-	26/01/2021	-	26/01/2021	-	26/01/2021	-	26/01/2021	-	25/02/2021	-	26/02/2021	-	26/02/2021	-	26/02/2021	-	26/02/2021	-	26/02/2021	-	25/02/2021	-	25/02/2021	-	25/02/2021	-	26/02/2021	-	26/02/2021
-	Agnieszka Chelmowska	-	-	Agnieszka Chelmowska	-	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	Andrzej Ferfecki	-	Andrzej Ferfecki	James Richards	-	Agnieszka Chelmowska	-	James Richards	-	Marcin Magdziarek	-	James Richards	-	Paul Poynton	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Paul Poynton	-	Paul Poynton	-	Marcin Magdziarek	-	Agnieszka Chelmowska
-	<0.001	-	-	-	-	-	-	-	-	-	-	-	0.0014	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	<0.001	-	<0.001	-	-
-	None	-	-	-	-	-	-	-	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	None	-	-	-	-	-	-	-	None	-	-	-	None	-	None	-	-
-	N/A	-	-	-	-	-	-	-	-	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N/a	-	-	-	-	-	-	-	-
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-	Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
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-	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Loose fibres in soil	-	-	-	-	-	-	-	-	-	-	-	ACM debris and loose fibres in soil	-	-	-	-	-	-	-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	Loose fibres in soil	-	Loose fibres in soil	-	-
5.79	26.2	5.33	0.429	3.38	37.1	2.31	1.42	2.88	0.447	10.2	4.19	3.22	42.4	5.52	27.2	0.724	0.409	1.98	17.4	1.55	70.5	6.45	23.3	21.9	15.4	24.1	4.03	6.62	4.36	6.57	11.7	4.88	5.98	13.5	59.3	3.17	5.5	29.5	2.98	7.93	15.2	10.2	5.83
9.44	9.9	9.01	9.44	8.98	8.32	11.2	10.3	10.5	9.12	8.54	9.01	9.61	11.1	8.56	9.61	9.72	9.33	10.3	9.71	10.3	9.01	9.11	9.22	8.98	8.18	8.78	8.73	8.95	8.64	8.83	8.01	8.13	8.42	8.36	12.1	11.7	9.01	12.1	12	8.95	8.74	9	9.16
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29.9	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	64.1	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
10.1	5.01	11.1	132	7.49	16.6	8.72	4.69	6.04	5.7	8.89	8.76	5.79	27.3	8.01	8.42	3.64	3	5.3	5.52	5.88	5.98	3.7	7.29	14	<6	9.28	8.86	13.2	7.67	7.53	16	10.8	8.95	12.8	7.27	7.11	9.62	8	7.46	11.6	<6	8.13	9.03
0.354	<0.02	0.242	1.45	0.357	0.112	<0.02	<0.02	0.0393	<0.02	0.568	<0.02	0.133	1.13	0.185	0.54	0.0726	0.255	0.176	0.338	0.13	<0.02	0.0516	<0.2	0.497	<0.2	0.272	0.247	0.699	0.392	0.71	<0.2	<0.2	<0.2	<0.2	<0.2	0.241	<0.2	<0.2	<0.2	0.232	<0.2	<0.2	<0.2
117	69.3	37.3	72.4	<9	5.43	109	110	37.3	45.6	20.3	13.5	28.4	45.2	35.4	136	18.2	4.8	19.5	105	16.5	76	11.1	106	37.8	26.6	40.7	65.9	88.6	119	43.3	60.5	61.6	401	264	289	236	126	307	218	68.6	89	133	26.1
19.8	10.7	17.3	14	16.4	34.1	11.5	13.6	8.61	13.6	22.6	21.2	19.7	44	19.7	28.5	3.58	1.65	4.98	16.8	12.7	14	9.54	24.1	25.6	30.5	39.8	14.6	25.7	<14	17.6	24.1	21.2	19.2	26.4	36.6	125	20.1	553	32.2	24.3	<14	18.2	41
27000	29800	42900	293000	70800	13400	63200	79700	66100	31200	26700	32500	33500	218000	22400	86400	14700	3940	27600	57100	40000	44600	9900	67500	41200	65600	33400	50000	27300	56500	35000	36500	43300	112000	78800	120000	161000	71900	178000	114000	53900	28200	84600	148000
40.3	18.9	20.6	10.5	17.8	19.1	43.9	12.3	14.7	11.6	92.2	18.7	10.8	193	18.7	55.7	1.51	2.45	12.5	24.1	2.87	20.4	5.88	44.1	127	38.7	93.8	48	86.3	58.1	49.5	51.6	39.6	34.1	72.7	109	89.3	85.8	119	54.4	80.2	49.6	71.2	53.1
3020	9800	1650	1060	1050	212	9410	8630	7860	2990	2370	1800	1400	5000	1130	9390	1770	1110	1130	6670	2800	6680	1530	9420	2510	3810	3550	6920	5460	7230	3530	2290	1230	34600	10300	29900	31700	11400	37900	22700	7030	7860	10500	4520
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3.35	4.92	1.18	<10	<10	2.07	5.72	2.72	3.06	1.98	3.04	1.98	<1	<10	1	<10	1.58	1.98	<1	4.3	2.02	3.14	2.68	<10	<10	<10	1.62	<10	<10	<10	<10	<10	<10	19	<10	16.8	15.1	<10	19.3	16.8	<10	<10	<10	<10
103	96.1	33.2	216	30.9	16.7	153	118	82.8	64.6	66.2	39.4	38.1	80	56.8	168	40.8	10.8	28.6	120	38.1	80	23.4	208	64.1	90.1	51.9	114	135	136	80.2	99.5	81.2	235	192	638	391	155	770	262	108	350	404	99.9
185	81.5	156	163	48.3	38.4	210	73.5	78.2	37.3	138	165	44.6	216	47.9	164	18.4	16.6	64.9	121	35.1	128	33	118	180	136	246	127	262	114	127	139	142	87.3	215	131	321	619	179	110	657	153	212	168
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0112	0.0114	<0.01	<0.01	<1	<0.01	<0.01	0.0116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0122	<0.01	0.0116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0113	<0.01	<0.01	0.0111	<0.01	<0.01	<0.01	<0.01
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W131-2	W131-3	W131-4	W156-1	W156-2	W156-3	W156-4	W156-5	W156-6	W156-7	W156-8	W156-9	W156-10	W206-1	W206-2	W206-3	W206-4	W208-1
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
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09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021	09/03/2021
210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32
23747988	23748000	23748009	23748017	23748032	23748046	23748052	23748060	23748067	23748072	23748077	23748084	23748089	23748094	23748105	23748115	23748120	23748200
10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Black	Dark Brown	Black	Dark Brown
Sandy Loam	Loamy Sand	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Silt Loam	Sandy Loam	Loamy Sand	Sandy Loam	Loamy Sand	Sandy Clay Loam
Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Brick	None	Brick	None	Brick	None	None	Brick	Stones	None	Vegetation	Vegetation	None	None	Vegetation	Vegetation	N/A	None
12	12	12	15	15	15	12	13	15	15	18	10	11	14	14	11	18	13
-	-	-	-	-	-	-	0.0349	-	-	-	-	-	<0.001	-	-	-	-
-	26/02/2021	-	25/02/2021	-	26/02/2021	-	26/02/2021	-	25/02/2021	-	25/02/2021	-	25/02/2021	-	26/02/2021	-	26/02/2021
-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Paul Poynton	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Agnieszka Chelmowska
-	-	-	-	-	-	-	0.0038	-	-	-	-	-	<0.001	-	-	-	-
-	-	-	-	-	-	-	PCM analysis detected fibres typical of amphibole asbestos.	-	-	-	-	-	None	-	-	-	-
-	-	-	-	-	-	-	N/A	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	0.0387	-	-	-	-	-	<0.001	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	-	-	Loose fibres in soil	-	-	-	-
4.5	4.41	18.3	1.86	9.88	4.29	4.03	10.4	1.46	7.88	8.9	4.33	7.53	9.67	75.7	5.05	54.8	4.12
8.95	8.63	8.88	12.7	8.96	9.01	11.3	10.7	12.7	8.61	10.1	11.3	10.4	9.97	8.95	9.27	8.43	10.4
<1	1.11	<1	<1	3.3	<1	2.28	3.44	<1	3.45	<1	4.84	1.84	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
12.7	19.4	11.1	8.27	15.7	11.2	9.36	<6	13.6	24.9	9.46	7.27	<6	9.17	<6	7.44	8.56	17.8
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62.2	10.9	124	553	<9	<9	155	218	514	106	<9	225	214	97.9	105	222	115	205
25.1	45.5	28.6	38.6	30	<14	21.7	24.4	45.7	34.1	22.8	19.5	19	23.6	33.5	21.5	25.2	33.6
141000	233000	111000	212000	352000	178000	280000	156000	284000	190000	243000	220000	170000	83800	65100	91600	47800	63900
114	85.1	121	29.7	892	<7	82.7	48.7	31.4	1040	80.8	50.9	59.5	80.9	32.7	75.7	32.6	146
6790	6260	10700	48200	8360	284	19500	18400	39600	13900	7350	31400	25900	7320	7680	11400	6260	10100
<1	<1	<1	<1	1.25	2.06	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
27.1	43.6	25.2	35.5	36	<2	23.2	19.8	40.6	35.1	26.2	16.4	14.9	29.8	21	24.7	26.4	25.7
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137	99	193	848	165	2.73	550	885	1000	223	168	1120	1430	217	236	251	304	163
353	299	373	62.1	2180	<19	193	129	82.7	2560	233	116	152	241	92.1	274	87.6	264
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87.4	98.4	84.6	99.9	115	73.8	79.5	84.7	96.7	86.6	102	83.8	78.1	58	19.1	100	14.7	104
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3960	2720	9790	27600	11400	21800	40800	15300	54400	17100	38100	31300	30400	1560	3750	4960	6330	2060
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88700	41000	96100	142000	117000	136000	379000	1680000	312000	136000	254000	298000	960000	86400	91900	69900	122000	22300
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88700	41000	96100	142000	117000	136000	379000	1680000	312000	136000	254000	298000	961000	86400	92000	70000	122000	22400
92.8	90.2	97.1	91.6	94	92.3	91.6	92.6	91.7	87.9	92.3	92.1	93.1	93.6	91.4	93.3	91.1	92.4
95.6	89	95.5	93.1	89.9	94.2	90.2	93.4	88.4	86.8	96.5	96.8	96.5	90.5	92.4	93.2	92	93.9
97.5	90.2	95.4	95.5	90.2	96	93.3	89.8	87.2	91.2	100	98.4	98.7	90.9	91.6	94	91.1	94.2
97.4	76.5	79.7	79.1	78.7	82.9	81.5	78.6	79.6	79	81.1	79.3	79.8	84	80.1	82.5	78.5	78
93.3	70.9	76.5	79.9	70.3	82.4	72.4	78.8	77.7	70.1	81.7	80.1	80.5	80.9	75.5	82.3	72.3	79.3
95	48.5	44.9	358	3270	3630	3200	5690	553	4410	2520	2940	4760	246	892	271	948	107
45.8	16.2	52	42.9	50.9	366	758	5810	76	65.5	202	469	1380	157	169	154	197	83.6
11.7	<8	12	109	16.7	53.3	78.3	364	135	30.7	35.2	90.3	155	19.3	125	21	153	19.2
19	14	20	64.6	39.2	220	440	7260	92.2	73.3	150	381	869	90.3	257	88.3	303	44.4
204	138	183	986	294	1470	7030	102000	1280	503	945	2380	5110	655	1570	717	1990	318
49.8	28.2	<16	202	64.6	368	2670	41600	274	135	234	674	2210	213	309	218	394	124
452	177	438	1970	383	2240	14100	139000	2540	622	1400	3650	8730	1580	1880	1700	2920	799
389	137	380	1910	323	1630	10600	102000	2370	577	1080	3030	8290	1140	1430	1240	2150	633
285	91.3	237	1200	174	885	4440	37900	1430	248	492	1510	3790	686	857	743	1150	379
324	108	271	1240	171	785	4910	40800	1490	241	481	1540	3830	675	876	631	923	358
546	144	447	1920	284	1250	6280	51200	2240	392	718	2380	5390	960	1200	1080	1490	577
173	44.5	111	725	89.1	412	2060	15100	839	103	239	714	1810	297	397	329	438	193
322	73.7	246	1500	172	847	4120	34400	1590	215	443	1460	3110	556	689	631	860	341
291	70.5	224	879	149	711	3530	30800	1200	171	273	1040	2070	430	491	514	596	219
58.4	<23	<23	162	32.1	110	648	4020	236	29.3	63	209	423	106	149	89	150	49.5
281	68.6	236	1010	163	639	3490	27100	1180	172	318	1160	2260	424	515	442	534	258
3550	1160	2900	14300	5680	15600	68400	645000	17500	7980	9590	23600	54200	8240	11800	8870	15200	4500
107	105	107	106	108	106	106	98.3	106	108	107	103	106	116	93.1	106	96.4	104
99.6	98.4	99.9	93.8	94.1	101	99.6	93.9	94.8	98.3	97.6	97.9	100	94.7	86.6	95.5	83.3	92.6
95.1	96.7	97.3	105	102	94.9	93.1	82.2	106	92.1	97.3	93.9	91.7	101	74.1	103	70.9	91.2
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0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
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02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021
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210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210218-32	210219-92	210219-92	210219-92	210219-92
23748230	23747937	23747950	23747954	23747961	23747966	23747973	23748142	23748146	23748156	23748161	23748167	23748178	23748183	23748191	23759843	23759847	23759851	23759855
10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	8.5	8.5	8.5	8.5
Dark Brown	Light Brown	Black	Black	Dark Brown	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black
Sandy Clay Loam	Silty Clay Loam	Silty Clay Loam	Sandy Silt Loam	Loamy Sand	Silty Clay Loam	Silty Clay Loam	Sandy Loam	Sand	Loamy Sand	Sand	Stone/Soil	Sandy Loam	Stone/Soil	Sandy Loam	Silty Clay Loam	Sand	Sand	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Brick	Stones	Stones	Vegetation	Stones	None	None	Stones	None	Stones	Stones	Vegetation	Stones	Stones
None	None	None	Brick	Brick	Stones	None	None	Stones	Brick	Stones	Stones	None	Stones	None	Vegetation	Stones	Vegetation	Crushed Brick
17	12	15	13	14	12	12	14	16	9.9	15	10	11	12	11	12	12	11	10
-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-
-	25/02/2021	-	25/02/2021	-	26/02/2021	-	25/02/2021	-	26/02/2021	-	25/02/2021	-	01/03/2021	-	24/02/2021	-	24/02/2021	-
-	Marcin Magdziarek	-	Paul Poynton	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Marcin Magdziarek	-	Paul Poynton	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-
-	-	-	-	-	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-
-	-	-	-	-	None	-	-	-	-	-	-	-	None	-	-	-	-	-
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-	Not Detected	-	Not Detected	-	Trace	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-
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-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	Loose fibres in soil	-	-	-	-	-	-	-	Loose fibres in soil	-	-	-	-	-
6.86	11.4	33.8	49.1	17.4	21.6	33.8	46.4	64.1	20.3	50.3	6.84	6.9	4.84	4.64	16.8	0.571	6.86	5.03
10.6	8.83	8.97	8.96	9.08	9.15	8.71	9.32	8.93	8.88	9.11	10	9.64	10.6	9.58	9.35	9.88	11.5	9.88
<1	36.1	35.9	124	273	41.7	31.5	1.96	4.05	5.82	2.7	<1	4.41	<1	2.07	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
11.6	15.8	<6	10.1	12.6	11	9.56	9.46	8.55	<6	8.52	<6	8.2	9.58	<6	8.35	<6	<6	5.67
0.448	<0.2	<0.2	<0.2	0.537	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.212	<0.2	0.146	<0.2	<0.2	<0.02
104	<9	142	70.2	32.3	35.5	52.2	49	38.2	194	93.2	66.8	70	213	91	47.6	231	424	279
27.9	36.6	24.9	27.7	30	20	33.2	33.5	24.7	24.7	21.9	<14	25.3	45.5	67.5	18.5	37.1	19.7	12.1
61700	274000	76900	90200	236000	22100	79700	85300	84200	136000	80400	76600	84600	111000	58200	58600	109000	106000	75600
105	304	158	270	362	127	102	78	71.2	79.6	72.2	67.7	202	125	64.1	207	77.7	40.5	32
6800	7720	6430	4820	8310	4410	4440	5670	8710	18000	10600	6420	6890	20300	3960	5670	15500	23900	12400
<1	5.87	1.84	3.44	6.12	3.73	2.36	<1	<1	<1	<1	<1	<1	<1	<1	0.176	<1	<1	<0.1
24.2	44.4	22.6	20.8	36.4	24.7	20.9	30.3	24.5	15.4	22.4	12.1	29.1	20.4	27.9	11	21.2	11.6	8.14
<10	<10	<10	<10	<10	<10	<10	<10	<10	14	<10	<10	<10	13.7	<10	2.92	<10	12.5	5.85
150	129	114	72.5	172	79.1	131	137	77.9	407	173	115	78.9	503	105	80.6	413	598	207
285	694	216	191	831	245	144	172	172	177	126	170	374	308	3020	560	310	138	128
<0.01	<0.01	<0.01	<0.01	0.0116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	0.0232	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0222	<0.01	<0.01	0.0112	<0.01	<0.01	0.0113	<0.01
<0.015	0.475	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0228	<0.015	<0.015
<0.035	0.475	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
94.8	<50	593	231	67.3	371	134	<50	<50	<50	304	<50	52	70.7	<50	<50	<50	<50	<50
<50	<50	339	84.7	<50	198	92.7	<50	<50	<50	92	<50	<50	<50	<50	<50	<50	<50	<50
94.8	<20	932	316	67.3	569	227	<20	<20	<20	396	<20	52	70.7	<20	<20	<20	<20	<20
118	99.3	94.3	88.5	78.5	98.2	79.4	48.1	35	48.7	16.2	82.8	91.4	73.5	76	95	92.5	93.5	77.3
<10	<10	39.8	20.9	12.8	22.5	19.2	<10	<10	<10	33	<10	<10	11.4	<10	<10	<10	<10	<10
37.2	<10	101	82.4	24.4	69.7	28.3	<10	<10	21.1	155	13.3	17	18.2	12.3	<10	<10	<10	<10
57.6	14.7	453	128	30.2	279	87	<10	<10	26.6	117	34.4	35	41	22.4	<10	<10	<10	<10
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5260	15100	71600	37600	31800	81900	44900	27200	26000	38000	25700	95300	27700	35400	18000	11400	17400	46200	42500
1560	4640	9010	5780	4710	9070	7750	7180	3980	10400	5070	97000	13900	30300	6520	<1000	1240	7160	11900
7220	52400	205000	136000	124000	286000	145000	46400	45000	62800	42800	208000	48800	80600	29900	23900	28700	63100	84300
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<10	<10	23.4	<10	<10	12.9	22.6	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	14	<10	<10	<10	11.3	<10	<10	<10	14.2	<10	<10	<10	<10	<10	<10	<10	<10
38.4	10.2	302	84.7	20.9	185	58.8	<10	<10	17.8	77.9	22.2	23.7	27.4	15.7	<10	<10	<10	<10
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16300	1520000	373000	233000	1150000	463000	282000	160000	178000	356000	114000	340000	100000	290000	76700	80000	117000	79600	137000
95.2	95.1	92.7	89.8	93.3	95.7	90.2	86.4	94.5	93.3	94.1	92.4	93.4	93.1	94.4	92.8	91.9	94.6	97.1
91.6	96.9	92.5	92.9	97.7	90.9	94.3	83.1	87.6	94.9	94.7	95.2	95.8	93.2	94	93.9	90.4	94.6	94.8
92.2	98.2	92.5	89.2	99.8	83.7	90.7	83.1	87.6	95.5	95.3	92.6	97.2	94	94	97.2	92.7	99.1	97.4
83.3	80.3	82.8	75.2	83.6	80.1	77.5	76.4	79	77.9	74.2	82.1	80.4	80.3	79.7	78.1	78.3	93.1	82.2
80.3	76.5	78.7	71.8	77.3	82.2	71.1	77.1	66.6	75.5	71	85	81	80.9	79.6	74.2	75.7	89.9	79.2
98.5	2770	1190	1320	9190	2100	1340	514	439	12200	522	1670	201	822	156	60.9	110	29.6	94.3
76.1	4750	144	361	9760	291	293	319	145	13200	219	3210	96.7	561	70.2	37.7	693	91.8	96.5
21.9	452	61.7	63.1	623	55.2	58.9	30.6	32.6	822	48.8	565	23.9	43.4	19.9	18.9	25.5	15.1	28.8
86.8	5140	118	321	11300	157	161	151	130	5120	177	5910	58.4	531	50.1	14.7	53.9	13.5	55.5
530	17600	963	1920	34300	843	1350	1460	1120	52400	1540	25100	463	2450	295	127	437	180	498
166	<16	307	419	16800	296	388	408	302	18500	392	10500	134	1590	123	39.2	348	57.9	138
835	24500	2010	2950	34300	2060	2780	2990	1800	112000	2580	30900	942	4010	604	255	2490	580	1070
655	14900	1620	2220	22800	1640	2210	2230	1460	82800	2070	18600	789	2960	478	238	2280	581	946
379	8920	1070	1400	13300	1510	1470	1360	955	51900	1420	9360	540	1490	303	151	1410	340	551
371	8600	941	1240	12100	1460	1300	1360	1020	49000	1520	7280	595	1240	293	184	1440	438	580
533	10800	1740	2400	15500	2480	2820	2230	1420	78500	2590	9440	957	1930	524	316	2860	683	964
178	3240	561	701	4020	773	810	691	390	23300	545	3560	315	636	143	98.9	897	230	279
298	6770	1010	1380	9200	1680	1630	1280	786	45800	1440	6110	575	1120	290	172	1800	399	541
245	5220	840	1150	6840	1490	1410	1130	654	44300	1320	4080	437	814	253	161	1810	368	473
60.3	284	211	275	389	257	315	175	162	7770	310	774	87.5	195	49.2	<23	100	64.9	<46
230	4100	865	1140	5040	1350	1410	1030	690	38300	1370	3220	500	722	254	161	1820	355	442
4760	118000	13700	19300	206000	18400	19800	17400	11500	636000	18100	140000	6710	21100	3910	2040	18600	4430	6760
107	110	106	106	106	107	113	107	110	106	104	108	106	108	110	109	107	106	106
97.5	95.7	93.7	92.6	99.5	94.4	94.4	92.4	91.4	93.6	97.1	93.8	97.9	97.5	94.8	98.6	95.9	96.9	95.3
92.5	105	96.9	94.6	97	93.6	95	87.6	86.9	94.7	84	100	89.1	87.7	101	90.7	102	100	102
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
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<260	<260	619	569	581	386	381	<260	<260	<260	<260	621	<260	1560	<260	<260	<260	<260	<260
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W34-5	W34-6	W34-7	W34-8	W172-1	W172-2	W194-1	W194-2	W195-1	W195-2	W196-1	W196-2	W202-1	W202-2	W203-1	W203-2
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021	18/02/2021
19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021
02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021
08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021
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23759860	23759865	23759870	23759878	23759833	23759839	23759793	23759797	23759809	23759817	23759821	23759829	23759907	23759916	23759927	23759938
8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Light Brown	Black	Dark Brown	Dark Brown	Black
Sand	Silty Clay Loam	Sand	Sand	Silty Clay Loam	Sandy Loam	Loamy Sand	Silt Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Silt Loam	Loamy Sand	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Loam
Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	Brick	Vegetation	Vegetation	Crushed Brick	None	Brick	None	None	None	None	Vegetation	None	None	None	None
15	13	11	9.6	13	13	16	22	15	16	14	13	14	13	15	12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-
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Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	Barbara Urbanek-Walsh	-	Paul Poynton	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	None	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fibre Bundle in soil	-
21.4	7.33	2.05	7.21	2.64	3.84	3.62	4.09	2.93	3.59	1.76	2.64	21.2	18.3	16.8	25
9.23	11.1	11.8	10.5	9.78	9.04	9.83	9.62	9.55	9.6	9.13	9.05	11.7	11.6	11.2	11.6
1.45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	16.1	<12
9.95	10.8	<6	6.21	37.6	14.9	7.17	12.1	8.72	10.7	5.05	6.82	4.71	4.79	<6	6.32
0.599	<0.02	<0.2	<0.02	<0.02	<0.2	0.0312	<0.2	0.255	1.52	0.317	0.58	<0.02	<0.02	<0.2	<0.2
53.4	178	404	149	91.5	56.6	25.5	60.3	50.9	73.4	45.2	110	281	461	318	447
27	27.6	29.3	15.5	27.3	29.9	14	19.8	25.7	28.5	7.09	<14	14.4	27.9	30.4	56.2
57300	176000	114000	48300	169000	167000	37100	47100	83000	71200	21800	40300	108000	146000	113000	133000
388	110	37.9	27.8	33.4	49.7	42.4	67.8	85.8	111	31.3	60.5	60.1	58.8	80.4	95.8
5640	18200	25800	10100	13600	7580	2150	3250	4600	6770	4910	5770	24200	20300	22100	25800
<1	0.253	<1	<0.1	0.38	<1	<0.1	<1	<1	<1	<0.1	<1	<0.1	<0.1	<1	<1
17.3	25.5	14.2	14.8	14.4	28.7	20.5	30.9	28.9	32.3	7.99	18.6	8.39	13.8	14.7	20.8
<10	6.27	13.8	5.59	3.83	<10	<1	<10	<10	<10	3.27	<10	11.8	4.66	<10	16.4
85.3	687	688	213	156	142	49.9	92.5	88.5	179	40.6	129	481	347	402	604
850	466	98.1	129	137	153	138	207	340	367	76.2	153	176	184	315	335
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0115	0.0236	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0116	<0.01	0.0118	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
<50	<50	<50	<50	<50	<50	54.7	<50	95.6	<50	<50	74.1	82.4	62.1	61.4	88.1
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<20	<20	<20	<20	<20	<20	54.7	<20	95.6	<20	<20	74.1	82.4	62.1	61.4	88.1
91	129	108	71.5	114	90.7	112	93	97.9	71.1	95.7	97.5	33	33	31	24.4
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	22.6	10.2	31.9	<10	<10	20.5	51	32.2	31.9	44.1
<10	<10	<10	<10	12.7	<10	32.1	12.7	63.7	<10	<10	53.6	31.3	29.9	29.5	44.1
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
<1000	5850	1050	11900	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	3660	2500	5120	4650
5310	26900	7520	41100	<1000	<1000	<1000	<1000	1390	<1000	<1000	<1000	18500	16200	30600	28100
15600	47200	41500	71500	5230	11200	4770	4000	15400	5720	5620	10500	43700	44000	38900	48600
2240	14500	7820	23200	<1000	7020	<1000	<1000	4180	1250	<1000	2310	11800	6610	6240	23700
23400	94700	57900	148000	5320	19100	5500	<5000	20900	7040	5680	13500	78200	69600	81300	106000
44900	149000	77100	203000	<10000	29900	18400	16300	77100	16200	12600	33800	193000	150000	217000	231000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	10.4	<10	11.3
<10	<10	<10	<10	<10	<10	21.4	<10	42.5	<10	<10	36.5	20.9	20.7	20.1	29.4
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	3070	2850	5870	3260
<1000	1490	<1000	1630	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	4590	3830	7120	5280
1060	3780	2250	6370	<1000	1170	2620	3040	18300	1390	<1000	<1000	29000	21200	34400	33000
16000	42700	15300	43300	1390	7280	9280	8200	34600	6740	5640	16000	72000	47800	80500	78300
4290	5780	1560	3970	<1000	2300	<1000	<1000	2350	<1000	<1000	3110	6360	4440	7870	5790
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21500	53800	19200	55400	<5000	10800	12900	12200	56200	9120	6880	20300	115000	80100	136000	126000
44900	149000	77100	203000	<10000	29900	18500	12200	77300	16200	12600	33900	193000	150000	217000	231000
96.5	84.9	96.4	101	98.9	94.9	97.4	95	95	99	94.6	92.6	94.3	90.4	91	95.2
93.9	84.8	95.7	102	97.1	90.5	95.3	94.6	92.7	95.6	96.3	91.8	92.6	90.5	89.1	93.7
93.4	86.2	94.8	100	101	89.2	98.5	98.6	94.5	98.5	101	93.9	94.2	90.9	89.6	96.2
78.9	71.1	88.5	87.2	91.5	84.9	93.2	85.5	85.9	94.6	84.8	82.4	84.6	78.7	80.3	85.3
76	70.8	88	85.8	88.6	85.6	92.9	85	84.8	88.8	82.7	78.4	80	70.3	72.7	79.2
110	98.4	43	206	57.3	82.6	61.7	89.7	153	196	22.2	16.1	2370	3150	4030	2880
46.1	313	88.6	139	27	28.1	40.5	42	94.2	97.2	18.6	14.5	565	1420	811	798
18.3	22.8	25	32.6	<8	12.1	140	76.7	16.3	703	<8	<8	112	116	133	123
17.2	34.7	16.9	72.2	19.4	25.1	147	102	62.8	448	<10	<10	439	766	650	735
139	338	225	651	185	226	787	603	535	566	64.1	64.7	4220	9440	4540	4710
38.1	154	<16	182	46.2	61.4	237	172	150	114	23	20.4	1030	4830	1090	1340
286	1240	667	1260	371	421	1450	1260	934	660	112	119	5820	19600	6130	6490
253	1150	653	1070	287	332	1080	949	714	485	89.3	94.1	4280	13000	4960	4880
173	642	395	732	156	191	754	571	380	311	61.5	60.2	2290	6930	2800	2680
207	703	478	722	171	182	768	577	384	321	54.2	63.5	2250	6110	2690	2620
369	1340	755	1220	244	269	1030	814	564	483	101	96.3	3070	7160	3430	3330
86.4	390	255	402	67.6	82.2	327	257	170	146	36.7	31	1060	2500	1070	1110
184	807	425	802	122	150	562	447	331	270	54.4	56.5	1940	4590	2070	2070
175	829	450	690	98.7	138	350	325	283	201	51.9	55.6	1400	3830	1560	1600
<23	38.3	63.6	129	<23	28.1	102	<23	63.6	42.2	<23	<23	313	772	371	376
185	794	440	666	96.5	113	337	297	233	210	53.7	51.7	1170	2680	1380	1290
2290	8890	4980	8980	1950	2340	8170	6580	5070	5250	743	743	32300	87000	37700	37000
107	107	109	106	110	106	113	123	108	139	114	107	97.5	100	104	99.2
100	96.5	96.7	97.6	99.1	98.3	95.2	95.4	95.6	96.3	95.3	96.8	92.8	94.8	93.4	90.9
94.1	98.7	96.2	88.5	92	91.5	103	104	101	105	103	104	88.8	92.5	93.2	77.7
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	559	445	608	992
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

W203-3	W203-4	W205-1	W205-2	W205-3	W205-4	W205-5	W205-6	W205-7	W205-8	W214-1	W214-2	W214-3	W214-4	W214-5	W214-6	W172B-1	W172B-2
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
18/02/2021	18/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	17/02/2021	18/02/2021	18/02/2021
19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021	19/02/2021
02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021	02/03/2021
08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021	08/03/2021
210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92	210219-92
23759949	23759964	23759765	23759825	23759874	23759970	23759980	23759993	23760003	23760012	23760027	23759769	23759774	23759780	23759784	23759789	23759884	23759897
8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sand	Sandy Loam	Sandy Clay Loam	Sand	Sandy Silt Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Sandy Loam	Sandy Silt Loam	Sand	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Loam	Sand
Stones	Stones	Stones	Stones	Vegetation	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones
None	Vegetation	None	N/A	Stones	Stones	None	Vegetation	None	None	None	None	Stones	None	Vegetation	None	None	Vegetation
11	7.4	21	19	15	21	17	17	17	21	13	15	14	15	6.8	14	15	13
-	-	-	-	-	-	-	-	-	-	<0.001	-	0.0303	-	-	-	-	-
25/02/2021	-	24/02/2021	-	25/02/2021	-	25/02/2021	-	25/02/2021	-	25/02/2021	-	24/02/2021	-	25/02/2021	-	25/02/2021	-
Paul Poynton	-	Paul Poynton	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	Paul Poynton	-	Agnieszka Chelmowska	-	Barbara Urbanek-Walsh	-	Marcin Magdziarek	-	Agnieszka Chelmowska	-
-	-	-	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	None	-	None	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	N/A	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<0.001	-	0.0303	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Trace	-	Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	-	-	Loose fibres in soil	-	Loose fibres in soil.	-	-	-	-	-
20.2	28.8	16.5	11.9	9.09	7.09	12.8	10.8	15.3	6.98	5.02	8.57	12.2	7.98	5.98	6.83	14	13.6
11.1	11.9	11	10.2	10.2	10.3	11.4	10.3	11.1	10.5	9.92	10.9	9.86	9.52	10.9	10.2	9.66	9.53
<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4.25	<1	<1	1.95	<1	<1	2.01	2.07
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
<6	4.53	11.5	9.17	8.41	8.07	<6	7.25	9.32	8	14.3	9.28	12.6	13.7	4.5	9.5	10.8	15.1
<0.2	<0.02	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.629	0.386	0.255	0.438	<0.02	0.384	4.29	3.32
527	280	160	100	95.9	222	98.5	150	222	196	85.7	27.5	56.2	64	17.4	134	93.1	81
17.7	47.5	32.8	23.9	18.6	24.9	20.7	26.7	26.2	22.4	32.9	14.9	21.1	37	14.5	26.7	46	34.4
133000	141000	175000	89700	87000	103000	126000	111000	108000	105000	58800	36800	76100	81200	38400	94200	314000	340000
243	51.5	52	74.3	73.6	63.5	65.4	77.1	53.1	79.2	116	50.4	98.8	136	20.6	91.2	1180	951
28600	15700	15600	8870	7640	11900	9580	13300	12100	15000	6000	2450	7810	6250	694	12300	9990	16000
<1	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.1	<1	<1	<1
11.2	12.7	32	35.3	23.4	22.5	16.6	21.8	19.1	25.4	17.8	15.5	21.5	27.9	82.7	26.4	39.6	37.2
14.8	4.2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<10	<10
686	273	792	295	174	269	384	330	334	377	117	56.2	144	125	56.8	204	325	309
411	160	213	276	191	213	140	203	175	268	530	160	375	620	63.8	333	2950	2230
0.0224	0.0108	<0.01	0.0248	<0.01	0.0254	0.0121	0.0121	0.0242	0.0126	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.117	0.0805
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.187	0.0575
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.35	0.138
115	97.1	67.3	88	<50	174	105	213	90.8	223	<50	<50	<50	<50	<50	<50	399	500
51.5	58.3	<50	<50	<50	69.9	<50	88.3	<50	102	<50	<50	<50	<50	<50	<50	270	353
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76.6	85.1	72.6	82.1	82	81.9	80.8	82.4	90.1	82.6	85	81.8	86.6	83	84	87.4	73.5	72.6
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97	90.1	93.2	94.6	97.3	95.9	95.8	97.7	95.8	98.4	98.9	97.6	100	97.8	99.8	98.9	96.3	99.2
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0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
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7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Black	Black	Dark Brown	Black	Black	White	Orange	Black	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Sandy Loam	Loamy Sand	Sandy Clay	Silt Loam	Sandy Clay Loam	Sandy Silt Loam	Sandy Loam	Sandy Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam
Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	None	Brick	Vegetation	None	Brick	Brick	Brick	Vegetation	Brick	Brick	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	None	Vegetation	None
12	13	10	9.2	12	13	7.6	9.3	6.9	8.9	21	22	17	23	11	10	11	12	12
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Agnieszka Chelmowska	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	-	Paul Poynton	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-
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8.98	10.7	9.24	9.61	9.78	9.54	10.3	9.22	8.73	9.47	8.49	8.31	8.8	8.46	8.64	9.21	8.74	8.71	9.01
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9.67	15.2	15.8	15.4	14	12.1	23.3	27.9	10.4	17.7	23.4	23.3	22.7	23.3	36.2	14	20.7	16.9	14.9
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304	158	185	204	274	298	144	205	54.3	205	64.2	58.9	95	54.7	463	693	146	219	680
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84.9	81.1	91.6	90.3	89.8	87.7	85	90.8	90.2	94.4	89.1	84.8	78.3	84.2	85.7	77.8	88.6	81.1	85.2
86.3	83	87.6	93.7	93	90.9	83.8	93.3	92.3	96.1	89.9	86.1	83.2	89	85.5	82.8	93.6	83.9	89.8
86.4	89	100	98.3	100	97.3	84.2	97.1	98.4	101	95.4	92.2	94.5	89	96.8	87.1	93.7	93.2	89.7
84.3	81.9	109	98.2	97.9	91.1	78.1	97	96.5	98.2	91.2	89.4	89.2	82.3	86.6	78.5	87.7	85.8	80.7
72	71.5	109	89.8	94.9	81.5	75.2	93.8	92.1	94.9	87.6	85.7	97.8	73.6	85.7	71.3	78.7	86.1	71
4060	1360	476	2870	993	2240	87.1	190	38.2	2760	33.3	40	18.8	37	18.6	172	20.5	124	193
2930	467	125	1140	344	1040	<60	233	14.2	644	<12	63.5	33	51.4	21.9	<120	21	35.5	53.4
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19800	3380	1550	7420	2090	6590	351	2870	301	981	119	1200	679	961	465	508	342	505	477
6720	972	491	2510	641	2020	111	829	99.6	303	36.8	282	229	291	143	193	96.6	169	171
12100	1870	961	4610	1180	3880	201	1530	181	550	63	626	382	516	230	306	182	317	267
8730	1290	737	3640	1030	2960	161	1370	127	427	52.1	527	368	489	221	271	187	231	273
1430	278	161	564	165	540	<115	<230	32.8	<115	<23	93.1	69.8	101	47.8	<230	39.7	39.7	54.8
7480	1060	736	3370	958	2650	173	1350	122	428	47.8	509	342	403	225	<240	162	227	244
223000	31000	11300	59400	16800	54000	2560	21400	2170	15600	902	7620	4240	6570	2980	3430	2340	3600	3860
96.6	93.7	99.3	95.1	97.3	97.9	105	107	108	105	106	105	106	110	103	100	104	100	97.6
95.4	94	95.6	94.2	92.5	95	99.6	98.1	99.4	98.3	99	98.4	98.5	98.5	98.6	97.2	99.4	97.8	94.8
85.3	78.4	83.1	82.6	78.8	84.8	101	97.3	100	94.1	98.1	96.5	99.4	98.6	98.2	93.8	99.1	91.2	88.5
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W-199-1	W-199-2	W-199-2	R116-1	R117-1	R118-1	R193-1	SPIS-1	SPIS-2	SPIS-3	R-135-1	R-135-2	R101-1	R102-2	R102-3	R102-4
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
22/03/2021	22/03/2021	22/03/2021	26/03/2021	26/03/2021	26/03/2021	26/03/2021	26/03/2021	26/03/2021	26/03/2021	29/03/2021	29/03/2021	29/03/2021	29/03/2021	29/03/2021	29/03/2021
24/03/2021	24/03/2021	24/03/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	31/03/2021	31/03/2021	31/03/2021	31/03/2021	31/03/2021	31/03/2021
01/04/2021	01/04/2021	01/04/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	27/03/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021
01/04/2021	01/04/2021	01/04/2021	07/04/2021	07/04/2021	07/04/2021	07/04/2021	07/04/2021	07/04/2021	07/04/2021	14/04/2021	14/04/2021	14/04/2021	14/04/2021	14/04/2021	14/04/2021
210324-144	210324-144	210324-144	210327-46	210327-46	210327-46	210327-46	210327-46	210327-46	210327-46	210331-78	210331-78	210331-78	210331-78	210331-78	210331-78
23964574	23964582	23964582	23984485	23984490	23984496	23984501	23984467	23984473	23984478	24004298	24004304	24004278	24004378	24004243	24004251
7.9	7.9	7.9	6.8	6.8	6.8	6.8	6.8	6.8	6.8	14.2	14.2	14.2	14.2	14.2	14.2
Dark Brown	Black	Black	Dark Brown	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Loamy Sand	Sandy Loam	Sandy Loam	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Loamy Sand	Loamy Sand	Clay	Loamy Sand	Sand	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Brick	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Vegetation	Vegetation
None	None	None	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	None	Vegetation	Stones	Stones	Stones
8.3	14	14	6	6.8	6.5	9	4.5	5.7	3.1	10	9.9	13	19	16	20
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30/03/2021	-	-	-	06/04/2021	-	06/04/2021	06/04/2021	-	06/04/2021	-	08/04/2021	08/04/2021	08/04/2021	-	07/04/2021
Agnieszka Chelmowska	-	-	-	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	Marcin Magdziarek	-	Marcin Magdziarek	-	Marcin Magdziarek	Barbara Urbanek-Walsh	Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh
										-	-	-	-	-	-
										-	-	-	-	-	-
										-	-	-	-	-	-
										-	-	-	-	-	-
Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected
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Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected
			-	-	-	-	-	-	-	-	-	-	-	-	-
3.98	11.4	11.4	6.83	99.3	4.19	8.96	7.36	20.7	15	26.9	40.2	1.03	5.74	7.79	24.8
9.09	9.87	9.87	9.03	8.58	9.02	10.6	10.1	10	10.9	9.55	9.72	8.68	9.39	8.66	8.35
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<0.2	9.98	9.98	0.437	0.0797	0.201	4.82	0.321	0.417	<0.02	<0.2	0.929	0.254	0.797	10.1	2.2
189	272	272	87.1	148	66.4	535	355	315	355	244	64.5	18.1	54	162	326
28.3	60.6	60.6	17.8	27.7	15	43	11	16.5	14.3	17.4	27.7	13.9	21.7	62.4	29.5
206000	232000	232000	89000	59800	44700	203000	137000	107000	90600	132000	58400	19900	71700	229000	129000
68	1550	1550	62.7	32.5	38.7	766	63	64.9	29.7	66.4	22.9	25.2	191	1870	569
14600	19600	19600	7170	9060	7460	30000	2740	18700	21500	24100	865	820	5980	14000	14300
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25.3	38.2	38.2	16.8	13.4	16.6	24	39.2	12.7	12	15.6	43.9	22.1	21.9	41.8	26.2
<10	<10	<10	2.05	4.44	3.47	16	8.45	7.59	7.15	10	<1	<1	1.9	<10	11.1
220	1090	1090	129	374	132	1510	299	269	262	966	114	25.7	116	386	717
220	6570	6570	284	228	172	3120	376	337	125	189	125	92.4	824	6130	1520
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81.6	99.7	99.7	61	25.7	87.8	108	73.5	80.8	70.8	24.4	11.8	103	83.6	115	78.6
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86.3	91	91	83.7	90.2	82	81.8	86.3	84.3	86.7	91.4	89.4	88.7	88.7	88.2	89.2
89.1	89.9	89.9	88.6	89.3	85.8	85	90	84.3	89	91.5	92.8	92.2	90.9	92.9	92.9
96.5	92	92	90.6	93.1	88.8	88.1	93.9	86	91.4	88.6	94.8	93	91.2	91.7	93.3
94.5	72.4	72.4	89.6	90	85.5	80.9	93.4	80.1	88.8	75.4	100	97.3	90.9	76	91.1
91.1	62.6	62.6	82.6	81.8	78.8	71.4	87.5	75.1	82.6	80.2	90.4	97	88	68.7	86.8
115	71.4	71.4	311	4420	464	59.2	451	263	234	1960	3550	13.3	122	141	379
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373	459	459	1050	33800	1250	540	2570	956	624	2930	8420	38.7	309	445	2040
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379	347	347	1220	34800	1160	786	3220	679	687	1550	5650	47.5	352	378	2540
405	388	388	1260	34100	1130	798	3610	678	782	1460	5740	52.5	382	438	2570
671	416	416	2050	49500	1610	1440	4980	1270	1250	2380	7120	72.4	541	617	3860
202	175	175	661	18100	558	380	1710	373	391	785	2230	22.4	167	180	1140
399	356	356	1080	30500	935	759	3220	677	633	1280	4420	38.4	324	323	2230
338	295	295	1110	26000	766	661	2860	753	610	1220	3660	34.6	288	227	1910
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340	277	277	960	20500	630	578	2340	614	502	936	3090	33.8	279	230	1700
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104	106	106	101	86.9	105	106	102	105	101	87	84.3	107	113	110	107
98.1	99.4	99.4	95.4	91.3	97.9	98.3	97.3	98.1	97.1	87.6	83.4	97.5	95.9	94.3	94.6
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R102-5	R102-6	R102-7	R106-1	R106-2	R127-1	R127-2	R127-3	W-208-4-1	W-208-4-2	W-208-4-3	W-208-4-4	W-89-1	R-123-1	R-123-2	R-123-3	R-123-4	R-125-1
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
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24004257	24004264	24004269	24004283	24004293	24004353	24004362	24004368	24004234	24004311	24004335	24004343	24004326	24004192	24004197	24004202	24004207	24004188
14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Clay Loam	Sand	Sand	Loamy Sand	Silty Clay Loam	Loamy Sand	Sandy Loam	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand	Sandy Loam	Loamy Sand	Sandy Loam	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand
Vegetation	None	Vegetation	Vegetation	Stones	Stones	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	Stones	Stones	Stones	Vegetation	Crushed Brick	Brick	None	None	None	None	None	Vegetation	Vegetation	Vegetation	Vegetation	Brick	Brick
22	11	17	16	19	9.9	12	12	12	10	11	14	7.3	11	9.1	10	11	12
-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	07/04/2021		-	07/04/2021	07.04.21	-	07/04/2021	07.04.21	-	07.04.21	-	-	-	07/04/2021	-	07/04/2021	08.04.21
-	Marcin Magdziarek	-	-	Barbara Urbanek-Walsh	Emily Anderton	-	Barbara Urbanek-Walsh	Emily Anderton	-	Emily Anderton	-	-	-	Marcin Magdziarek	-	Marcin Magdziarek	Emily Anderton
-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected
-	Trace	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected
-	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected	Not Detected
-	Soil containing ACM debris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.31	2.9	7.74	12.1	8.96	4.74	6.55	3.1	2.53	2.86	2.62	4.1	1.81	14.7	5	5.59	7.1	5.83
8.5	11.4	8.69	8.75	8.75	9.13	9.54	9.6	9.71	10.3	9.65	9.12	9.26	8.98	9	8.77	8.96	9.58
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12.1	6.16	20.3	9.49	11.2	20	14.2	14	16.8	11.7	20	20.2	42.3	14.6	26	11	10.8	16.7
0.717	0.729	8.76	0.267	0.376	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.397	0.841	0.24	<0.2	0.0928	0.531	<0.2
39.1	849	99.7	109	62.1	71.6	132	152	107	32.5	125	90.8	412	70.9	93.9	82	132	113
17.4	61	64.9	18.3	14	51.5	25	30.3	27	37.6	57.8	53.4	136	18.9	72.3	16.8	20.4	25.8
51100	145000	242000	74500	35600	207000	161000	214000	254000	185000	218000	194000	126000	94300	228000	86700	71700	127000
142	222	1750	90.1	79.5	74.1	75.7	94.3	54.3	113	102	162	539	92.8	95.9	72	91.2	71.8
1790	57700	9990	8270	3470	10200	12300	14700	10200	6830	11700	13100	24100	5680	10600	8650	6870	13000
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33.6	9.45	41	20.4	21.8	40.1	24.7	29	20.6	21.7	30.6	30	20.2	20.6	50.9	15.7	14.9	19.7
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85.4	115	96.5	58.4	79.1	78.5	94.5	92.2	70.5	86.4	108	82.8	78.4	87.9	77.4	74.5	85.8	88.1
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51300	376000	98800	108000	237000	150000	144000	137000	94500	104000	107000	53400	2240000	118000	49400	99100	87900	110000
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51300	376000	98800	108000	237000	150000	144000	137000	94500	104000	107000	53400	2240000	118000	49400	99100	87900	110000
89.8	87.8	88.4	86.5	91.1	87.9	88.3	86.7	89.1	83.6	89	85.9	85.5	90.8	88	88.2	87.8	88.7
93.6	93.2	88.8	92	93.5	93.5	85.9	91.3	94.2	80.8	86.7	83.9	90.9	89.9	93.7	92.8	92.8	92.5
94.5	97.7	89.6	94.4	91.3	98.8	80.6	85.7	96.7	79.8	77.4	80.5	93.6	92.1	96.1	94.4	92.8	93.1
98.8	96.5	83.6	95.9	85	85	71.9	85.1	99.8	70.1	78	71.9	106	83.7	102	98.1	87.1	100
93.2	90.6	71.5	95.9	79.5	89.5	76.8	81.5	97	77.2	82.9	80.2	108	85.9	97.3	95.3	86.7	99.4
134	109	126	591	203	237	124	171	267	134	420	95.9	885	123	249	201	116	132
89.7	114	18.2	903	183	218	<60	119	157	60.3	1150	47	<60	137	143	193	66.8	96.8
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178	108	109	1100	265	378	104	144	191	113	916	74.7	3830	296	199	274	115	130
668	1110	755	9330	2500	2380	785	1010	1460	790	13400	540	27900	1740	1310	1720	833	1050
537	968	750	6780	1770	1700	675	852	1130	624	9570	442	28800	1270	1010	1330	652	873
440	616	817	4470	1020	986	448	556	773	353	5000	243	18600	773	788	911	577	682
631	702	949	4290	1050	706	479	682	813	362	3380	255	18300	667	855	973	587	762
659	1050	1790	6730	1550	1060	748	919	1100	524	6240	371	24400	768	1190	1330	934	1030
236	316	487	2170	482	369	242	301	349	205	2080	141	9580	272	385	451	287	359
354	474	974	3850	928	840	422	543	632	296	3400	217	19700	641	685	785	529	600
327	501	743	3420	734	716	436	517	543	279	3140	212	14700	585	639	725	439	513
78.5	124	120	784	163	127	<115	<115	130	45.1	453	37.9	2470	101	139	154	66.9	120
278	453	656	2960	709	662	389	504	507	238	2080	195	12700	550	605	690	385	493
4850	7040	8820	51300	12800	12600	5230	6870	8910	4510	58200	3220	199000	8970	8910	10700	6050	7360
107	106	110	107	112	109	111	108	107	109	111	111	107	111	108	110	114	111
96	94.7	96.7	94.8	98.2	95.3	96.9	95.8	97.7	98.7	96.1	96.6	95.4	96.8	96	96.9	99	95.3
102	106	98	106	100	101	109	96.8	102	101	101	101	102	99.5	105	101	98.1	99.9
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W-186-1	W-186-2	W-186-3	W-186-4	3CBB-1	3CBB-2	3CBB-3	3CBB-4	R108-1	R112-1	R112-2	R112-3	R113-1	R113-2	R138-1	R138-2	R138-3	R138-4
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
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14.2	14.2	14.2	14.2	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown
Sandy Loam	Sandy Loam	Sandy Silt Loam	Sandy Loam	Loamy Sand	Sand	Sand	Clay Loam	Loamy Sand	Loamy Sand	Sandy Loam	Sandy Loam	Sandy Loam	Sand	Loamy Sand	Loamy Sand	Sand	Sand
Stones	Stones	Stones	Stones	Vegetation	Vegetation	Vegetation	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones	None	Vegetation
None	None	None	Vegetation	Stones	Stones	Stones	Vegetation	Brick	Vegetation	None	Vegetation	Vegetation	Stones	None	Concrete/Aggregate	Stones	Stones
10	11	11	13	18	15	7.8	15	4.2	16	9.5	6.1	14	11	10	9.1	8.8	10
-	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-
-	08/04/2021	-	07/04/2021	-	20/04/2021	-	20/04/2021	-	19/04/2021	-	19/04/2021	-	20/04/2021	20/04/2021	-	20/04/2021	-
-	James Richards	-	Barbara Urbanek-Walsh	-	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-	James Richards	-	Paul Poynton	-	Agnieszka Chelmowska	Agnieszka Chelmowska	-	Agnieszka Chelmowska	-
-	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-
-	None	-	-	-	-	-	-	-	None	-	None	-	-	-	-	-	-
-	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	<0.001	-	-	-	-	-	-	-	<0.001	-	<0.001	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Fibre bundles in soil	-	-	-	-	-	-	-	Fibre bundles in soil	-	Loose fibres in soil	-	-	-	-	-	-
29.5	16.2	30.5	13.7	4.88	4.22	4.72	4.22	2.03	3.97	4.31	5.84	7.93	5.15	6.14	4.5	2.95	3.5
9.48	10.7	10.4	9.28	8.15	8.46	8.57	8.26	9.27	12.3	12.6	9.89	8.8	8.67	10.2	12.6	12.1	11.9
2.01	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1.25	1.01
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	18.1
9.01	7.55	10.5	6.87	11.6	13.7	10.2	11	5.96	7.1	9.92	7.76	18.6	16.4	5.76	9.15	6.59	14.6
0.607	<0.02	0.626	<0.2	0.319	0.271	<0.02	0.113	0.178	0.234	0.925	0.278	0.803	0.576	0.314	<0.02	0.527	0.457
204	97.9	262	171	27.9	63	156	71.1	320	71.5	92.9	92.8	45.6	40.3	623	360	477	403
23.7	14.5	21.9	19.7	20.7	20	24.7	20.8	19.7	16.2	23.2	19.4	33.1	28.3	21.6	45.2	25.8	33.4
106000	80400	123000	91500	31100	35900	92700	43700	147000	53400	63800	74600	44200	37500	157000	156000	159000	167000
183	90.8	191	70.7	36.3	28.5	22.1	29.1	66.3	30.4	94.9	42.3	94.5	71.8	54.6	15.6	56.1	75
13400	10500	13600	12900	1020	2280	8510	4100	21600	6800	10500	13300	16600	16700	35900	29700	43500	36700
<1	<0.1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
22.4	12.6	16.4	18	28.5	25.8	22.3	22.7	12.6	13.5	13.4	17	23.4	22.8	10.3	11.9	10.4	19.8
<10	3.72	14.8	<10	<1	<1	3.19	1.76	6.44	3.61	5.11	4.75	7.98	7.25	10.2	8.8	11.6	20.8
310	165	413	240	42	55.6	148	75.6	410	129	152	162	44.2	40.7	647	402	813	781
486	279	502	216	162	146	241	127	213	113	685	184	1120	545	328	95.4	436	351
<0.01	<0.01	0.0112	<0.01	<0.01	<0.01	0.0651	0.0118	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	0.011	0.0111
<0.01	<0.01	0.0112	<0.01	0.0121	0.0118	0.0109	0.0354	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0112	0.011	0.011	<0.01
<0.015	<0.015	<0.015	<0.015	0.0363	<0.015	<0.015	<0.015	<0.015	0.0476	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	0.0484	<0.035	0.076	0.0472	<0.035	0.0476	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
145	76.8	105	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
145	76.8	105	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
42.5	42.5	21.9	22.7	77.7	85.2	83.1	76.6	93.4	108	85.7	110	76	65.9	78.9	73.7	100	104
11.1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
75.5	41.8	60.5	25.3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
58.8	35	44.8	20.7	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
3520	3210	4910	2070	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	2700	<1000	<1000
29900	18800	35700	9400	<1000	<1000	1800	<1000	<1000	4530	3180	<1000	8020	3830	2350	11300	6170	3770
80400	52100	76300	22300	7010	8000	20400	6000	19200	17900	12100	15400	56100	28600	19800	62900	49500	36100
22500	14800	23200	4510	<1000	<1000	3420	<1000	6760	2380	3640	4230	20700	3840	7520	23300	21000	12900
136000	89300	141000	38400	8510	9480	25600	7550	26900	25400	19300	20300	85900	36900	30100	100000	76900	53000
371000	219000	396000	121000	24100	31400	78400	50300	51500	35200	37300	135000	140000	83900	84000	183000	148000	110000
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
38.9	23.7	30.2	13.8	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
15800	7790	12700	2270	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
9720	6010	10800	3800	<1000	<1000	<1000	<1000	<1000	<1000	<1000	2600	1370	<1000	<1000	1340	<1000	<1000
53000	34000	62600	15300	1300	1540	2530	1810	1630	<1000	2220	44200	3840	2980	6070	16800	15200	12900
139000	74500	153000	56000	11300	15600	42600	27300	20900	8110	14400	62700	45600	32800	42200	58600	50100	39300
17000	7250	16000	5610	2970	4720	7680	13700	2060	<1000	1030	4770	3320	10500	5510	5480	4980	4940
2410	1240	2660	1120	<1000	<1000	1660	3150	<1000	<1000	<1000	<1000	<1000	1080	<1000	<1000	<1000	<1000
235000	130000	255000	83000	15600	21900	52800	42800	24600	9780	18000	115000	54100	47000	54000	82500	71000	57400
371000	219000	396000	121000	24100	31400	78400	50300	51500	35200	37300	135000	140000	83900	84000	183000	148000	110000
89.6	80.8	83.2	88.8	87.9	91.1	91.2	89.2	97.3	83.8	87.8	81.2	90.7	87.5	89.1	89.9	92.1	91.1
89.9	93.4	85.1	91.2	92.2	94.3	94.4	93	102	88.5	89.9	84.8	95	95.5	94.8	95.1	94.6	95.4
91.5	91.8	82.5	93.8	86.1	89.3	87.9	87.4	97.3	88	84.4	81.7	90.1	91	88.1	88.8	90.5	90.8
83	86.1	74.3	81.1	71	72.9	73.5	72.2	80.3	73.2	66.5	72.8	74.3	70.5	72.9	73.2	74	76.2
72.8	80.3	76.6	80.3	79.1	79.2	82	80.6	86.1	76.8	68.9	79.4	78.4	75.5	81	81.3	82.3	83
12200	7570	6710	1670	17.5	11.5	<9	14.2	9.72	42.3	48.7	150	21.6	<450	154	260	72	63.4
1780	1650	1070	461	27.3	<12	<12	17.5	<12	20	<12	145	<12	<600	57.1	94.2	35.5	31.6
430	347	258	69.5	<8	<8	<8	<8	<8	10	12.5	<40	<8	<400	58.6	60.2	16.1	16.5
1440	1260	784	240	12.4	<10	<10	<10	<10	13.4	<10	101	<10	<500	45	80.2	17.6	21.8
9370	8910	5140	1970	144	73.5	22	91.6	69.5	170	155	928	60	<750	967	2790	658	680
2400	2710	1290	580	50.8	<16	<16	24.1	20	44.5	31.1	481	<16	<800	189	249	105	93.7
13600	14400	8600	3400	350	162	51.3	280	164	310	313	1580	101	<850	1890	3460	1130	1060
10000	10300	6460	2550	271	140	45.2	239	147	270	272	1150	81.9	1110	1530	2570	872	796
5340	6460	3590	1690	173	107	33.5	158	118	187	171	770	56.1	<700	1350	1740	597	511
5250	5020	3350	1570	179	121	43.8	160	130	208	190	992	71.4	800	1410	2150	742	659
6770	8300	4740	2030	268	223	71.8	156	232	403	373	1270	161	1540	1970	1670	1110	1030
2180	2770	1730	651	79	74.1	26.7	86.6	92.3	122	98.9	355	41.3	<700	916	986	360	352
4060	4650	2740	1500	177	127	38.5	179	134	192	178	732	72.8	1010	1250	1380	560	389
2940	4510	2360	1260	224	156	50.6	206	167	209	199	641	88.1	1140	1370	1740	726	656
738	741	328	246	40	27.4	<23	37.6	26.9	33.4	37.3	<115	<23	<1150	280	371	129	141
2810	3630	2010	1150	167	118	42.4	164	125	192	176	562	66	<1200	1100	1390	559	520
81300	83300	51200	21000	2180	1340	426	1810	1440	2430	2260	9850	822	<5900	14500	21000	7680	7020
105	103	101	92.3	105	108	104	104	106	107	104	104	117	105	106	100	106	103
97	93.5	93.9	87.9	99.2	97	97.9	99.4	98.4	97.1	96.4	98.2	95.8	98	96.7	96	99.3	99.4
92.4	89.1	93.9	82.2	97	93.8	99.9	95.2	102	98.5	96.9	97	98.2	94.2	94.8	92.8	100	96.7
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180	<180
<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140	<140
<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80	<80
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
3400	2720	2170	614	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260	<260
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800	<800

R139-1	W182-1	T8-1	T9-1	T9-2	T10-1	T10-2	T10-3	T13-1	T13-2	T14-1	T14-2	U10-1	U10-2	U11-1	U11-2	V6-1
0.20-0.20	0.20-0.20	0.50-0.50	0.50-0.50	1.50-1.50	0.30-0.30	1.00-1.00	2.90-2.90	0.40-0.40	1.10-1.10	0.30-0.30	1.40-1.40	1.00-1.00	1.50-1.50	1.00-1.00	1.40-1.40	0.80-0.80
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
13/04/2021	13/04/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	02/02/2021	02/02/2021	02/02/2021	02/02/2021	03/02/2021
15/04/2021	15/04/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021
20/04/2021	20/04/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021
22/04/2021	22/04/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021
210415-79	210415-79	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77
24079888	24079846	23666078	23666087	23666105	23666051	23666060	23666068	23666114	23666124	23666133	23666144	23666173	23666182	23666154	23666163	23666040
10.5	10.5	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Black	Black	Black	Dark Brown	Grey	Grey	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black
Sand	Loamy Sand	Sandy Loam	Sand	Sand	Sand	Sand	Silt Loam	Sand	Sandy Loam	Sandy Loam	Sand	Sandy Loam	Sand	Sand	Sand	Sand
Vegetation	Stones	Stones	None	Stones	Stones	Stones	Stones	None	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Stones	None	None	Stones	None	Vegetation	Vegetation	None	Stones	N/A	None	None	Crushed Brick	Vegetation	Vegetation	None	None
5.8	9.8	18	4.4	3.8	1.1	11	35	9.7	14	12	32	10	14	1.6	4.4	11
<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
19/04/2021	-	-	10/02/2021	-	10/02/2021	-	10/02/2021	10/02/2021	-	11/02/2021	-	10/02/2021	-	09/02/2021	-	-
Paul Poynton	-	-	Christian Hallam	-	Christian Hallam	-	Christian Hallam	Christian Hallam	-	Paul Poynton	-	Christian Hallam	-	James Richards	-	-
<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
None	-	-	-	-	None	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
Detected	-	-	Not Detected	-	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
Not Detected	-	-	Not Detected	-	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-
ACM fragment typical of asbestos cement and loose fibres in soil	-	-	-	-	Fibre bundles in soil.	-	-	-	-	-	-	-	-	-	-	-
7.78	7.88	14.8	2.14	0.828	34.8	35	-	24.3	7.57	36.5	84	13.1	28.1	6.24	1.64	24
9.23	9.31	11.8	12.7	12.7	10.9	11.8	11.7	10	8.67	9.03	9.22	9.58	10.2	10.5	10.9	11.7
1.05	<1	1.32	<1	3.88	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3.85
<12	<12	<12	<12	<12	<12	<12	30.6	<12	<12	<12	<12	<12	<12	<12	<12	<12
8.3	9.06	6.55	<6	<6	5.87	<6	<6	2.47	6.48	<6	6.93	6.33	7.37	3.37	<6	<6
0.15	0.405	0.204	1.09	<0.2	0.783	<0.2	0.315	0.0984	<0.2	0.328	<0.2	0.317	<0.2	0.385	<0.2	<0.2
20.4	129	617	841	1090	214	59.9	31.4	20	42.9	10.3	12.4	42.9	95.3	144	302	342
11.9	22.7	19.7	18.4	19.6	15.4	<14	18.6	5.72	<14	<14	29	19.7	15.6	14.8	<14	23.8
41500	90200	132000	134000	162000	59900	20900	17400	12400	19600	14700	14800	60300	47000	85900	76300	92100
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87.8	84.9	86	94.9	101	87.7	101	97.6	89.1	86.7	83.9	71.7	93.6	85.3	93.3	80.1	80.8
84.2	79.3	87.2	96.6	101	84.8	104	85.8	85.9	90.2	84.1	52.4	96.9	85.1	94.7	80.6	86.2
69.9	70	97.7	101	104	76.6	90.9	53.6	78.3	116	79.4	38.7	96.2	77.9	95.8	79.3	77
78.7	75.6	93.2	110	99.3	71.3	77.5	29.7	78.3	111	70.8	38	98.1	71.1	101	77.8	73.8
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115	107	104	99.5	88.9	111	103	95.3	96.1	106	107	107	104	124	113	152	108
97.5	97.8	97.1	98	96.4	94.1	92.1	78	91.9	97.6	94.9	94.6	96.9	101	102	102	97.3
99.7	95.8	86.6	93.3	87.1	74.4	70.6	52.9	72.7	87.1	71.2	70.8	86.1	92.5	88.8	97.2	82.2
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V7-1	V8-1	V8-2	V9-1	V9-2	V10-1	V10-2	V11-1	V11-2	R105-1	R105-2	R105-3	R105-4	R105-5	R105-6	R105-7	R105-8
1.00-1.00	0.50-0.50	2.00-2.00	0.90-0.90	1.50-1.50	0.30-0.30	1.50-1.50	0.50-0.50	1.60-1.60	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
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04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	04/02/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021
10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	10/02/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021
26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	26/02/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021
210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210204-77	210429-80	210429-80	210429-80	210429-80	210429-80	210429-80	210429-80	210429-80
23666033	23666013	23666022	23666213	23666003	23666192	23666203	23665991	23666096	24176257	24176304	24176309	24176314	24176324	24176330	24176337	24176343
8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2
Black	Black	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Dark Brown	Black	Dark Brown
Sand	Sand	Sand	Sand	Sand	Sandy Loam	Sand	Sand	Sand	Sandy Silt Loam	Sandy Silt Loam	Sandy Silt Loam	Sandy Loam	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Vegetation	Vegetation	Vegetation	Vegetation	Vegetation	None	Vegetation	Vegetation	None	Vegetation	Vegetation	Vegetation	Vegetation	None	None	Vegetation	None
1.6	4	6.8	9.7	5.3	12	13	0.38	14	7.8	11	12	16	15	10	12	13
-	-	-	-	-	-	-	-	-								
09/02/21	09/02/21	-	10/02/2021	-	09/02/2021	-	10/02/2021	-	05/05/2021	-	05/05/2021	-	05/05/2021	-	05/05/2021	-
Christian Hallam	Christian Hallam	-	Christian Hallam	-	Paul Poynton	-	Christian Hallam	-	James Richards	-	Barbara Urbanek-Walsh	-	Paul Poynton	-	Barbara Urbanek-Walsh	-
-	-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-	-								
-	-	-	-	-	-	-	-	-								
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15.7	20.2	6.22	2.45	12.5	22.9	9.09	9.67	42.8	2.16	9.86	5.29	8.78	6.98	6.64	6.52	9.81
9.55	11.5	11.5	10	10.9	10.7	11.6	11	11.1	10.1	9.7	10.3	8.9	8.45	9.17	8.6	8.84
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0.473	0.663	<0.2	<0.2	<0.2	0.538	0.201	0.812	<0.2	3.44	16.2	11.2	20	10.7	10.4	7.57	10.5
69.4	319	390	70.9	146	94.3	82.7	127	56.5	55.5	207	271	146	254	149	180	180
14.6	19.2	20	<14	18.2	25.1	<14	13.1	<14	14.8	68.4	60.9	80.3	48.8	43.8	32.4	47.2
16200	79900	143000	29400	79000	74200	38300	68300	44800	84300	396000	254000	402000	294000	224000	186000	246000
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2770000	89900	66700	34300	46200	581000	146000	49100	98800	99400	146000	151000	115000	63900	57800	52900	53300
80.4	84.8	97.5	78.3	96.8	86.4	79	93.1	96.8	77.7	79.8	87.6	80.1	80.2	82.9	86.4	83.3
83.4	86.7	94.9	80.7	91.7	84	83.4	92.8	95.7	77.8	77.5	82.6	77.7	77.6	78.7	79	80.4
90.9	88.8	94.3	77.1	90.3	86.5	87.2	97.7	98.2	84.6	86.2	91	86.1	88.1	84.8	84.8	86.3
75.5	79.3	97	70.8	92.9	99.4	82.5	99.9	97.2	66.9	72	80.2	76.8	71.2	64.8	71	70.8
70.6	74.2	104	70.1	98.5	95.7	77.4	101	97.2	45.1	49.5	53.9	56.5	49.5	42.4	47.8	53.6
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1800	91.5	<10	91.6	302	486	153	267	132	70.8	53.9	49.3	47.3	68.2	48.1	69.2	45.3
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2090	2460	396	1950	13100	7750	2550	3590	2690	794	745	620	547	601	365	428	598
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614	1200	273	1060	5040	5950	1660	1680	1880	254	257	233	271	337	194	244	281
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747	1510	448	1440	5490	8620	2220	2240	1960	421	435	371	443	739	366	474	557
274	515	142	520	1930	2820	791	714	741	106	121	109	121	222	103	153	169
519	912	330	933	4280	4850	1510	1430	1710	176	178	150	194	360	162	207	270
437	756	276	822	3530	4020	1270	1130	1360	140	139	105	127	296	126	148	236
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374	663	277	737	2920	3390	1110	1010	1150	162	175	134	168	325	147	213	252
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116	112	119	107	116	104	106	102	107	110	106	111	110	109	107	109	118
97.9	98.8	99.9	98.7	99.9	97.6	97	95.3	97.6	97.4	97.8	97.6	98.3	98	97	98.2	84.7
87.5	89.8	98.1	87.3	94.4	86.8	88.3	77.2	87.8	84.4	101	101	99	98.8	99.4	76.4	70.1
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R110-1	R123-5	R123-6	W200-1	W201-1	W201-2	W201-3	W201-4	R104-1	R104-2	R104-3	R107-1-1	R107-1-2	R107-2-1	W121-1	W123-1
0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20	0.20-0.20
SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021	27/04/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021	08/04/2021
29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021
29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	29/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021	10/04/2021
10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	10/05/2021	19/04/2021	19/04/2021	19/04/2021	19/04/2021	19/04/2021	19/04/2021	19/04/2021	19/04/2021
210429-80	210429-80	210429-80	210429-80	210429-80	210429-80	210429-80	210429-80	210410-54	210410-54	210410-54	210410-54	210410-54	210410-54	210410-54	210410-54
24176298	24176287	24176293	24176282	24176348	24176264	24176270	24176276	24055215	24055220	24055224	24055228	24055232	24055236	24055240	24055244
10.2	10.2	10.2	10.2	10.2	10.2	10.2	10.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Black	Black	Black	Black	Black	Black	Dark Brown	Dark Brown
Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Loam	Sandy Clay Loam	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand	Loamy Sand
Stones	Stones	Stones	Stones	Stones	Stones	Glass & Stones	Stones	Stones	Stones	Stones	Stones	Stones	Vegetation	Stones	Stones
Vegetation	None	None	None	Vegetation	Vegetation	None	Vegetation	None	None	None	None	None	Stones	Vegetation	None
2.3	0.39	0.41	10	4.7	4.3	4.2	4.8	21	26	20	7.5	11	39	8.5	8
-	-	05/05/2021	05.05.21	05/05/2021	-	05/05/2021	-	14/04/2021	-	14/04/2021	-	14/04/2021	-	14/04/2021	-
-	-	Barbara Urbanek-Walsh	Emily Anderton	Barbara Urbanek-Walsh	-	James Richards	-	James Richards	-	James Richards	-	James Richards	-	James Richards	-
-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
-	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-
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-	-	-	-	-	-	-	-								
0.883	17.2	7.74	1.95	4.55	10.5	3.65	6	11.3	9.53	10.1	4.09	3.41	23.1	4.22	4.4
9.18	9.26	9.23	9.25	8.9	8.7	8.98	8.98	10.5	10.8	10.9	9.01	8.62	8.05	9.01	8.88
-	2.95	2.43	<1	<1	<1	<1	<1	20.9	21.3	13.6	1.9	9.32	14.9	<1	<1
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1.66	2.23	2.04	1.38	0.463	0.682	0.71	0.614	6.24	13.2	8.99	8.48	8.01	16.9	0.118	0.597
771	182	97	124	75.4	40.6	73.7	92.5	185	<9	168	259	184	20.4	236	95
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77.7	74.3	76.5	81.4	79.5	76.8	82.8	78.7	93.5	84.1	94.9	100	104	97.7	98.2	102
88.1	72.7	70.3	78.3	74.6	72.2	90.2	75.5	89.5	75.3	90.8	99.5	105	96.2	94.4	103
88.3	91.5	83	89.4	84.1	79.5	105	89.4	56.8	39.2	53.6	76.2	78.5	71.3	78.7	85.7
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137	1950	3160	285	228	119	239	216	173	142	218	264	285	226	55	231
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65.9	94.6	161	20.6	27.3	13.2	31.1	<40	22.9	27.6	41.8	38.6	40.3	27.6	118	36.3
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427	6910	18000	974	828	403	809	658	372	312	539	349	410	523	262	556
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980	4800	11700	579	554	296	518	366	291	141	255	232	298	131	401	460
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1350	8050	17300	822	897	407	848	629	497	250	398	388	375	174	692	786
366	1220	2850	175	151	67.6	167	134	72.2	54.6	65.6	70.6	84.1	44.1	115	106
1680	6820	15700	805	805	398	813	613	451	233	357	368	340	193	617	657
13900	109000	246000	12100	11700	5670	11100	8890	6930	3490	6740	5160	6150	3880	6560	8280
108	109	108	111	104	109	114	109	104	101	105	105	105	106	106	106
97.7	96.7	95.8	96.4	117	97.7	98	96.3	98.6	98.6	98.5	98.5	100	97.3	97.9	98
103	96.4	94	97.4	86.5	97.3	98.5	93.1	99.2	98.3	99.8	100	102	95	96.5	97.5
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R-CSP-1	R-CSP-2	T31-1	T31-2	T32-1	T32-2	T31-3	T33-1	AE30-2	AE30-1	AC31-1	AC31-2	AD31-1	AD34-1	AD31-2	AD36-1	AD36-2	Q36-3	R35-3	R35-1
0.2	0.2	0.5	2.1	0.3	1.6	2.8	0.2	1.4	0.3	0.3	1.6	0.6	0.5	1.1	0.6	1.5	1.0	1.5	0.2
SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
18-Jun-2021	18-Jun-2021	02-Jun-2021	02-Jun-2021	02-Jun-2021	02-Jun-2021	02-Jun-2021	02-Jun-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021
Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Grey	Grey	Grey	Brown	Brown	Brown	Brown	Brown	Brown			
Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones												
Gravel	Gravel	Sand	Sand	Sand	Sand	Sand	Sand												
2.2	2.2	19	11	11	9.5	13	6.9	2.2	2.8	1.4	5.4	8.1	5.5	7.5	5.5	8.2	3.1	3.8	3.3
									No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected		No Asbestos Detected		
		2.0	4.7	1.8	1.1	0.98	1.7	< 0.40	0.55	< 0.40	1.4	1.4	4.3	3.5	6.0	4.8	0.76	1.5	2.2
11.2	11.6	8.1	10.6	10.9	11.7	10.3	10.3	> 12.0	12.0	11.1	10.8	11.7	10.4	10.1	9.4	8.4	> 12.0	> 12.0	11.9
< 0.50	< 0.50	< 0.50	0.50	1.5	0.90	< 0.50	< 0.50	< 0.50	1.2	< 0.50	2.7	6.3	11	5.9	0.50	9.0	< 0.50	< 0.50	< 0.50
0.78	0.93	8.6	0.78	< 0.50	0.72	0.55	1.6	0.68	< 0.50	< 0.50	< 0.50	< 0.50	3.8	1.1	1.2	1.9	0.63	< 0.50	< 0.50
8.8	13	17	19	23	< 1.0	13	75	15	18	22	24	18	11	15	10	9.7	28	19	28
0.25	0.4	0.25	0.23	0.32	0.34	0.15	1.5	< 0.10	0.41	0.18	0.41	0.42	0.5	0.36	0.26	0.25	0.11	0.25	0.44
62	66	29	72	150	400	32	42	470	320	62	120	500	78	85	20	18	640	430	180
6.3	8.5	31	15	19	30	48	76	440	210	47	73	420	220	73	140	280	280	330	49
13000	16000	27000	19000	24000	24000	28000	22000	33000	26000	7200	10000	32000	16000	19000	23000	18000	16000	16000	16000
35	55	23	24	62	27	38	31	35	33	8.9	47	75	54	99	38	59	39	72	26
2900	3200	3100	5600	16000	31000	9500	38000	27000	19000	5000	7900	24000	4200	4800	1300	430	32000	23000	4800
< 0.10	0.11	0.32	0.15	0.48	0.67	2.2	0.15	0.43	0.27	< 0.10	0.15	0.38	0.15	0.34	0.17	0.27	1.1	0.52	0.22
11	12	27	25	28	36	14	170	15	13	5.7	16	31	23	29	29	30	30	23	120
0.67	< 0.20	0.51	1.5	0.97	1.7	< 0.20	2.6	< 0.20	< 0.20	< 0.20	1.1	< 0.20	0.95	1.5	0.9	1.1	< 0.20	< 0.20	< 0.20
65	92	37	130	250	380	64	< 5.0	500	990	160	290	350	71	130	30	26	550	290	100
110	160	66	91	80	81	49	160	37	67	37	280	120	130	200	73	76	79	81	57
< 0.020	< 0.020	1.7	1.1	< 0.020	< 0.020	< 0.020	< 0.020	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.54	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020												
< 0.020	< 0.020	0.19	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020												
< 0.10	< 0.10	1.9	1.1	< 0.10	< 0.10	< 0.10	< 0.10												
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	49	25	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	23000	150	< 1.0	< 1.0	< 1.0	170	< 1.0	< 1.0	< 1.0	< 1.0	400	140	< 1.0
<1000	<1000	<1000	<1000	21000	<1000	<1000	38000	400	< 1.0	< 1.0	< 1.0	330	< 1.0	< 1.0	< 1.0	< 1.0	770	350	< 1.0
54000	<1000	<1000	16000	170000	21000	10000	200000	45	< 1.0	< 1.0	< 1.0	58	24	< 1.0	< 1.0	< 1.0	740	2100	59
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	34	28	< 1.0
54000	<1000	5000	16000	190000	21000	10000	270000	590	< 5.0	< 5.0	< 5.0	570	24	< 5.0	< 5.0	< 5.0	2000	2600	59
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	49	50	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	41	< 1.0	< 1.0	< 1.0	< 1.0	44	45	< 1.0	< 1.0	25	24	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	43	44	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	47	48	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	26	26	< 1.0	< 1.0	170	< 1.0	< 1.0
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	23	24	< 1.0	< 1.0	150	11	< 1.0
180000	<1000	<1000	82000	540000	95000	43000	420000	19	< 1.0	< 1.0	< 1.0	< 1.0	48	49	< 1.0	< 1.0	170	270	34
<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
<1000	<1000	0	0	0	0	0	0										510	310	34
180000	<5000	5000	82000	540000	95000	43000	420000	60	< 5.0	< 5.0	< 5.0	< 5.0	280	290	< 5.0	< 5.0	2500	2900	93
230	310	<100	<100	<100	<100	<100	<100	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
<100	160	<100	<100	<100	<100	<100	<100	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
<100	<100	<100	<100	<100	<100	<100	<100	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
<100	<100	<100	<100	<100	<100	<100	<100	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
630	910	280	1500	480	980	120	820	0.58	< 0.10	< 0.10	< 0.10	0.56	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
150	260	<100	410	<100	190	<100	240	0.19	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1400	1900	350	3100	<1000	2300	270	1500	1.8	0.34	< 0.10	< 0.10	1.1	0.22	0.16	0.1	0.11	0.2	0.68	0.37
1000	1200	230	2400	990	1900	150	1300	1.7	0.35	< 0.10	< 0.10	1.1	0.17	0.15	< 0.10	0.14	0.18	0.5	0.24
600	850	<100	1100	580	1200	<100	1300	0.88	0.22	< 0.10	< 0.10	0.62	0.12	< 0.10	< 0.10	< 0.10	0.11	0.29	0.16
550	840	110	1100	690	1400	<100	1400	0.78	0.4	< 0.10	< 0.10	0.82	0.2	< 0.10	< 0.10	0.25	0.14	0.32	0.2
840	1100	<100	<2000	<1000	2400	<100	1600	1.4	0.4	< 0.10	< 0.10	0.97	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.45	< 0.10
480	420	<100	610	550	690	<100	1400	0.51	0.19	< 0.10	< 0.10	0.39	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.17	< 0.10
560	790	<100	1600	760	1600	<100	1300	1.1	0.3	< 0.10	< 0.10	0.71	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.31	< 0.10
610	340	<100	1600	610	1400	<100	1400	0.77	< 0.10	< 0.10	< 0.10	0.58	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.37	< 0.10
<100	<100	<100	<100	<100	<100	<100	950	0.15	< 0.10	< 0.10	< 0.10	0.14	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
490	370	<100	1200	730	1200	<100	1100	0.72	< 0.10	< 0.10	< 0.10	0.61	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.24	< 0.10
7540	9760	<2000	17000	7400	15000	<2000	14000	11	2.2	< 2.0	< 2.0	7.6	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	3.3	< 2.0
< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	2.9	11	1.5	< 1.0	< 1.0	< 1.0	72	31	< 1.0	10	< 1.0	< 1.0	< 1.0
< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5.3	6.2	1.3	< 1.0	< 1.0	< 1.0	31	11	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1	< 1.0	< 1.0	< 1.0	< 1.0	9	3.1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
< 1.0	< 1.0																		
< 1.0	< 1.0																		
230	< 1.0																		

Llanwern Controlled Waters Risk Assessment

Soil Screening

Project: 5111373

Determinand	Method	Units	LOD	Re-use Screening Criteria 40% Infiltration Rainfall for Commercial Areas	Re-use Screening Criteria 40% Infiltration Rainfall for Residential Areas	MAX
Sample ID						
Depth						
AGS Id						
Sample Type						
Sampled Date						
Sample Received Date						
Final Instruction Date						
Report Completed Date						
SDG						
Lab Sample Number						
Sample Temperature						
Carbon						
Soil Organic Matter (SOM)	TM132	%	0.35			
Metals (Solids)						
Arsenic	TM181	mg/kg	<0.6	11468.786	2902.69	276.00
Cadmium	TM181	mg/kg	<0.02	330.551	83.66	9.23
Chromium	TM181	mg/kg	<0.9	42699.08	10806.91	876.00
Copper	TM181	mg/kg	<1.4	2,042	516.88	318.00
Lead	TM181	mg/kg	<0.7	71,246.37	18032.07	787.00
Mercury	TM181	mg/kg	<0.14	595.86	150.81	2.69
Nickel	TM181	mg/kg	<0.2	52,109.37	13188.60	169.00
Selenium	TM181	mg/kg	<1	3,177.88	804.31	40.20
Vanadium	TM181	mg/kg	<0.2	7,270.79	1840.20	1560.00
Zinc	TM181	mg/kg	<1.9	622,690.14	157599.52	3690.00
TPH Criteria Working Group (TPH CWG)						
Benzene	TM089	mg/kg	<0.01	17.22	4.36	0.00
Toluene	TM089	mg/kg	<0.002	581.53	147.18	0.00
Ethylbenzene	TM089	mg/kg	<0.003	363.62	92.03	0.00
sum of detected mpo xylene by GC	TM089	µg/kg	9			
Aliphatics >C5-C6	TM089	mg/kg	<0.01	330.56	83.66	0.25
Aliphatics >C6-C8	TM089	mg/kg	<0.01	1,626.37	411.63	3.90
Aliphatics >C8-C10	TM089	mg/kg	<0.01	12,860.73	3254.98	26.00
Aliphatics >C10-C12	TM089	mg/kg	<0.01	102,089.22	25838.23	29.20
Aliphatics >C12-C16	TM173	mg/kg	<0.1	2,036,742.73	515488.60	1330.00
Aliphatics >C16-C21	TM173	mg/kg	<0.1	256,407,138.28	64895263.78	1100.00
Aliphatics >C21-C35	TM173	mg/kg	<0.1	256,407,138.28	64895263.78	3580.00
Aliphatics >C35-C44	TM173	mg/kg	<0.1	256407138.3	64895263.78	1380.00
Aromatics >EC5-EC7	TM089	mg/kg	<0.01	38.53	9.75	0.83
Aromatics >EC7-EC8	TM089	mg/kg	<0.01	801.64	202.89	0.11
Aromatics >EC8-EC10	TM089	mg/kg	<0.01	650.33	164.59	17.40
Aromatics >EC10-EC12	TM089	mg/kg	<0.01	1,027.02	259.93	19.40
Aromatics >EC12-EC16	TM173	mg/kg	<0.1	2,042.96	517.06	507.00
Aromatics >EC16-EC21	TM173	mg/kg	<0.1	6,446.89	1631.67	1360.00
Aromatics >EC21-EC35	TM173	mg/kg	<0.1	51,166.14	12949.88	4070.00
Aromatics >EC35-EC44	TM173	mg/kg	<0.1	51166.143	12949.88	1250.00
Aromatics >EC40-EC44	TM173	mg/kg	<0.1	51166.143	12949.88	532.00
Polyaromatic Hydrocarbons (PAHs)						
Acenaphthylene	TM218	µg/kg	<0.012	75733	19168	1620.00
Acenaphthene	TM218	µg/kg	<0.008	134627	34073	6190.00
Anthracene	TM218	µg/kg	<0.016	154563	39119	3990.00
Benz(a)anthracene	TM218	µg/kg	<0.014	2747512	695380	15900.00
Benzo(a)pyrene	TM218	µg/kg	<0.015	156023	39485	10500.00
Benzo(b)fluoranthene	TM218	µg/kg	<0.015	15466	3914	27000.00
Benzo(k)fluoranthene	TM218	µg/kg	<0.014	22876	5790	8650.00
Benzo(g,h,i)perylene	TM218	µg/kg	<0.024	60170	15229	9800.00
Chrysene	TM218	µg/kg	<0.01	2811508	711578	19400.00
Dibenzo(a,h)anthracene	TM218	µg/kg	<0.023	3792598	959886	3260.00
Indeno(1,2,3-cd)pyrene	TM218	µg/kg	<0.018	114651	29018	10100.00
Fluoranthene	TM218	µg/kg	<0.017	30083	7614	17900.00
Fluorene	TM218	µg/kg	<0.01	122786	31077	9160.00
Naphthalene	TM218	µg/kg	<0.009	124264	31450	38100.00
Phenanthrene	TM218	µg/kg	<0.015	122786	31077	11600.00
Pyrene	TM218	µg/kg	15	345946	87557	18.30
PAH, Total Detected USEPA 16	TM218	mg/kg	<0.118			
Naphthalene-d8 % recovery**	TM218	%				
Acenaphthene-d10 % recovery**	TM218	%				
Phenanthrene-d10 % recovery**	TM218	%				
Chrysene-d12 % recovery**	TM218	%				
Perylene-d12 % recovery**	TM218	%				
Total Aliphatics >C12-C44	TM173	mg/kg	<0.1			
Total Aromatics >EC12-EC44	TM173	mg/kg	<0.1			
Total Aliphatics & Aromatics >C5-C44	TM173	µg/kg	100			
Metals - (Liquid)						
Calcium	TM224	mg/kg	<21			
Magnesium	TM224	mg/kg	<8			
Phenols						
Phenol	TM062 (S)	mg/kg	<0.01			
Cresols	TM062 (S)	mg/kg	<0.01			
Xylenols	TM062 (S)	mg/kg	<0.015			
Phenols, Total Detected monohydric	TM062 (S)	mg/kg	<0.035			
Inorganics						
Soluble Sulphate 2:1 extract as SO4 BRE	TM243	g/l	<0.004			
pH	TM133	pH Units	<1			
Sulphate, Total	TM221	mg/kg	<48			
Sulphur, Total	TM132	%	<0.02			
Sulphate, Total potential	TM132	%	<0.06			
Sulphate, acid soluble (total)	TM221	%	<0.02			
Cyanide, Total	TM153	mg/kg	<1			
Exchangeable Ammonia as N	TM024	mg/kg	<12			
Asbestos						
Asbestos Quantification - Gravimetric - %	TM304	%	<0.001			
Date of Analysis	TM048	No units				
Analysed By	TM048	No units				
Asbestos Quantification - PCOM Evaluation - %	TM304	%	<0.001	0.03	0.02	0.00
Additional Asbestos Components (Using TM048)	TM304	No units				
Analysts Comments	TM304	No units				
Asbestos Quantification - Total - %	TM304	%	<0.001			
Chrysotile (White) Asbestos	TM048	No units				
Amosite (Brown) Asbestos	TM048	No units				
Crocidolite (Blue) Asbestos	TM048	No units				
Fibrous Anthophyllite	TM048	No units				
Fibrous Tremolite	TM048	No units				
Fibrous Actinolite	TM048	No units				
Non-Asbestos Fibre	TM048	No units				
Comments	TM048	No units				
Volatile Organic Compounds (VOCs)						
Dibromofluoromethane**	TM116	%				138.00
Toluene-d8**	TM116	%				106.00
4-Bromofluorobenzene**	TM116	%				114.00
Methyl Tertiary Butyl Ether	TM116	mg/kg	<0.1			0.00
Benzene	TM116	mg/kg	<0.09			0.57
Toluene	TM116	mg/kg	<0.07			0.00
Ethylbenzene	TM116	mg/kg	<0.04			0.50
p/m-Xylene	TM116	mg/kg	<0.1			2.23
o-Xylene	TM116	mg/kg	<0.1			1.42
Naphthalene	TM116	mg/kg	<0.13			37.10
Sum of BTEX	TM116	mg/kg	<0.4			4.15
Subcontracted: Inorganics						
Gross Calorific Value in Dry Matter Q(V/gr/d)	SUB	MJ/kg	<0.5			6.31
Gross Calorific Value Original Q(V/gr/ar)	SUB	MJ/kg	<0.5			2.55
Net Calorific Value in Dry Matter Q(V/net/d)	SUB	MJ/kg	<0.5			5.83
Net Calorific Value in Original Q(V/net/ar)	SUB	MJ/kg	<0.5			1.09
Water Analytical M (ad)	SUB	%	<0.5			3.37
Water Gross M(ex)	SUB	%	<0.5			58.20
Water Total M(ar)	SUB	%	<0.5			59.60

Sample ID	40AF28	40AF28	40AF28	40AF28	40AF28V	40AG28	40AG28	40AH28	40AI28
Depth	0.500.50	1.001.00	1.501.50	2.002.00	2.602.60	0.500.50	0.900.90	0.500.50	0.500.50
Sampled Date	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018
Soil Organic Matter (SOM)	73.4	9.48	48.4	29	6.36	5.14	6.86	7.55	7.33
Arsenic	2.08	2.47	17.6	20	13.4	8.28	8.8	13	10.1
Cadmium	0.112	0.401	1.89	1.62	0.499	0.768	2.08	3.87	1.2
Chromium	5.44	62.5	<9	<9	26.1	35.3	10.8	24.5	15.8
Copper	4.9	5.63	30.3	39.6	19.1	23.6	22.4	46.7	22.8
Lead	13.4	23.8	125	144	38.7	70.8	153	363	202
Mercury	<0.14	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	0.396	<0.14
Nickel	4.25	9.87	25.1	37.6	29.7	17.4	14.4	28.4	15.6
Selenium	2.13	4.07	<10	<10	1.26	3.53	2.35	1.1	2.41
Vanadium	20.8	92.7	60.5	86.5	45.7	140	58.3	72.6	40.4
Zinc	49.8	113	239	250	130	432	1170	3260	888
Aliphatics >C5-C6	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C6-C8	<0.04	0.0424	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C8-C10	<0.04	0.0532	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C10-C12	0.0844	0.253	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C12-C16	10.2	3.37	0.595	<0.1	<0.1	1.59	1.16	2.17	1.92
Aliphatics >C16-C21	41.8	15.3	8.52	4.97	<0.1	8.82	7.37	24.1	21.3
Aliphatics >C21-C35	747	201	24.7	52.6	8.05	105	86.5	247	474
Aliphatics >C35-C44	836	224	6.09	30.7	<0.1	46.1	33.5	82.5	244
Aromatics >EC5-EC7	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aromatics >EC7-EC8	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aromatics >EC8-EC10	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aromatics >EC10-EC12	0.0563	0.168	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aromatics >EC12-EC16	5.5	2.54	0.2	0.626	3.83	0.709	<0.1	2.59	1.8
Aromatics >EC16-EC21	29.6	11.4	2.45	2.56	7.62	3.5	2.77	15.2	15.7
Aromatics >EC21-EC35	1150	243	12.3	56.4	35.8	58.7	34.4	88.3	289
Aromatics >EC35-EC44	1120	342	6.48	63.6	4.94	47.8	25.3	46.3	292
Aromatics >EC40-EC44	506	165	2.36	27.6	<0.1	19.7	10.7	17.8	121
Acenaphthylene	<120	<60	<12	<60	<12	15.8	<12	80	<120
Acenaphthene	629	299	<8	<40	<8	48.8	32.1	889	<80
Anthracene	<160	<80	<16	<80	<16	50.2	39.4	187	<160
Benz(a)anthracene	224	122	30.2	<70	33.7	472	174	839	644
Benzo(a)pyrene	496	155	21.7	<75	34	524	180	674	595
Benzo(b)fluoranthene	808	253	42.5	<75	57.5	948	374	1320	1100
Benzo(k)fluoranthene	256	77.7	16	<70	<14	309	125	474	330
Benzo(g,h,i)perylene	407	153	<24	<120	<24	505	201	565	487
Chrysene	519	161	34.7	<50	39.5	580	218	795	843
Dibenzo(a,h)anthracene	<0.23	<0.115	<0.023	<0.115	<0.023	122	44.9	135	<0.23
Indeno(1,2,3-cd)pyrene	378	134	<0.018	<90	<0.018	449	167	550	443
Fluoranthene	522	300	60.6	<0.085	84.3	463	294	1610	941
Fluorene	180	93.8	<10	<50	<10	18.1	14.7	127	<0.1
Naphthalene	669	359	13.7	<45	<9	37.3	61.7	113	<90
Phenanthrene	473	287	70.5	<75	27.1	218	163	818	326
PAH, Total Detected USEPA 16	6.4	2.77	0.347	<0.59	0.352	5.33	2.41	10.8	6.67
Naphthalene-d8 % recovery**	78.6	88.4	87.2	88.4	88.5	91.1	93.4	92.6	75.1
Acenaphthene-d10 % recovery**	88.8	85.2	87.9	84.6	93.6	94.5	93.5	93.5	82.6
Phenanthrene-d10 % recovery**	82.1	98.9	77.8	77.4	97.1	101	94.3	96.6	81.7
Chrysene-d12 % recovery**	77	89.7	45.2	73.1	101	96.7	76.6	79	78.7
Perylene-d12 % recovery**	73.2	87.5	29.6	71.1	98.7	95	72.3	70	74.7
Total Aliphatics >C12-C44	1630	444	39.9	88.3	8.05	161	129	356	741
Total Aromatics >EC12-EC44	2310	599	21.4	123	52.2	111	62.5	152	598
Calcium	216000	-	29500	-	-	126000	-	125000	168000
Magnesium	34300	-	5890	-	-	17300	-	14600	19200
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenols	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Phenols, Total Detected monohydric	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Soluble Sulphate 2:1 extract as SO4 BRE	1.91	-	0.14	-	-	0.878	-	0.283	0.27
pH	9.45	10	9.21	9.33	7.39	10.3	11	11.1	11.2
Sulphate, Total	-	-	-	-	-	-	-	-	-
Sulphur, Total	1.26	-	0.191	-	-	0.381	-	0.199	0.419
Sulphate, Total potential	3.78	-	0.573	-	-	1.14	-	0.597	1.26
Sulphate, acid soluble (total)	2.16	-	0.0478	-	-	0.595	-	0.407	1.03
Cyanide, Total	<1	<1	<1	1.47	<1	<1	23	2.98	2.74
Exchangeable Ammonia as N	<12	<12	<12	<12	122	<12	<12	<12	<12
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	-	-	<0.001	<0.001
Date of Analysis	05/06/2018	-	05/06/2018	-	-	05/06/2018	-	05/06/2018	05/06/2018
Analysed By	Marcin Magdziarek	-	Marcin Magdziarek	-	-	Andrzej Ferfecki	-	Marcin Magdziarek	Lucy Caroe
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	-	-	<0.001	<0.001
Additional Asbestos Components (Using TM048)	-	-	-	-	-	-	-	None	None
Analysts Comments	-	-	-	-	-	-	-	N/C	N/C
Asbestos Quantification - Total - %	-	-	-	-	-	-	-	<0.001	<0.001
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Detected	Detected
Amosite (Brown) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	Not Detected	-	Not Detected	-	-	Trace	-	Not Detected	Not Detected
Comments	0	-	0	-	-	0	-	Bundle of fibres in soil	Soil containing ACM debris
Dibromofluoromethane**	112	110	108	106	105	106	115	111	118
Toluene-d8**	91.8	95.8	99.9	98.5	99.1	98.8	98.2	97.6	95.9
4-Bromofluorobenzene**	86.8	93.5	95.7	96.8	94.1	98.5	98.1	91.9	96.9
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzene	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Toluene	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Ethylbenzene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
p/m-Xylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Xylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	0.615	0.539	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
Sum of BTEX	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-

Sample ID	40AI28	40AI28	40AI28	40AJ28	40AJ28	40AK28	40AK28	40ATP01	40ATP01
Depth	1.001.00	1.501.50	2.202.20	0.700.70	1.201.20	0.700.70	1.101.10	0.500.50	1.001.00
Sampled Date	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	23/05/2018	23/05/2018
Soil Organic Matter (SOM)	2.95	11.4	35.9	2.59	2.67	7.79	4.83	3.79	5.34
Arsenic	<6	16.8	6.7	20.7	4.07	7.51	21.2	17.9	3.98
Cadmium	1	0.966	0.374	0.689	0.326	0.811	0.849	0.961	0.21
Chromium	454	76.9	166	109	50.3	74.5	46.5	121	5.66
Copper	17.9	26.6	21.5	24.6	12.4	40.9	17.8	43.2	6.75
Lead	51.4	62.5	30.1	73.8	23.2	144	130	24.2	21.9
Mercury	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Nickel	9.9	24.7	12.2	19.7	9.35	33.9	26	28.7	4.23
Selenium	13.3	<10	5.7	5.71	4.46	2.73	5.26	3.93	<1
Vanadium	1120	331	589	193	175	345	156	130	6.56
Zinc	141	162	146	1060	395	825	1240	129	65.7
Aliphatics >C5-C6	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C6-C8	<0.04	0.0746	0.0938	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C8-C10	<0.04	<0.04	0.105	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C10-C12	<0.04	0.0531	0.106	<0.04	<0.04	<0.04	<0.04	0.0672	<0.04
Aliphatics >C12-C16	2.84	1.28	<0.1	1.19	<0.1	1.47	0.909	11.2	0.216
Aliphatics >C16-C21	21.5	5.91	2.94	9.22	5.5	15.2	8.83	33.1	1.88
Aliphatics >C21-C35	253	43.6	47.2	97.7	72.2	198	145	195	41.5
Aliphatics >C35-C44	109	18.8	20.6	25.4	17.4	69.1	31	227	37.3
Aromatics >EC5-EC7	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aromatics >EC7-EC8	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aromatics >EC8-EC10	<0.04	0.0554	0.085	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aromatics >EC10-EC12	<0.04	<0.04	0.0713	<0.04	<0.04	<0.04	<0.04	0.0448	<0.04
Aromatics >EC12-EC16	1.03	1.75	<0.1	0.841	<0.1	1.66	<0.1	4.96	0.616
Aromatics >EC16-EC21	6.75	2.9	2.1	5.67	3.3	26.6	2.83	15.3	2.19
Aromatics >EC21-EC35	124	31.3	33.8	54.1	40.2	184	27.6	193	52.1
Aromatics >EC35-EC44	121	23	26.5	21.5	16.4	59.8	11.9	265	50.3
Aromatics >EC40-EC44	52.1	9.59	11.1	7.84	6.04	22.5	4.44	128	22.7
Acenaphthylene	<12	<120	<12	<12	<12	56	<12	<60	68
Acenaphthene	10.6	<80	<8	45.9	10.1	60	20.8	66.5	60.2
Anthracene	23.1	<160	<16	46.4	28	156	40.8	<80	92.7
Benz(a)anthracene	320	233	88.2	443	373	1660	284	113	100
Benzo(a)pyrene	157	199	90.4	470	334	1690	269	120	91.5
Benzo(b)fluoranthene	734	386	215	924	706	3190	585	217	129
Benzo(k)fluoranthene	215	<140	65.9	260	204	961	187	<70	<70
Benzo(g,h,i)perylene	312	<0.24	93.7	458	328	1320	276	<120	<120
Chrysene	511	314	145	759	569	2760	417	146	93.8
Dibenzo(a,h)anthracene	70.6	<0.23	<0.023	113	62.5	326	61.5	<0.115	<0.115
Indeno(1,2,3-cd)pyrene	287	<180	88.1	399	293	1130	257	<90	<90
Fluoranthene	454	530	128	385	387	1400	374	264	301
Fluorene	<10	<0.1	20.8	34.1	<10	72.7	17.8	<50	84.7
Naphthalene	22.8	<90	25.8	16.3	<9	172	19.4	154	249
Phenanthrene	132	215	106	201	99.2	613	232	238	412
PAH, Total Detected USEPA 16	3.85	2.38	1.21	5.12	3.9	17.7	3.42	1.53	1.94
Naphthalene-d8 % recovery**	92.2	77.9	78.4	80.1	80.4	82	79.9	94.2	104
Acenaphthene-d10 % recovery**	102	84.8	82.4	83.7	84.4	86.2	83.3	91.9	102
Phenanthrene-d10 % recovery**	112	74.9	82	83.3	88.2	87.4	85.2	92.6	98.9
Chrysene-d12 % recovery**	98.4	74.2	83.4	83.9	91.1	90.1	83.6	90.7	101
Perylene-d12 % recovery**	93	72.8	84.4	85.8	90.7	89.6	77.2	90.2	109
Total Aliphatics >C12-C44	387	69.6	70.8	133	95.1	283	186	467	80.9
Total Aromatics >EC12-EC44	253	59	62.4	82.1	59.9	273	42.4	478	105
Calcium	-	124000	-	183000	-	135000	-	149000	212000
Magnesium	-	8440	-	31700	-	14600	-	36900	106000
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenols	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Phenols, Total Detected monohydric	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Soluble Sulphate 2:1 extract as SO4 BRE	-	0.216	-	1.13	-	0.618	-	0.296	0.0664
pH	11.8	11.6	11.3	10.9	11	10.3	10.9	11.7	9.79
Sulphate, Total	-	-	-	-	-	-	-	-	-
Sulphur, Total	-	0.38	-	0.465	-	0.36	-	0.258	0.164
Sulphate, Total potential	-	1.14	-	1.4	-	1.08	-	0.774	0.492
Sulphate, acid soluble (total)	-	1.03	-	0.891	-	0.647	-	0.323	0.184
Cyanide, Total	4.62	1.51	2.01	<1	<1	<1	<1	<1	<1
Exchangeable Ammonia as N	<12	<12	<12	<12	<12	<12	<12	<12	<12
Asbestos Quantification - Gravimetric - %	-	-	-	-	-	<0.001	-	-	-
Date of Analysis	-	05/06/2018	-	05/06/2018	-	05/06/2018	-	31/05/2018	31/05/2018
Analysed By	-	Andrzej Ferfecki	-	Marcin Magdziarek	-	Lucy Caroe	-	Andrzej Ferfecki	Andrzej Ferfecki
Asbestos Quantification - PCOM Evaluation - %	-	-	-	-	-	<0.001	-	-	-
Additional Asbestos Components (Using TM048)	-	-	-	-	-	None	-	-	-
Analysts Comments	-	-	-	-	-	N/C	-	-	-
Asbestos Quantification - Total - %	-	-	-	-	-	<0.001	-	-	-
Chrysotile (White) Asbestos	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	Not Detected
Amosite (Brown) Asbestos	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected	Not Detected
Crocidolite (Blue) Asbestos	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Anthophyllite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Tremolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Fibrous Actinolite	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected
Non-Asbestos Fibre	-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	Trace
Comments	-	0	-	0	-	Fibre bundles in soil	-	0	0
Dibromofluoromethane**	108	108	109	114	111	108	109	104	102
Toluene-d8**	96.7	97.2	98.3	98.8	99.8	97.3	98.1	97.7	101
4-Bromofluorobenzene**	99.3	92.3	96.2	97.7	101	93.1	98.9	95.1	96.9
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzene	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Toluene	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Ethylbenzene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
p/m-Xylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Xylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	<0.13	<0.13	<0.13	<0.13	<0.13	0.144	<0.13	0.149	<0.13
Sum of BTEX	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-

Sample ID	40ATP01	40ATP01	40ATP02	40ATP02	40ATP02	40ATP02	40ATP03	40ATP03	40ATP03
Depth	1.501.50	3.003.00	0.500.50	1.001.00	2.002.00	3.003.00	0.500.50	1.001.00	2.202.20
Sampled Date	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018
Soil Organic Matter (SOM)	12	3.91	10.4	6.53	2.17	4.19	1.69	1.41	13.4
Arsenic	8.94	5.63	6.6	8.78	5.28	10	4.98	9.06	4.13
Cadmium	0.243	0.23	0.978	0.348	0.158	0.298	0.442	0.508	0.306
Chromium	11.2	6.66	160	8.93	10.1	9.33	104	43.8	14.9
Copper	42.6	18	18.2	23.2	52.6	30	13.7	20.6	12.4
Lead	31.3	21.8	104	30.8	17.3	21.6	14.7	22.4	19.2
Mercury	<0.14	<0.14	1.02	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Nickel	26.8	19.4	9.78	18.9	12.9	27.9	6.76	18.9	10.7
Selenium	1.88	<1	3.86	1.2	<1	1.04	5.98	3.55	1.7
Vanadium	29.9	24.2	173	30.1	21.4	29.7	184	77.1	45.3
Zinc	71.5	74.3	436	100	49	72.9	79.9	146	60.2
Aliphatics >C5-C6	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Aliphatics >C6-C8	<0.04	<0.04	0.0516	0.078	0.0661	0.0677	<0.04	<0.04	<0.04
Aliphatics >C8-C10	0.0896	<0.04	1	0.636	1.06	0.603	<0.04	<0.04	<0.04
Aliphatics >C10-C12	0.244	<0.04	29.2	12.1	12.6	4.74	<0.04	<0.04	<0.04
Aliphatics >C12-C16	1.34	2.57	198	47	<0.1	4.51	1.23	0.424	0.614
Aliphatics >C16-C21	3.64	9.28	64.3	26.3	<0.1	7.12	5.87	1.41	4.66
Aliphatics >C21-C35	22.9	45.2	269	55.1	<0.1	21.5	62.3	<0.1	38.8
Aliphatics >C35-C44	18.4	26.4	65.9	8.17	<0.1	1.38	15	<0.1	7.78
Aromatics >EC5-EC7	<0.04	<0.04	0.0417	0.163	0.211	0.238	<0.04	<0.04	<0.04
Aromatics >EC7-EC8	<0.04	<0.04	<0.04	0.0644	0.047	0.0444	<0.04	<0.04	<0.04
Aromatics >EC8-EC10	0.0739	<0.04	0.711	0.485	0.803	0.496	<0.04	<0.04	<0.04
Aromatics >EC10-EC12	0.162	<0.04	19.4	8.1	8.41	3.16	<0.04	<0.04	<0.04
Aromatics >EC12-EC16	4.48	2.6	131	35.4	2.24	14.3	<0.1	0.77	1.21
Aromatics >EC16-EC21	13.4	7.7	39.5	18.1	<0.1	5.38	3.11	2.12	4.3
Aromatics >EC21-EC35	37.8	46.6	116	39.7	<0.1	17.3	20.2	6.94	21.3
Aromatics >EC35-EC44	27.2	33	61.4	15.8	<0.1	3.36	8.37	1.46	7.17
Aromatics >EC40-EC44	11.7	13.9	24.2	6.09	<0.1	0.831	2.8	0.449	2.19
Acenaphthylene	<12	<60	165	71.2	18.6	32.8	<12	<12	<12
Acenaphthene	119	71.2	92.6	98.9	15.5	30.4	9.02	<8	<8
Anthracene	43.5	<80	139	47.4	<16	<16	21.5	<16	19.9
Benz(a)anthracene	31.3	<70	296	81.6	<14	44	150	<14	66.1
Benzo(a)pyrene	<15	<75	337	89.4	<15	39.6	146	<15	49.8
Benzo(b)fluoranthene	36.7	107	548	148	<15	58.8	296	31.6	111
Benzo(k)fluoranthene	<14	<70	210	49.7	<14	21.2	83.2	<14	39
Benzo(g,h,i)perylene	<24	<120	382	92.1	<24	29	159	<24	54.1
Chrysene	60.1	67.2	396	122	16.4	58.6	166	19.4	86.8
Dibenzo(a,h)anthracene	<0.023	<0.115	<0.115	<0.023	<0.023	<0.023	27.1	<0.023	<0.023
Indeno(1,2,3-cd)pyrene	<0.018	<90	323	86.7	<0.018	27.5	99.5	<0.018	46.1
Fluoranthene	96.1	131	738	208	33.8	92.1	280	28.3	159
Fluorene	102	65.8	162	100	16.5	33.1	<10	<10	<10
Naphthalene	318	247	5540	892	2270	1360	18.3	30.3	48.5
Phenanthrene	484	263	535	162	35.7	61.2	127	30.8	158
PAH, Total Detected USEPA 16	1.37	1.15	10.6	2.42	2.43	1.97	1.85	0.167	0.986
Naphthalene-d8 % recovery**	79.3	88	97.4	87	88	88.5	103	94.9	81.9
Acenaphthene-d10 % recovery**	84.3	84.9	90.3	89.1	87.4	92.2	97.4	90.3	86.8
Phenanthrene-d10 % recovery**	90.4	84.5	93.3	95.3	93.8	99.2	95	89.5	92.1
Chrysene-d12 % recovery**	82.8	83.6	78.1	79.4	78.2	88.1	89.6	83.6	72
Perylene-d12 % recovery**	71.3	77.4	66	62.3	53.2	74.1	83.8	73.8	58
Total Aliphatics >C12-C44	46.3	83.4	598	137	<0.1	34.5	84.4	1.84	51.9
Total Aromatics >EC12-EC44	82.9	89.9	347	109	2.24	40.4	31.7	11.3	34
Calcium	9810	-	161000	-	64500	-	259000	-	144000
Magnesium	3070	-	15000	-	3910	-	54200	-	47700
Phenol	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cresols	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Xylenols	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Phenols, Total Detected monohydric	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
Soluble Sulphate 2:1 extract as SO4 BRE	0.0578	-	0.115	-	0.0534	-	0.116	-	0.15
pH	8.49	8.26	9.24	10.1	9.28	8.84	11.6	8.88	10.8
Sulphate, Total	-	-	-	-	-	-	-	-	-
Sulphur, Total	0.16	-	0.279	-	0.202	-	0.29	-	0.288
Sulphate, Total potential	0.48	-	0.837	-	0.606	-	0.87	-	0.864
Sulphate, acid soluble (total)	0.0935	-	0.235	-	0.211	-	0.438	-	0.404
Cyanide, Total	2.26	<1	26.5	10.8	33.3	23.7	<1	<1	<1
Exchangeable Ammonia as N	73.7	18.4	29	87.9	191	293	<12	<12	<12
Asbestos Quantification - Gravimetric - %	-	-	<0.001	-	-	-	<0.001	-	-
Date of Analysis	31/05/2018	-	31/05/2018	-	31/05/2018	-	31/05/2018	-	31/05/2018
Analysed By	James Richards	-	Andrzej Ferfecki	-	James Richards	-	James Richards	-	James Richards
Asbestos Quantification - PCOM Evaluation - %	-	-	<0.001	-	-	-	0.0014	-	-
Additional Asbestos Components (Using TM048)	-	-	None	-	-	-	PCOM showed signs of Amphibole fibres.	-	-
Analysts Comments	-	-	N/C	-	-	-	N/C	-	-
Asbestos Quantification - Total - %	-	-	0.0013	-	-	-	0.0016	-	-
Chrysotile (White) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected
Amosite (Brown) Asbestos	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected
Crocidolite (Blue) Asbestos	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Anthophyllite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Tremolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Fibrous Actinolite	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Non-Asbestos Fibre	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected
Comments	0	-	loose fibres in soil	-	0	-	Fibre bundles in soil	-	0
Dibromofluoromethane**	98.7	104	104	101	102	105	103	103	99.1
Toluene-d8**	100	101	99.9	98.6	99.5	99.4	99.2	100	98.5
4-Bromofluorobenzene**	87.9	96.6	92.9	90.2	95.7	92.1	94.9	97	85.9
Methyl Tertiary Butyl Ether	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzene	<0.09	<0.09	<0.09	<0.09	0.166	0.265	<0.09	<0.09	<0.09
Toluene	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Ethylbenzene	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
p/m-Xylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
o-Xylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Naphthalene	0.15	<0.13	0.912	<0.13	2.5	2.49	<0.13	<0.13	<0.13
Sum of BTEX	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Gross Calorific Value in Dry Matter Q(V/gr/d)	-	-	-	-	-	-	-	-	-
Gross Calorific Value Original Q(V/gr/ar)	-	-	-	-	-	-	-	-	-
Net Calorific Value in Dry Matter Q(V/net/d)	-	-	-	-	-	-	-	-	-
Net Calorific Value in Original Q(V/net/ar)	-	-	-	-	-	-	-	-	-
Water Analytical M (ad)	-	-	-	-	-	-	-	-	-
Water Gross M(ex)	-	-	-	-	-	-	-	-	-
Water Total M(ar)	-	-	-	-	-	-	-	-	-

40A

40ATP04	40ATP04	40ATP04	40ATP05	40ATP06	40ATP06	40ATP07	40ATP07	40ATP07	40ATP08	40ATP08	40ATP08	40ATP09
0.500.50	1.001.00	1.501.50	0.500.50	0.500.50	0.900.90	1.001.00	1.501.50	2.002.00	0.500.50	1.001.00	1.701.70	1.001.00
23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018
12	14.5	1.56	6.72	5.55	7.26	4.41	51.4	8.69	22.1	10.4	4.71	3.57
26	26.3	5.49	6.11	11.4	12.3	5.53	6.59	10.6	11.5	6.96	6.14	8.11
1.92	9.23	2.08	0.319	0.377	<0.02	0.221	0.225	0.269	1.57	1.03	0.615	0.711
103	876	96.7	7.64	14.1	19.8	142	24.1	18.2	14	340	87.1	33.1
133	131	25.3	27.3	23.1	28.3	15.9	59.3	13.7	26.3	22.1	17.2	26.2
96	351	90	30.8	19.6	19.6	27.1	26.2	20.3	285	110	70.6	111
<0.14	<0.14	<0.14	1.07	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
30.9	35.2	11.8	18.9	24.9	34.4	11.6	33.8	16.4	25.5	17.5	20.3	15.3
2.27	10.5	1.5	<1	<1	1.17	5.66	2.16	1.47	2.38	6.32	4.49	3.61
67.8	652	68.3	17	32.2	26.4	222	67.1	52	106	331	184	89.1
326	1950	563	66.8	72.4	69.3	193	92.2	74.7	1260	468	268	488
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.0426	0.0644	<0.04	0.0762	0.0513	0.0921	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	0.287	0.122	1.21	<0.04	<0.04	<0.04	0.0406	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	1.67	0.166	13.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
5.45	3.11	<0.1	4.29	342	1330	2.14	1.53	0.868	3.54	3.76	1.58	1.59
9.46	8.02	<0.1	8.45	313	940	17.2	14.9	4.68	40.9	15.7	14.5	14.6
40.2	26.9	<0.1	27.1	282	1230	262	45.4	19.1	182	88	142	175
15.7	2.93	<0.1	3.61	44.5	175	127	15.6	5.23	56.3	49.3	41	44.9
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0441	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0746	0.0414	0.196	0.0923	0.809	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	1.11	0.111	8.91	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
9.39	7.49	<0.1	2.5	62	239	0.719	<0.1	0.415	2.62	0.979	0.768	1.46
16.6	22.3	1.34	5.85	78.3	276	6.66	3.69	2.36	19.2	6.63	6.66	12.1
60.4	68.8	9.86	18.3	98.6	315	219	57.9	16.6	125	67.8	89.7	119
31.6	18.9	2.39	7.66	28.2	72.1	226	61.3	8.73	95.1	68.2	54.2	44.2
13.3	6.49	<0.1	3	8.14	15.8	99	27	3.53	42.4	32.7	23.3	16.9
15.6	77.1	21.4	<12	<12	146	<60	<60	<12	<60	208	<60	73.8
37.3	95.8	16.2	<8	<8	294	<40	<40	<8	<40	5530	<40	437
112	326	42.1	<16	45.2	193	<80	<80	<16	<80	1700	<80	2070
381	744	127	18.6	21.5	<14	321	<70	31.9	380	6080	389	15900
314	555	112	<15	18.6	<15	422	<75	35.8	405	6210	387	10500
483	861	149	37.5	34.7	18.1	641	<75	62.9	888	10600	660	27000
162	349	66.9	<14	<14	<14	242	<70	17.1	298	3670	237	8650
250	359	89.2	<24	<24	<24	360	<120	46.7	465	4610	439	9800
322	842	126	21	28.9	15.3	386	<50	39.8	566	7430	427	19400
80.8	118	<0.023	<0.023	<0.023	<0.023	<0.115	<0.115	<0.023	<0.115	1500	<0.115	3260
206	385	85.2	<0.018	<0.018	<0.018	370	<90	35.8	455	3890	341	10100
708	1590	260	25.9	47.1	32	413	<0.085	41.6	512	8220	390	17900
63.5	227	27.8	<10	53.7	300	<50	<50	<10	<50	9160	<50	323
179	496	24.3	33.4	39.3	186	<45	<45	26.2	112	180	47.2	99.9
445	1350	135	39.9	126	171	152	<75	58.8	280	9380	157	10200
4.29	9.44	1.5	0.199	0.46	1.4	3.69	<0.59	0.429	4.89	85.2	3.87	169
101	96.3	106	95.3	91.1	78.4	93.6	69	94.7	79	94.2	98.4	92.4
97.9	95.3	101	93	94.2	127	96.6	76.7	94.8	81.8	95.4	93.7	72.8
96.7	99.9	102	88.7	92.8	90.3	92.9	62.5	95.4	74.8	97.7	92.3	92.8
95.9	92.5	96.1	86.8	82.6	78.1	91.5	54.9	92.9	61.7	103	114	96.3
86.9	83.8	89	88.9	72.5	70.7	92.3	43.5	92.2	62	104	88.9	103
70.8	40.9	<0.1	43.4	981	3670	408	77.5	29.9	283	157	199	236
118	118	13.6	34.3	267	902	452	123	28.1	242	144	151	177
165000	-	277000	17000	49000	-	191000	-	68700	-	186000	-	143000
18700	-	45200	1700	2860	-	23700	-	11400	-	13200	-	26000
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
0.135	-	0.0718	0.221	0.0951	-	0.135	-	0.0606	-	0.091	-	0.207
10	10.2	9.49	8.24	9.43	8.86	8.97	8.18	9.54	10.1	10.2	10.7	10
-	-	-	-	-	-	-	-	-	-	-	-	-
0.405	-	0.155	0.177	0.27	-	0.263	-	0.0945	-	0.217	-	0.247
1.22	-	0.465	0.531	0.81	-	0.789	-	0.284	-	0.651	-	0.741
0.275	-	0.134	0.151	0.349	-	0.24	-	0.0806	-	0.202	-	0.209
1.96	1.31	1.56	<1	<1	<1	<1	<1	<1	197	9.23	<1	1.34
<12	<12	<12	<12	<12	39.9	<12	<12	<12	<12	<12	<12	<12
0.0011	-	-	-	-	-	<0.001	-	-	-	0.0045	-	0.0033
31/05/2018	-	31/05/2018	31/05/2018	31/05/2018	-	04/06/2018	-	04/06/2018	-	04/06/2018	-	04/06/2018
Barbara Urbanek-Walsh	-	Barbara Urbanek-Walsh	Renata Bozhkov	Renata Bozhkov	-	Lucy Caroe	-	Lucy Caroe	-	Marcin Magdziarek	-	Marcin Magdziarek
<0.001	-	-	-	-	-	<0.001	-	-	-	<0.001	-	<0.001
None	-	-	-	-	-	None	-	-	-	None	-	None
N/C	-	-	-	-	-	N/A	-	-	-	N/A	-	N/C
0.0011	-	-	-	-	-	<0.001	-	-	-	0.0045	-	0.0033
Detected	-	Not Detected	Not Detected	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	Detected
Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Not Detected	-	Not Detected	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
Loose fibres in soil.	-	0	0	0	-	Fibre bundles in soil	-	0	-	Loose fibres in soil	-	Bundle of fibres in soil
99	79	99.9	108	102	104	105	116	104	106	104	106	106
98.9	96.7	101	100	98.6	94.8	95.7	97	97.4	94.5	96.9	97.4	97
88.9	80	97.5	95	90.4	84.2	90.3	81.3	93.3	82.7	92.1	90.1	90.7
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

40ATP09	40ATP09	40ATP10	40ATP11	40ATP11	40ATP11	40ATP12	40ATP12	40ATP14	40ATP14	40ATP14	40ATP14	40ATP15
1.401.40	1.601.60	0.300.30	0.500.50	1.001.00	1.501.50	0.500.50	0.800.80	0.500.50	1.001.00	1.701.70	2.502.50	0.500.50
23/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018
6.93	7.95	3.88	4.47	3.45	3.22	0.909	2.98	1.34	4.88	18.4	27.1	1.43
7.58	10.3	12.6	5.86	9.89	9.43	8.09	4.81	13.8	11.1	20.2	25.8	8.01
0.818	2.39	0.412	0.178	0.179	0.201	0.177	0.199	0.646	0.403	0.586	0.543	1.77
38.7	<9	354	<0.9	283	171	39.1	46.4	21.3	323	53.5	18.8	34.7
32.5	15.1	34.1	39.9	150	26.7	8.76	17.4	19	25.4	49.1	43.1	72.9
64.8	37	40.4	28.8	29	27.8	13	15.2	30.2	35	52.6	60.9	126
<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
19.2	38.2	24.1	20.5	16.8	15	10.5	12.7	15.3	23.6	24.4	33.4	12.6
3.01	<10	5.06	2.87	4.59	5	2.45	4.53	1.09	4.91	2.6	3.19	2.55
113	67.8	266	73.2	453	345	59.4	84.1	30.9	445	74.9	35.6	57.4
763	270	358	109	120	144	43	84.4	114	108	212	213	622
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.0943	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
3.89	4.91	1.82	2.54	3.16	4.72	2.15	2.7	1.3	0.89	1.68	<0.1	<0.1
25.1	34.6	6.55	7.48	4.55	6.36	4.76	13.5	4.17	1.34	3.59	<0.1	4.48
203	200	56.8	42	13.3	7.1	24.2	138	29.2	14.6	23	<0.1	22.1
69.7	51.4	18.7	12.2	1.47	1.02	7.36	38.3	18.6	7.62	9.09	<0.1	7.75
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.0633	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
5.83	3.7	0.601	0.683	1.14	1.82	<0.1	0.824	1.1	<0.1	1.53	1.9	1.17
34.4	20.5	3.2	3.84	3.28	4.18	<0.1	5.53	2.75	2.44	4.37	5.06	2.26
216	108	42	31	14.7	12.1	3.64	75.4	26.7	20.3	36.6	19.3	14.9
85.2	34	22.6	17.7	4.13	4.15	<0.1	44.6	23.5	12.2	17.6	9.74	6.43
37.1	12.4	8.96	7.18	1.32	1.52	<0.1	18	10.1	5.16	7.71	3.67	2.5
14.7	<12	<12	<12	<12	<12	<12	86.8	<12	<12	<12	17.4	<12
70.3	57.7	<8	32.3	15.4	13.1	<8	14.1	20.2	<8	11.1	13.8	24.7
119	67.3	21.5	49.4	18.8	<16	<16	548	<16	19.1	34	75.6	31.3
1380	584	139	636	60.8	37	36.7	1150	35.2	125	135	294	152
1570	567	153	1020	48.6	27.6	42	735	26	98.8	111	189	122
2970	1130	222	1220	73.5	49	66.2	1170	45.9	181	169	365	188
818	333	77.9	457	25.8	<14	21.1	343	14.8	47.9	57.2	114	66.7
1670	572	139	878	42.8	<24	49.2	405	33.7	77.8	79.8	113	99.9
2030	821	152	662	78.7	44.3	46.9	1040	31.9	150	165	292	163
402	133	37.3	162	<0.023	<0.023	<0.023	145	<0.023	<0.023	<0.023	49.2	<0.023
1460	519	144	887	38.2	21.8	44.1	425	27.2	71.7	80.6	103	102
1270	623	192	764	163	80.9	70.3	1910	85.5	131	276	478	306
46	34	12.7	19.6	28.8	14.8	<10	91.8	13.4	<10	43.7	67.2	25.4
73.9	42.2	63.1	36	42.3	24.8	16.4	29	13.6	24.5	52.2	103	50.9
722	360	100	290	143	76.2	41.5	851	66	113	178	328	218
16.4	6.65	1.62	7.89	0.901	0.454	0.497	10.3	0.486	1.16	1.64	3.03	1.82
108	98.9	99.6	99	95.4	93.2	95.1	96.1	95.4	93.4	86.5	89.7	96.6
106	94.8	96.2	95.2	91.2	96.3	92.3	97.1	92.4	98.3	81.3	90	94.7
108	97	95.7	95.8	91.3	99.6	93.2	96.9	93	97.2	84.1	91	96
108	97.7	94.3	94.7	86.3	99.6	90.6	100	90.7	94.5	77.9	91.1	98.5
112	98.2	95.3	96.8	84.1	99.9	92.3	100	91.2	93.2	78.2	84.8	99.4
301	291	83.9	64.3	22.5	19.2	38.5	192	53.2	24.4	37.4	<0.1	34.3
341	167	68.4	53.3	23.3	22.3	3.64	126	54	35	60	36	24.8
-	124000	121000	109000	-	110000	66800	-	213000	-	45800	-	187000
-	20200	28300	13800	-	18800	5130	-	12200	-	8780	-	25500
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	0.463	0.278	0.0929	-	0.15	0.0668	-	0.322	-	0.223	-	0.436
10.9	11.3	7.92	8.8	9.37	9.32	9.29	9.18	10	9.03	8.37	9.01	11.3
-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.384	0.293	0.302	-	0.372	0.0965	-	0.134	-	0.385	-	0.204
-	1.15	0.879	0.906	-	1.12	0.29	-	0.402	-	1.16	-	0.612
-	0.579	0.241	0.299	-	0.396	0.138	-	0.315	-	0.24	-	0.563
3.72	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	6.12	<1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
-	-	-	<0.001	-	-	-	-	-	-	<0.001	-	<0.001
-	04/06/2018	04/06/2018	04/06/2018	-	04/06/2018	04/06/2018	-	04/06/2018	-	04/06/2018	-	04/06/2018
-	Marcin Magdziarek	Andrzej Ferfecki	Marcin Magdziarek	-	Marcin Magdziarek	Renata Bozhkov	-	Andrzej Ferfecki	-	Barbara Urbanek-Walsh	-	Andrzej Ferfecki
-	-	-	0.0011	-	-	-	-	-	-	<0.001	-	<0.001
-	-	-	None	-	-	-	-	-	-	None	-	None
-	-	-	N/C	-	-	-	-	-	-	N/C	-	N/A
-	-	-	0.0016	-	-	-	-	-	-	<0.001	-	<0.001
-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Detected	-	Not Detected
-	Not Detected	Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Detected
-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	Trace	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	0	0	Loose fibres in soil	-	0	0	-	0	-	Loose fibres in soil.	-	soil containing material typical of asbestos cement
107	107	109	105	112	105	104	104	112	102	99.9	95.5	102
96	97.4	95.9	97.9	99.3	99.5	97.9	98.7	97.5	96.9	94.9	92.3	97.8
89.4	94.1	89.7	92	91.4	97.5	96.5	96.8	90	88.6	86.7	79	96.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

40ATP15	40ATP15	40ATP01V	40ATP02V	40ATP15	40ATP03V	40ATP04V	40ATP05V	40ATP06V	40ATP08V	40ATP10V	40ATP11V	40ATP12V
0.700.70	1.001.00	3.603.60	4.004.00	1.201.20	2.602.60	2.102.10	0.800.80	1.201.20	3.003.00	0.500.50	2.002.00	1.101.10
24/05/2018	24/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	23/05/2018	24/05/2018	24/05/2018	24/05/2018	24/05/2018
2.57	2.93	3.52	29.3	2.34	1.76	3.36	61	11.3	1.54	4.5	2.24	6.83
9.84	10.4	9.37	11.1	5.56	10.5	9.33	5.02	20.7	12.1	10.2	12.7	14.4
1.32	0.456	0.381	0.0557	0.744	<0.02	0.271	0.119	0.981	0.171	0.153	0.221	0.423
37.2	12.4	35.1	17.2	20.4	34.6	34.7	7.12	32.5	30	36.8	35.8	35.5
34	23.2	29.2	20.7	17.4	14	21.6	14.8	30.3	13.1	27.3	20.3	25.5
109	31.6	23.1	15.4	28.9	25.3	24.6	4.2	61.1	26.5	23.8	23.4	38.1
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
17.3	16.2	33	28.8	11.9	36.1	34.7	13.7	28	37.2	37	36.8	28.2
1.99	1.14	<1	1.97	3.34	<1	1.02	2.27	<1	1.06	1.14	1.11	1.28
44.7	22.9	51.9	32.9	46.6	54.4	56.6	13.9	51	59.8	59.9	61.1	55.1
425	96.1	143	81.6	89.5	101	108	44.9	192	120	113	115	148
<0.04	<0.04	<0.04	0.0442	<0.04	<0.04	<0.01	<0.04	0.0524	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	0.104	<0.04	<0.04	<0.01	<0.04	0.0823	<0.04	<0.04	<0.04	<0.04
<0.04	0.0631	<0.04	0.122	<0.04	<0.04	<0.01	<0.04	0.146	<0.04	<0.04	<0.04	<0.04
<0.04	0.337	<0.04	0.0884	<0.04	<0.04	<0.01	<0.04	0.198	<0.04	<0.04	<0.04	<0.04
0.455	26.2	<0.1	<0.1	<0.1	<0.1	<0.1	2.56	3.68	1.45	<0.1	8.02	<0.1
7.92	73.8	<0.1	<0.1	<0.1	<0.1	<0.1	8.12	<0.1	4.7	<0.1	5.29	<0.1
47.2	391	<0.1	<0.1	<0.1	<0.1	<0.1	467	6.89	41.6	2.86	7.28	3.43
16.7	149	<0.1	<0.1	<0.1	<0.1	<0.1	3.36	<0.1	13.9	<0.1	0.79	<0.1
<0.04	<0.04	<0.04	0.51	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0492	<0.04	0.231	<0.04	<0.04	<0.01	<0.04	0.0972	<0.04	<0.04	<0.04	<0.04
<0.04	0.224	<0.04	0.0598	<0.04	<0.04	<0.01	<0.04	0.133	<0.04	<0.04	<0.04	<0.04
0.937	5.61	<0.1	<0.1	1.59	<0.1	<0.1	2.37	1.97	1.3	<0.1	<0.1	<0.1
4.81	42.3	0.531	3.34	7.59	<0.1	<0.1	12.9	4.5	3.67	<0.1	<0.1	1.02
37.8	312	13.7	146	6.57	<0.1	3.89	2870	94.3	25.4	6.58	10.7	29
20.1	137	1.44	10.6	<0.1	<0.1	<0.1	79.3	13.3	14.2	1.08	5.84	2.77
8.64	51.4	0.273	1.05	<0.1	<0.1	<0.1	12.2	4.05	5.67	<0.1	2.09	<0.1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
113	76.5	<8	<8	37.8	<8	<8	<8	<8	54.1	<8	<8	<8
113	65	<16	<16	103	<16	<16	<16	<16	<16	<16	<16	<16
132	122	<14	<14	98.5	<14	37.6	<14	98.8	45.1	<14	<14	35.7
101	99.6	<15	<15	73.7	<15	36.1	<15	96.8	50.4	<15	<15	32.9
157	190	<15	<15	120	<15	41.3	<15	161	75.9	<15	<15	77.5
57.1	56	<14	<14	40.5	<14	19.8	<14	55.8	24.7	<14	<14	<14
96.1	90.3	<24	<24	61.1	<24	<24	<24	72.7	41.8	<24	<24	<24
152	117	<10	<10	105	<10	29	<10	122	50.9	<10	<10	40.2
<0.023	32.3	<0.023	<0.023	<0.023	<0.023	<0.023	191	<0.023	<0.023	<0.023	<0.023	<0.023
87.7	86.3	<0.018	<0.018	56.2	<0.018	<0.018	260	75.3	38.3	<0.018	<0.018	<0.018
356	265	<0.017	<0.017	285	<0.017	46.6	<0.017	247	63.6	<0.017	<0.017	81.2
60.8	92.2	<10	<10	36	<10	<10	<10	<10	21.4	<10	<10	<10
52.2	60.6	<9	41.4	39.9	<9	<9	<9	<9	42.9	<9	<9	<9
974	290	<15	<15	345	<15	<15	<15	106	60.1	<15	<15	41.6
2.74	1.87	<0.118	<0.118	1.62	<0.118	0.254	0.45	1.23	0.632	<0.118	<0.118	0.372
98.8	98.5	90.7	104	99.5	103	98.9	98.4	95.6	90.7	91.9	86.4	92.9
94.6	96.2	88.4	102	94.5	98.1	98.6	95.1	97.4	89.6	92	86	93.1
96.2	98.9	89.5	103	94.3	96.6	102	94.5	101	98	90.6	84.9	94.9
98	98.1	88.4	95.2	92.5	88.5	96.9	99.5	99.1	102	90.5	82.6	96.2
102	98.7	82.7	87.5	94.4	86.4	91.7	94.5	94.2	102	91.2	88.3	96.2
72.3	640	<0.1	<0.1	<0.1	<0.1	<0.1	481	10.6	61.7	2.86	21.4	3.43
63.7	497	15.6	160	15.8	<0.1	3.89	2970	114	44.6	7.66	16.5	32.8
-	162000	-	-	-	-	-	-	-	-	-	-	-
-	59300	-	-	-	-	-	-	-	-	-	-	-
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.054	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	0.116	-	-	-	-	-	-	-	-	-	-	-
11.3	9.09	6.76	8.23	10.5	7.73	7.37	7.94	7.66	9.8	7.02	7.19	7.09
-	-	-	-	-	-	-	-	-	-	-	-	-
-	0.166	-	-	-	-	-	-	-	-	-	-	-
-	0.498	-	-	-	-	-	-	-	-	-	-	-
-	0.22	-	-	-	-	-	-	-	-	-	-	-
<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
<12	25.7	398	424	<12	197	405	145	293	256	272	261	218
-	<0.001	-	-	-	-	-	-	-	-	-	-	-
-	04/06/2018	-	-	-	-	-	-	-	-	-	-	-
-	Barbara Urbanek-Walsh	-	-	-	-	-	-	-	-	-	-	-
-	<0.001	-	-	-	-	-	-	-	-	-	-	-
-	None	-	-	-	-	-	-	-	-	-	-	-
-	N/A	-	-	-	-	-	-	-	-	-	-	-
-	<0.001	-	-	-	-	-	-	-	-	-	-	-
-	Detected	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	-	-	-	-	-	-	-	-	-	-
-	Loose fibres in soil.	-	-	-	-	-	-	-	-	-	-	-
104	100	102	100	106	109	121	103	94.4	105	108	104	106
97.9	97.6	100	97.2	99.4	99.1	98.3	93.7	93.8	99.3	97.1	98.5	96.6
90.9	96.7	98.2	85.9	92.1	101	99.4	77.9	74.7	96.1	94.1	95.7	92.8
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	0.333	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

40ATP14V	40ATP15V	40AD11	40AD11	40AD12	40AD12	40AD15	40AD15	40AD15	40AD21	40AD21	40AD21	40AD21	40AD22	40AD22	40AD22	40AD22	40AD24	40AD24
3.003.00	1.301.30	0.500.50	2.602.60	0.500.50	1.001.00	0.800.80	1.301.30	2.002.00	0.500.50	1.001.00	2.002.00	3.003.00	0.400.40	0.900.90	2.002.00	2.502.50	0.500.50	1.001.00
24/05/2018	24/05/2019	28/06/2018	28/06/2018	19/06/2018	19/06/2018	19/06/2018	19/06/2018	19/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018
1.11	2.12	8.98	2.48	1.55	1.47	1.47	2.12	5.1	7.62	8.46	1.54	3.74	1.78	4.71	7.46	1.84	4.09	9.36
6.34	7.57	13.6	8.79	17.3	7.04	7.35	276	182	6.87	2.68	11.8	8.58	36.2	24	18.2	22.6	9.27	9.5
0.125	0.217	0.642	0.634	1.7	0.884	0.477	1.2	1.17	1.03	0.519	0.27	0.502	1.25	1.98	3.75	1.48	0.622	0.415
27.5	32.6	26.6	123	166	47.2	47.7	337	190	<9	5.74	46.8	18.1	<9	9.02	19.6	<9	18.3	14.4
10.8	15.4	24	15.1	54.4	13.4	10.1	315	243	83.3	8.39	<14	23.1	17.9	40.4	29	22.8	16.6	28.6
23.4	27.8	103	52.8	157	75.6	24.8	151	99.2	75.6	46.1	15.5	33.6	60.7	187	78.5	75.8	59	32.5
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.148	0.147	<1.4	<0.14	<1.4	<0.14	<1.4	<1.4	2.57	<1.4	<1.4	<0.14
32.7	37.3	15.3	12.9	17.6	10.2	5.86	12	13.1	18.5	6.2	12.5	15.9	43.3	48.2	34	27.9	13.6	41.8
<1	<1	1.83	3.28	3.88	1.72	5.89	3.54	2.73	<10	2.71	<10	3.58	<10	<10	<10	<10	<10	1.94
51.8	55.4	60.5	307	111	44.5	81.5	110	81.3	43.6	32.8	132	63.3	189	145	56.5	116	63.9	40.2
110	121	277	121	291	141	1950	3690	1700	304	193	45.6	80.6	136	435	229	336	139	91.5
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.121	<0.04	<0.04	<0.04	0.0512	<0.04	<0.04
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0559	<0.04	<0.04	<0.04	0.403	<0.04	<0.04	<0.04	0.139	<0.04	0.0533
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0724	<0.04	<0.04	<0.04	2.84	<0.04	<0.04	<0.04	0.168	<0.04	0.287
<0.1	<0.1	1.43	0.351	<0.1	<0.1	1.18	0.363	12.9	2.34	1.68	1.15	92.4	<0.1	3.5	3.42	4.69	19.7	2.74
<0.1	<0.1	16.1	4.24	0.807	1.15	9.11	6.64	31	5.99	15.2	6.31	94.8	<0.1	15	10.2	13.8	34.4	7.37
<0.1	<0.1	54.1	12.2	10.3	8.85	54.6	57.3	107	16.3	261	18.1	38.3	7.02	57.5	33.2	20.3	133	19.7
<0.1	<0.1	12.8	3.62	2	<0.1	18.8	22.8	33.5	3.99	205	5.45	11	1	18.6	8.91	2.66	72.9	2.75
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0516	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0542	<0.04	0.129	<0.04
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0516	<0.04	<0.04	<0.04	0.269	<0.04	<0.04	<0.04	0.0952	<0.04	0.052
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0483	<0.04	<0.04	<0.04	1.89	<0.04	<0.04	<0.04	0.112	<0.04	0.192
<0.1	<0.1	5.06	0.712	<0.1	0.552	0.908	0.812	4.34	<0.1	1.86	0.256	11.2	<0.1	<0.1	1.25	<0.1	4.21	2.71
<0.1	0.771	44.1	5.3	2.48	3.03	3.91	4.73	15	4.11	6.56	3.3	21.3	0.362	3.86	4.51	4.14	22.7	3.98
2.19	7.53	103	22.1	14	14.2	32	46.7	51.1	34.2	239	16.9	25.6	5.76	29.5	18.1	9.19	167	24.4
<0.1	1.51	27.3	11.7	6.2	7.64	20.5	37.4	24.1	30.6	272	8.55	13.8	1.03	17	7.85	1.88	117	7.14
<0.1	<0.1	8.94	5.33	2.27	3.2	8.96	15.7	9.25	12.8	120	3.28	6.29	<0.1	6.52	3.05	<0.1	49.7	2.23
<12	<12	279	<60	29.4	26.3	13.8	<12	<12	<12	<120	<12	<12	<12	17.3	<12	<12	<60	45.2
<8	<8	41.6	<40	<8	8.75	11.7	<8	<8	<8	<80	<8	<8	<8	<8	21.1	<8	<40	16.6
<16	<16	663	143	34.2	54.5	37.3	22.2	22.2	<16	<160	35.3	<16	<16	30	19.4	<16	<80	<16
<14	<14	1560	320	198	166	197	66	90.5	37	<140	131	45.6	<14	106	38.9	<14	<70	<14
<15	<15	1200	247	140	117	215	65.5	92.9	39.4	<150	112	43.6	<15	119	38.7	<15	<75	<15
<15	<15	2050	421	275	223	381	124	114	54.2	169	156	67.9	22.7	141	60.8	24.2	<75	<15
<14	<14	774	221	89.7	78.1	125	45.1	46	22.6	<140	66.8	24	<14	69.9	17.7	<14	<70	<14
<24	<24	884	189	98.7	105	198	62.9	84.9	50.2	<0.24	87.1	32.2	<24	162	43.1	<24	<120	<24
<10	<10	1500	343	202	171	193	82.7	97.3	37.5	103	127	44.6	15.5	113	49.5	17.5	<50	<10
<0.023	<0.023	240	<0.115	31.5	29.8	46	<0.023	<0.023	<0.023	<0.23	<0.023	<0.023	<0.023	26.6	<0.023	<0.023	<0.115	<0.023
<0.018	<0.018	852	171	111	102	142	41	96.5	40.5	182	103	31.5	<0.018	166	34.4	<0.018	<90	<0.018
<0.017	<0.017	3030	677	374	425	363	131	172	66.8	181	252	67	23	175	89	33	<0.085	30.1
<10	<10	190	<50	13.9	23.1	<10	<10	12.1	10.5	<0.1	14.7	<10	<10	<10	22.6	<10	<50	38
<9	<9	467	103	26.7	78.4	55.4	62.3	113	16.2	<90	39	21.1	32	55.9	95.5	94.2	163	1450
<15	<15	1610	344	170	241	155	81.2	98.6	73.3	<150	135	48	34.4	118	166	44.2	<75	55.9
		2.41	0.541	0.228	0.282	0.35	0.131	0.179	0.0713	0.179	0.19	0.0578	0.0236	0.166	0.0728	0.0324	<0.075	0.0299
<0.118	<0.118	17.8	3.72	2.02	2.13	2.48	0.915	1.22	0.52	<1.18	1.45	0.483	0.151	1.46	0.77	0.245	<0.59	1.67
91.9	83.3	106	104	91.9	92.8	103	99.9	93.5	88.4	82	85.5	98.5	91.4	87.2	83.6	85.9	98.5	91.6
94.8	85.2	111	106	89.7	86.2	111	96.3	98.7	92.4	83.5	88.5	94	90.6	92.8	83.8	89.9	95.5	93.7
97.6	86.5	113	114	88.4	90.8	121	99.7	97.1	98.4	86.5	91.5	91.6	91.3	95.2	83.5	90.6	88.4	96.2
97.7	86.9	87	87.3	84	80.1	101	81.7	78.6	79	71.8	76.5	94.4	78.1	71.8	62.8	71.7	99.4	77.5
104	88.1	84.4	85.4	82.3	79.6	102	78.8	76.7	78.3	70	75.3	97	74	70.4	54.4	70.6	99.9	73.2
<0.1	<0.1	84.5	20.4	13.1	10	83.7	87.1	184	28.7	483	31	237	8.03	94.5	55.7	41.5	260	32.6
2.19	9.81	179	39.8	22.7	25.5	57.3	89.7	94.5	68.9	519	29	71.9	7.15	50.3	31.7	15.2	311	38.2
		264	60.2	35.8	35.5	141	177	279	97.5	1000	60.1	314	15.2	145	87.4	57.3	571	71.3
-	-	76000	-	65600	101000	-	27900	-	-	-	-	85900	-	113000	-	218000	-	145000
-	-	12300	-	8920	12000	-	7930	-	-	-	-	18500	-	13900	-	8150	-	9440
<0.01	<0.01	<0.01	0.0113	<0.01	0.0111	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0108	0.0109
<0.01	<0.01	<0.01	<0.01	<0.01	0.0111	<0.01	<0.01	0.018	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0109
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-																	
9.18	7.78																	
-	-																	
-	-																	
-	-																	
-	-																	
<1	<1																	
33.2	151																	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	14/06/2018	-	14/06/2018	13/06/2018	-	13/06/2018	-	-	-	-	27/06/2018	-	27/06/2018	-	13/06/2018	-	14/06/2018
-	-	rzej Ferfecki	-	rzej Ferfecki	es Richards	-	es Richards	-	-	-	-	es Richards	-	es Richards	-	rzej Ferfecki	-	rzej Ferfecki
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-																	
-	-																	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected
-	-	0	-	0	0	-	0	-	-	-	-	0	-	0	-	0	-	0
107	104	104	101	105	110	106	106	107	112	103	104	103	106	106	105	106	105	105
92.9	98.8	96.9	96.2	98.2	97.4	98.3	97.5	94.2	98.6	98	99	91.2	96	95.9	96.4	97.3	96.6	99.3
83.1	92.6	95.4	80	100	92.5	97.4	96	97.5	89.5	99.1	98.8	73.8	87.6	88.6	80.6	93.2	91.7	97.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.502	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.23	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.42	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	0.934	0.425	<0.13	<0.13	<0.13	<0.13	<0.13	0.161	<0.13	<0.13	27.7	<0.13	<0.13	0.23
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	4.15	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

40AD24	40AD11V	40AD12V	40AD22V	40AD24V	40AE16	40AE16	40AE16	40AE16	40AE25	40AE25	40AE25	40AE25	40AE26	40AE26	40AE27	40AE27	40AE27
2.002.00	0.000.00	1.501.50	3.003.00	2.402.40	0.400.40	1.001.00	1.501.50	2.002.00	0.500.50	1.001.00	1.401.40	2.002.00	0.5	1.5	0.5	1	1.5
05/06/2018	28/06/2018	19/06/2018	05/06/2018	05/06/2018	20/06/2018	20/06/2018	20/06/2018	20/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	30/05/2018	30/05/2018	30/05/2018	30/05/2018	30/05/2018
1.67	8.45	5.4	1.81	1.17	4.43	2.29	5.91	8.1	4.6	6.1	8.15	5.28	2.97	3.59	4.47	3.33	4.6
12.9	18.3	11.2	17.6	15.3	7.55	9.81	10.7	11.8	7.16	6.92	14.8	7.72	4.65	7.84	7.41	8.01	10.4
0.332	0.21	0.273	6.42	0.0366	1.49	0.376	0.723	0.263	2.53	1.04	1.68	0.404	1.09	2.26	1.49	1.02	0.988
32.3	38.4	42	31.2	25.4	37.8	17.8	14.8	6.82	472	255	141	8.46	323	281	176	250	61.8
<14	28.4	37.4	29.4	11.7	112	19.9	27.8	14.8	19.5	18.5	33	21.8	25.5	27.2	18.7	52	25.7
53.7	44.7	14.4	89.5	28.6	187	26.1	59.1	16.7	124	98.4	284	20.8	63.5	265	217	86.7	93.6
<1.4	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<0.14	<0.14	<1.4	<1.4	<1.4	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14
33.6	26.9	43.5	45.2	37	105	13.9	24.1	16.4	14.5	9.53	17.6	24.8	9.42	19.6	11.1	14.4	16.6
<10	<1	2.05	<10	<1	<10	3.95	3.3	<1	11.1	<10	<10	1.13	7.33	<10	5.77	6.77	4.28
59.7	54.2	62.9	57.4	51.8	92.8	53.9	39.2	15.8	381	233	185	20.8	318	303	279	333	133
129	148	107	403	105	616	103	209	58.9	252	296	681	53	256	640	784	201	313
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	0.049	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	0.0887	<0.04	<0.04	<0.04	0.0833	<0.04	15.9	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.078	<0.04	0.0734	<0.04	<0.04	<0.04	0.942	<0.04	23	0.0842	0.0464	0.0912	<0.04	<0.04	0.228	<0.04	<0.04	<0.04
6.16	0.441	<0.1	<0.1	<0.1	4.53	92.6	40.1	20.2	3.74	5.37	1.77	6.02	11	5.57	4.44	16.4	21.6
10.9	<0.1	<0.1	<0.1	<0.1	20.2	136	68.9	30.4	47.7	24.2	9.4	16.4	29.9	21.2	18	44	47.1
8.96	1.9	<0.1	<0.1	<0.1	113	42.8	48.5	51.2	52.6	84.1	30.7	57	157	473	132	209	235
1.58	5.9	<0.1	<0.1	<0.1	53.7	11.6	11	10.3	12.9	20.8	7.89	9.83	46.5	214	55.7	63	89.8
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.184	0.826	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	0.0597	<0.04	<0.04	<0.04	0.0655	<0.04	13.5	<0.04	<0.04	0.0424	0.0565	<0.04	<0.04	<0.04	<0.04	<0.04
0.052	<0.04	0.049	<0.04	<0.04	<0.04	0.628	<0.04	15.3	0.0557	<0.04	0.0608	<0.04	<0.04	0.151	<0.04	<0.04	<0.04
1.24	0.637	<0.1	<0.1	<0.1	1.95	9.17	6.39	6.85	1.8	2.7	1.95	1.42	<0.1	3.64	1.65	<0.1	1.86
3.49	3.67	<0.1	1.13	<0.1	10.3	49.8	25.9	33.8	21.4	14.8	7.63	6.04	5.94	15	10.3	5.01	14.9
8.48	68.7	7.17	3.23	<0.1	112	35.8	37.4	71.5	138	93.5	24.8	21.4	40	135	80.1	38.1	208
5.55	9.39	5.01	6.87	<0.1	113	18	17.2	32.4	39.8	48.8	7.4	2.84	7.11	77.5	43.4	8.85	94.8
2.21	1.32	2.35	3.75	<0.1	46.9	7	6.41	7.52	13.8	20.3	2.6	0.283	1.27	30.1	17.6	2.33	38.6
18.3	<12	<12	<12	<12	<60	<12	33.1	<12	22.5	52.7	41.9	<12	45.1	22.2	<60	28.7	28
<8	31.6	<8	<8	<8	<40	18.9	28.1	15.3	96.9	49.8	23.1	<8	129	178	<40	107	25.9
<16	<16	<16	<16	<16	186	<16	96.6	<16	178	139	89.6	71.7	461	127	<80	457	55.6
19.9	30.7	<14	<14	<14	271	49.8	226	27	1420	732	241	<14	1520	284	405	933	445
<15	32.4	<15	<15	<15	243	45.5	203	17.9	1880	1100	1950	<15	1270	306	439	757	490
24.2	51.9	<15	<15	<15	406	78.8	317	<15	2150	1350	2180	18.6	1930	433	499	1090	703
<14	<14	<14	<14	<14	172	29.3	121	<14	694	477	814	<14	835	173	237	399	295
<24	<24	<24	<24	<24	284	55.1	122	<24	1480	1200	1490	<24	1040	260	376	456	364
16.8	36.3	<10	<10	<10	261	56	181	35.9	1380	793	488	21.2	1380	320	468	951	534
<0.023	<0.023	<0.023	<0.023	<0.023	<0.115	<0.023	39.5	<0.023	282	191	257	<0.023	225	57.1	<0.115	108	77.3
<0.018	41.1	<0.018	<0.018	<0.018	250	45.5	118	<0.018	1660	1280	1630	<0.018	952	275	326	465	362
46.4	62.2	<0.017	<0.017	<0.017	678	122	390	99.3	2190	1110	376	30.6	3110	640	754	2110	673
41	<10	<10	<10	<10	<50	<10	50	28.7	48.3	51.9	43	<10	87	144	<50	131	30.9
187	<9	<9	<9	<9	157	166	551	6970	215	239	958	182	226	203	213	123	87.6
129	37	<15	<15	<15	368	31.7	282	123	768	540	177	75.3	2780	540	353	1330	294
0.0597	0.0504	<0.015	<0.015	<0.015	0.547	0.107	0.338	0.0677	2.3	1.12	0.608	0.0301	2.88	0.595	0.833	1.9	0.676
0.542	0.374	<0.118	<0.118	<0.118	3.82	0.806	3.1	7.39	16.8	10.4	11.4	0.43	18.9	4.56	4.91	11.3	5.14
83	100	88.6	89.9	85.2	93.7	94.9	92.4	91	87.8	87.5	32.2	95.1	90.9	88.8	104	89.5	89.1
87.3	93.3	85.7	90.6	87.9	93.8	89.6	88	95.9	91.7	96.3	31.1	92.8	98.1	92	93.1	84.5	92.6
93.2	95.9	91.2	95.1	93.3	99.4	86.6	89.3	84.4	98.3	103	29.5	86.9	108	93.6	99.9	95.3	99.1
76.3	96.2	79.4	88.5	77.9	87.4	71.8	70	43.6	85.8	83.2	25.3	46.1	108	77.5	95.3	106	109
76.2	101	84.2	91.5	76.4	89.4	72.3	68.9	25	85.1	81.8	23.6	26.8	102	74.4	86.9	96.5	102
27.6	8.23	<0.1	<0.1	<0.1	191	283	169	112	117	135	49.7	89.3	245	714	210	332	393
18.8	82.4	12.2	11.2	<0.1	237	113	86.9	145	201	160	41.7	31.7	53	231	135	52	320
46.5	90.6	12.5	11.2	<0.1	428	397	255	324	318	294	91.8	122	298	945	346	384	713
-	-	159000	174000	-	118000	-	-	-	-	89100	-	111000	-	-	138000	100000	154000
-	-	17900	29800	-	19300	-	-	-	-	11300	-	24400	-	-	16700	14000	10200
0.0113	0.088	0.0113	0.0112	0.179	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0105	<0.01
0.158	<0.01	<0.01	<0.01	0.0112	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.023	<0.01	<0.01	<0.01	<0.01
0.113	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
0.283	0.088	<0.035	<0.035	0.19	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	27/06/2018	-	28/06/2018	-	-	04/07/2018	03/07/2018	28/06/2018
-	-	-	-	-	-	-	-	-	-	rzej Ferfecki	-	rzej Ferfecki	-	-	Lucy Caroe	es Richards	rzej Ferfecki
-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected	Not Detected
-	-	-	-	-	-	-	-	-	-	0	-	0	-	-	0	0	0
105	109	105	105	108	110	106	103	108	108	109	109	110	105	103	113	112	109
98.1	98.4	98.2	99.4	100	96.3	98.9	97.7	98.5	98	98.4	97.5	100	98.6	94.1	98.5	98.3	96.3
89.4	97.5	90.8	93	102	92.9	90	96.8	100	97.4	91.6	87.2	92.3	89.6	93.7	87.6	83.7	88.6
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
0.572	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.126	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.212	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
0.16	<0.13	0.928	<0.13	<0.13	<0.13	1.25	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
0.572	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
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40AE16V	40AE25V	40AE26V	40AE27V	40AF10	40AF10	40AF10	40AF10	40AF12	40AF12	40AF12	40AF13	40AF14	40AF14	40AF14	40AF16	40AF16	40AF16
2.802.80	2.802.80	2.5	2.3	0.400.40	0.800.80	1.201.20	1.401.40	0.500.50	1.001.00	2.302.30	0.800.80	0.300.30	0.700.70	1.201.20	0.600.60	1.601.60	2.002.00
20/06/2018	05/06/2018	30/05/2018	30/05/2018	19/06/2018	19/06/2018	19/06/2018	19/06/2018	28/06/2018	28/06/2018	28/06/2018	19/06/2018	19/06/2018	19/06/2018	19/06/2018	20/06/2018	20/06/2018	20/06/2018
1.03	1.53	0.965	1.32	2.19	1.47	1.12	1.26	3.55	2.26	14.2	2.91	10.8	17.6	7.34	1.29	3.17	4.1
17.4	12.8	10.3	14.3	9.95	9.83	9.69	6.15	7.04	24.9	14.7	8.66	13.8	10.2	9.09	8.58	9.31	10.5
0.323	0.0661	0.208	0.298	0.935	0.269	0.277	0.191	<0.2	<0.02	<0.2	0.679	5.38	6.58	1.13	1.28	0.666	2.95
28	30.4	26.6	39.1	23.7	40.9	41.3	20.7	229	66.7	<9	16.5	514	415	100	3.59	9.81	13.8
10.5	14.5	10.5	12.1	15	9.72	15.4	12.4	26.2	12.2	22.1	11.5	14.5	<14	25.1	6.84	21.4	24.9
23.3	27.5	28.8	31.7	31.1	22.7	19.9	8	86.2	37	231	60.4	559	512	113	93.5	56.1	154
<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14
38.5	38.2	27.3	35.3	21.1	12.5	18.4	13.9	17.4	12.4	20.5	13.3	18.6	21.5	20.6	8.85	18.1	29.3
<1	<1	<1	1.15	<10	4.91	4.1	5.11	<10	3	<10	1.09	10.1	<10	2.7	<1	<1	1.32
53.6	55	52.2	72.9	67.4	112	253	39.5	140	143	84.9	26.6	392	345	101	13.2	24.4	28.7
109	104	105	132	87.9	110	64.5	43.7	207	121	449	229	1730	2130	418	90.9	341	201
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0978	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.0409	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.429	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
3.31	<0.04	<0.04	0.0585	<0.04	<0.04	<0.04	0.158	<0.04	<0.04	<0.04	<0.04	<0.04	0.062	<0.04	<0.04	0.0477	0.0413
3.58	<0.04	<0.04	0.14	<0.04	<0.04	0.0425	0.16	<0.04	<0.04	0.0441	<0.04	<0.04	0.122	<0.04	0.0516	0.0758	0.0588
<0.1	<0.1	0.606	0.791	5.11	1.11	2.9	2.15	4.1	12.2	15.3	1.53	4.12	3.33	0.412	2.58	9.6	3.18
<0.1	<0.1	1.45	3.02	15.4	2.28	6.34	6.04	29.6	37.9	52.5	4.82	23.7	23.2	3.5	5.22	16.1	6.02
7.21	<0.1	9.2	12.4	49	12	20.5	30	287	78.9	141	27.6	83.7	77.7	18.1	10.9	25.5	10.8
2.56	<0.1	1.47	4.25	15.3	12.7	3.7	10.6	318	23	50.6	11.2	10	8.67	4.5	3.19	6.29	1.65
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.108	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
2.93	<0.04	<0.04	0.0505	<0.04	<0.04	<0.04	0.328	<0.04	<0.04	<0.04	<0.04	<0.04	0.0573	<0.04	<0.04	0.052	0.066
2.39	<0.04	<0.04	0.0931	<0.04	<0.04	<0.04	0.107	<0.04	<0.04	<0.04	<0.04	<0.04	0.0807	<0.04	<0.04	0.0509	<0.04
<0.1	<0.1	<0.1	<0.1	1.87	1.21	3.01	<0.1	3.99	2.87	5.2	1.67	4.78	4.38	1.12	0.752	2.72	1.5
<0.1	<0.1	<0.1	1.34	6.27	2.72	3.75	<0.1	22.1	12.7	19.7	5.19	21.9	20.9	3.31	1.98	5.57	3.87
0.884	1.73	3.92	8.67	22.7	13.6	9.37	5.72	598	36.7	57.5	28.1	43.6	37.2	14.2	5.83	12.8	11.8
<0.1	0.675	1.17	6.1	18	24.2	<0.1	0.848	754	21.1	57.8	16.1	8.85	5.53	7.37	1.41	2.81	1.44
<0.1	<0.1	<0.1	2.76	8.33	12.2	<0.1	<0.1	324	8.6	28.4	6.78	3.2	2	2.69	<0.1	<0.1	<0.1
<12	<12	<12	<12	<12	<12	<12	<12	<60	<12	<12	<12	23.1	14.3	<12	<12	<12	<12
<8	<8	<8	19.9	<8	<8	<8	<8	96.8	36.7	796	<8	37.5	32.9	<8	<8	<8	<8
<16	<16	<16	38.1	<16	<16	<16	19.3	<80	28.9	218	25.2	194	161	23.1	<16	18.1	<16
<14	<14	18.5	105	63.9	35.3	38.6	86.7	288	39.5	65.8	36.1	171	173	30.6	<14	42	19.7
<15	<15	<15	101	71.4	28	35.5	79.2	298	30.2	41.7	31.2	79	58.9	<15	<15	38.7	23.9
<15	<15	27.6	133	140	49.3	47.4	148	433	61.6	88.4	66.7	262	190	41.6	<15	88.5	35
<14	<14	<14	45.8	36.7	20.7	16	56.6	165	22.1	25.8	20.3	88	42.9	17.8	<14	23.9	<14
<24	<24	<24	72.9	73.7	33.1	31.3	84.2	256	32	41.4	31.9	60.3	43.3	<24	<24	47.4	25.3
<10	<10	22.3	111	82.8	41.8	48.1	112	336	64.5	97.4	61.1	279	184	40.8	<10	47	27.8
<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.115	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023
<0.018	<0.018	<0.018	64.8	89.2	26	28.9	64.4	214	27.8	28.9	<0.018	34.7	<0.018	<0.018	<0.018	51.1	<0.018
<0.017	<0.017	36.1	219	153	78.5	74	182	473	114	430	99	994	959	105	<0.017	86.5	41.6
<10	<10	<10	21.1	<10	<10	<10	21.1	53.9	33.5	527	<10	104	95.1	12.7	<10	17.4	<10
414	<9	<9	32	34.5	89	53.1	72.9	124	75.1	250	58.6	300	253	40.8	<9	105	32.9
<15	<15	27.1	139	112	86.6	66.2	159	307	144	1080	152	1200	995	131	27.3	147	101
<0.015	<0.015	0.0339	0.206	0.14	0.063	0.0608	0.157	0.389	0.112	0.367	0.0844	0.805	0.81	0.0928	<0.015	0.0695	0.0445
0.414	<0.118	0.166	1.31	0.998	0.551	0.5	1.24	3.43	0.822	4.05	0.666	4.64	4.01	0.536	<0.118	0.782	0.352
87.9	78	79.4	81.7	89.8	95.7	89.1	99.6	110	102	98.3	103	98	105	90.2	93	92.7	87.1
79.8	78.4	74.5	85	91.2	86.9	87	95	106	100	100	108	102	109	78.1	97.9	100	92.3
82	82.9	76.2	87.5	91.1	90.1	85.4	102	100	105	94.9	114	97.2	103	88.9	102	98.3	92
75.8	72.6	79.5	77	81.5	77.9	78.9	91.8	93.4	87.3	69.8	102	49.1	58.4	70.1	95.2	86.2	76.2
78.3	70.5	71.7	77	85	77.3	75.2	90.7	91.2	78.3	58.6	92.4	27.8	30.6	57.7	99.6	75.7	74.2
9.77	<0.1	12.7	20.4	84.9	28.1	33.4	48.9	638	152	259	45.1	122	113	26.5	21.9	57.4	21.7
0.884	2.41	5.09	16.1	48.9	41.7	16.1	6.57	1380	73.4	140	51.1	79.1	67.9	26	9.97	23.9	18.6
22.9	2.41	17.8	36.9	134	69.8	49.6	56.8	2020	226	399	96.2	201	181	52.6	31.9	81.5	40.4
171000	-	51500	153000	-	67300	77900	-	-	101000	8570	-	-	-	-	-	-	-
30500	-	8920	74400	-	6450	15100	-	-	9670	3700	-	-	-	-	-	-	-
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0167	0.018	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
27/06/2018	-	27/06/2018	28/06/2018	-	28/06/2018	10/07/2018	-	-	-	10/07/2018	-	-	-	-	-	-	-
rzej Ferfecki	-	Lucy Caroe	Magdziarek	-	Lucy Caroe	Lucy Caroe	-	-	-	Lucy Caroe	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-
Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-
Trace	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	Not Detected	-	-	-	-	-	-	-
0	-	0	0	-	0	0	-	-	-	0	-	-	-	-	-	-	-
106	106	109	106	101	110	104	104	108	104	113	110	98.3	105	106	112	110	106
95.2	90.2	98.5	99.4	95.7	96.3	92.9	95.1	97.7	99.2	94.8	99.8	94.9	101	96	98.3	101	98.4
85.3	74.7	90.6	94.4	85.5	82.4	102	108	91.1	91.4	110	92.3	110	80.4	102	94.9	83.6	98.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.175	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.509	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.181	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.865	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1.28	1.87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.12	1.56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.18	1.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0.74	1.09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.23	1.28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.5	15.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12.6	16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

40AF19	40AF19	40AF26	40AF26	40AFG18	40AFG18	40AFG18V	40AF10V	40AF12V	40AF13V	40AF14V	40AF16V	40AF19V	40AG12	40AG15	40AG15	40AG16	40AG16	40AG17
1.001.00	2.002.00	0.7	1.3	1.001.00	2.002.00	2.902.90	2.202.20	1.701.70	1.501.50	1.901.90	2.302.30	4.604.60	1.001.00	0.700.70	1.701.70	0.500.50	2.002.00	0.500.50
03/07/2018	03/07/2018	30/05/2018	30/05/2018	03/07/2018	03/07/2018	03/07/2018	19/06/2018	28/06/2018	19/06/2018	19/06/2018	20/06/2018	03/07/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018
5.69	2.59	2.69	19.1	2.64	9.02	3.72	8.19	12.7	1.42	2.31	1.76	51	3.62	3.03	2.71	7.46	3.65	2.22
13	5.47	1.79	11.5	17.5	14	12.5	14.2	20	15	11.5	12.8	9.93	15.3	7.27	5.48	13	9.92	5.96
0.742	<0.02	0.199	1.22	0.0848	<0.2	<0.02	0.732	0.575	0.148	0.198	0.146	<0.02	<0.2	0.0465	0.0283	0.0736	0.0259	0.182
13.1	81.5	16.4	43	12	28.7	29.5	41.3	37.7	35.3	39.6	35.1	3.77	73.1	10.3	6.13	4.54	7.94	4.66
35	<1.4	6.1	23.9	24.3	30.8	13.3	34.7	29.6	13.7	14.1	16	11.7	34.4	22.6	10.4	22.6	22.5	17
78.3	6.39	12.9	131	23	48.8	26.4	54.3	50.9	25.9	31.4	26.7	8.28	54.5	19.5	15.1	24	33.1	17.7
<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14
28	32.9	4.35	13.4	41.5	37.8	34.4	34.7	29.3	41.9	37.7	43	23	22.7	23.8	11.6	18.2	28.5	14.5
<1	1.34	4.84	4.16	<1	<10	<1	1.85	<1	<1	1.54	<1	1.56	<10	<1	<1	<1	<1	<1
50.4	184	64.7	275	35.2	108	50.3	61.3	63.4	61.5	68.3	62.3	21.1	74.7	20.4	15.9	16.3	27.5	13.7
416	65.5	84.8	285	101	176	90.9	188	166	118	105	122	35.7	208	73.7	59.4	77	93.9	49.4
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0663	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.716	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0504	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.762	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
5.53	5.01	0.736	4.6	<0.1	2.01	<0.1	<0.1	0.29	<0.1	<0.1	<0.1	1.17	5.2	9.72	0.875	2.48	<0.1	<0.1
18.5	7.83	5.52	24.6	0.893	8.93	1.58	<0.1	1.01	<0.1	<0.1	<0.1	4.29	29.8	68.4	3.53	4.18	0.843	3.86
38	8.87	66.7	124	15.1	79.2	1.81	6.17	16.7	<0.1	<0.1	<0.1	20	217	92.6	18.1	11.8	7.45	3.54
7.27	1.24	35.9	38.9	2.02	14	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.456	33.3	3.05	3.37	2.09	1.44	0.584
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	6.37	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.508	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
2.05	4.25	<0.1	1.57	0.713	2.23	<0.1	0.16	<0.1	<0.1	<0.1	0.211	1.72	3.79	0.717	0.561	1.87	<0.1	0.487
9.5	6.03	3.82	11.3	1.8	7.62	<0.1	1.2	1.22	0.652	<0.1	0.469	6.55	17.5	6.88	4.72	5.29	<0.1	1.74
30.8	4.86	64.2	87.1	7.6	44.4	7.87	47.4	117	2.14	1.45	3.89	162	81.4	19.2	15.4	10.1	<0.1	4.86
17.3	1.28	65.1	42	1.72	18.3	1.26	6.57	12.5	0.534	<0.1	5.09	14.6	27.8	0.777	0.867	1.13	<0.1	5.99
7.13	<0.1	28.4	16	<0.1	6.84	<0.1	1.68	3.58	<0.1	<0.1	2.89	3.69	11	<0.1	<0.1	<0.1	<0.1	3.23
<24	<12	32	13.9	<12	<12	<12	<12	<12	<12	<12	<12	<12	16.8	<12	<12	<12	<12	<12
20.7	49.9	39.8	32.7	<8	<8	<8	<8	<8	<8	<8	<8	<8	21.1	<8	25.7	<8	<8	<8
95	36.5	73.9	56.4	<16	38.5	<16	<16	<16	<16	<16	<16	<16	82.8	<16	<16	30.8	<16	<16
266	<14	682	474	18.8	90.4	<14	<14	45.5	<14	<14	<14	<14	134	18.6	17.4	41.6	<14	<14
208	<15	976	551	<15	94	<15	<15	48.1	<15	<15	<15	<15	97.2	<15	<15	<15	<15	<15
329	<15	1230	1260	26.5	142	<15	36.8	105	<15	<15	<15	<15	229	36.8	21.4	53.2	22.2	17.1
125	<14	427	414	<14	58	<14	<14	28	<14	<14	<14	<14	79.9	<14	<14	18.2	<14	<14
149	<24	759	685	<24	84.2	<24	<24	51	<24	<24	<24	<24	98.1	<24	<24	<24	<24	<24
253	<10	754	675	23.2	114	<10	26.9	75.7	<10	<10	<10	<10	192	46.6	34.3	88.7	24.2	19.8
<0.046	<0.023	131	87	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	25.1	<0.023	<0.023	<0.023	<0.023	<0.023
124	<0.018	732	602	<0.018	61.5	<0.018	<0.018	64.5	<0.018	<0.018	<0.018	<0.018	73.3	<0.018	<0.018	<0.018	<0.018	<0.018
781	49.3	1050	802	47.5	210	<0.017	43.4	112	<0.017	<0.017	<0.017	<0.017	368	40.2	65	144	27.2	24.6
<0.02	59.5	20.4	27.9	<10	11.9	<10	<10	<10	<10	<10	<10	<10	59.5	<10	12.5	18.1	<10	<10
72.5	169	34.4	76.9	11.8	40.6	<9	<9	17	<9	<9	<9	<9	131	34.1	14.4	117	36.6	14.7
324	105	356	330	21.3	158	<15	<15	71.2	<15	<15	<15	<15	424	99.8	67.5	364	52.4	37.3
0.701	0.0365	1.07	0.811	0.0455	0.197	<0.015	0.0348	0.0862	<0.015	<0.015	<0.015	<0.015	0.307	0.0375	0.054	0.0945	0.0208	0.0197
3.45	0.506	8.37	6.9	0.195	1.3	<0.118	0.142	0.704	<0.118	<0.118	<0.118	<0.118	2.34	0.314	0.312	0.97	0.183	0.133
90.8	89.3	89.9	85.5	88.7	94.1	86.4	94.8	102	96.9	81.6	82.7	96.5	103	87.3	96.9	101	103	105
86.2	91.1	93.1	88.3	86.4	92	84.1	97.7	95.2	100	89.2	87.2	94.5	106	84.3	82.3	104	96.1	89
97.6	97.1	98.6	94.6	95.3	101	97.7	100	99.3	103	96.9	92.4	107	102	83.7	93.7	106	98.2	101
90.1	89.8	113	84.8	92.7	90.3	93.4	94.4	102	104	95.7	90.9	103	78.1	74.8	83.6	78.6	88.5	83.8
86.6	87.7	107	75	93.2	81.9	94.1	100	106	99.3	93.8	94.3	102	73.1	66	86.5	73	81.4	87.7
69.4	22.9	109	192	18	104	3.39	6.17	18	<0.1	<0.1	<0.1	25.9	286	174	25.9	20.5	9.74	7.99
59.6	16.4	133	142	11.8	72.5	9.14	55.3	131	3.32	1.45	9.66	185	131	27.5	21.5	18.4	<0.1	13.1
129	47.8	242	334	29.9	177	12.5	61.5	149	3.32	1.45	9.66	211	416	201	47.4	38.9	9.74	21.1
-	163000	-	178000	64000	-	-	31300	-	118000	-	-	18400	-	82400	163000	-	176000	-
-	23000	-	18200	12500	-	-	4230	-	14700	-	-	2380	-	15700	30200	-	27400	-
<0.01	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0108	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	0.0107	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0108	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	0.16	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
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-	04/07/2018	-	03/07/2018	04/07/2018	-	-	04/07/2018	-	10/07/2018	-	-	13/06/2018	-	13/06/2018	18/06/2018	-	18/06/2018	-
-	ata Bozhkov	-	ata Bozhkov	anek-Walsh	-	-	Magdziarek	-	rzej Ferfecki	-	-	rzej Ferfecki	-	rzej Ferfecki	es Richards	-	es Richards	-
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-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
-	0	-	0	0	-	-	0	-	0	-	-	0	-	0	0	-	0	-
106	117	101	115	105	112	106	118	105	105	108	105	104	108	105	110	108	108	110
88.2	97.1	96.7	98.6	97.8	100	99.2	98	94.4	94.9	94.3	98.7	97.2	98.2	97.8	96.1	92.7	95.5	92
90.7	84.7	92.2	82	93.4	100	99.2	84.6	110	106	108	96.9	90	93.7	95.3	90.4	74	89.9	75.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
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40AG17	40AG19	40AG19	40AG19	40AG22	40AG22	40AG22	40AG22	40AG25	40AG25	40AG25	40AG25	40AG26	40AG27	40AG27	40AG27	40AG15V	40AG16V	40AG17V
3.303.30	0.500.50	1.501.50	2.002.00	0.400.40	1.001.00	2.002.00	3.003.00	0.500.50	1.201.20	2.002.00	3.003.00	0.5	0.4	1	2.5	3.203.20	0.900.90	1.001.00
28/06/2018	03/07/2018	03/07/2018	03/07/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	05/06/2018	30/05/2018	30/05/2018	30/05/2018	30/05/2018	28/06/2018	28/06/2018	28/06/2018
1.79	3.34	5.05	1.38	6.05	22.2	4.17	4.05	4.86	48.6	8.33	8.33	1.67	4.67	0.821	11.7	11.2	7.91	4.03
6.16	11.5	14	7.79	14.2	15.6	17.5	12.4	4.48	5.59	1.85	6.65	4.15	6.61	<0.6	7.45	17.6	18.1	11
<0.02	<0.2	<0.2	<0.02	1.34	1.39	<0.02	1.98	0.553	0.296	0.345	0.315	0.371	1.25	0.0516	3.09	0.415	0.0501	<0.02
4.27	<9	<9	1.23	<9	<9	10.5	<9	41.2	17.9	92	12.6	259	77.3	29.4	6.84	36.4	35.6	38.7
16.4	19.4	28.1	20.1	17.7	18.2	32.9	46	15.4	31.4	9.14	25.2	9.65	42.9	<1.4	15.8	28.7	28.2	28.2
14.7	31.1	185	22.9	47.8	35.3	22.9	92.5	54.9	39.8	16.8	31.1	23.2	118	<0.7	354	43	37.6	23
<0.14	<1.4	<1.4	<0.14	<1.4	<1.4	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
13.8	16.7	33.9	24.3	34	34.3	46.9	20.5	10.9	27.1	6.33	23.5	5.74	16.1	0.986	10.3	28	29.5	40.9
<1	31.7	<10	7.85	<10	<10	1.09	<10	3.46	1.59	6.91	1.8	11.4	3.39	2.75	2.02	<1	<1	<1
19	79.3	55.5	57.7	112	104	45	35.3	43	98.2	125	37.2	1560	106	29.6	39.7	57.9	55.1	58.1
39.9	71.4	399	66.7	171	114	62.9	355	163	66.4	74.7	100	71.4	499	38.9	1730	151	132	112
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	0.0638	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	0.226	<0.04	<0.04	<0.04	<0.04	0.176	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	0.393	0.363	0.366	0.154	0.926	2.64	13.5	0.561	2.33	2.6	2.39	40.2	1.66	0.25	3	1.04	<0.1	<0.1
9.7	3.47	3.3	4.66	2.7	4.26	17.6	14.7	8.48	9.7	13.9	6.2	59.7	10.7	2.8	13.6	1.54	<0.1	<0.1
5.58	9.4	24.3	13.6	19.4	15.4	127	156	46.8	61.3	60.8	21.4	62.1	86.8	91.6	115	12.7	4.84	0.902
<0.1	0.82	3.91	1.78	2.48	2.23	49	41.1	6.79	20.9	13.9	7.01	26.9	37.3	147	56.9	0.385	<0.1	<0.1
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	0.0467	<0.04	<0.04	<0.04	0.057	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	0.15	<0.04	<0.04	<0.04	<0.04	0.118	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.645	0.124	0.588	<0.1	0.507	1.42	<0.1	3.86	1.61	0.875	1.09	<0.1	7.57	0.63	<0.1	<0.1	3.78	0.175	0.295
2.12	0.988	4.02	0.915	3.32	11.8	3.49	6.46	9.06	3.87	4.77	<0.1	26.4	4.05	1.77	3.73	2.74	0.724	<0.1
6.09	4.43	24.5	5.37	14.1	23.3	17.2	41.4	38.4	26.7	26.7	0.978	55.5	46	84.9	66.6	84.9	40.5	9.09
5.47	0.754	10.4	0.698	4.99	7.21	14.7	16.5	20.3	13.9	10.9	<0.1	35.8	49	232	81.9	8.52	5.36	3.58
2.91	<0.1	4.06	<0.1	1.85	2.9	6.61	4.27	8.11	5.29	3.9	<0.1	15.1	23.3	120	39.6	2.48	1.34	1.67
<12	<12	15.1	<12	<12	<12	<12	<12	31.3	<12	<12	<12	<12	<60	<12	<60	<12	<12	<12
<8	<8	<8	<8	18.2	9.15	<8	<8	30.8	<8	30	12.4	21.4	<40	<8	<40	596	<8	<8
<16	<16	32.5	<16	<16	60.1	<16	<16	68.6	<16	32.7	<16	32	<80	<16	<80	31.5	<16	<16
<14	18.5	124	26.1	37.7	64.2	<14	24	225	27.2	137	34.3	198	294	42.2	<70	28.2	<14	<14
<15	<15	107	25.5	26.4	35.7	<15	17.3	252	22.4	151	30.3	250	291	34.4	<75	29	<15	<15
<15	38.1	255	39.6	44.6	63.6	<15	38	310	48.5	234	57.9	343	462	50.8	155	43.8	34.5	<15
<14	<14	73	18.7	19	16.8	<14	<14	135	<14	83.5	20.3	135	164	19.9	<70	<14	<14	<14
<24	<24	117	26.9	28.3	28.4	<24	<24	205	<24	122	27.5	207	284	31.9	<120	<24	<24	<24
15.4	29.8	161	37.9	41.1	73.8	<10	31.2	256	56.4	188	56.9	241	355	39.1	104	44.3	21.9	<10
<0.023	<0.023	29	<0.023	<0.023	<0.023	<0.023	<0.023	45	<0.023	<0.023	<0.023	36.2	<0.115	<0.023	<0.115	<0.023	<0.023	<0.023
<0.018	21.9	131	<0.018	24.9	22.3	<0.018	<0.018	179	<0.018	139	26.2	171	279	23.7	<90	<0.018	<0.018	<0.018
24.6	38.7	202	53.2	56.3	99.4	<0.017	63.3	407	50.8	198	55.3	322	539	69.1	123	108	39.1	<0.017
<10	<10	12	<10	15.2	62.5	<10	<10	41.4	16.3	33.3	14.5	27.2	<50	<10	<50	376	<10	<10
<9	11.7	49.4	20.9	39.9	40.9	12.5	16.3	74.7	30.4	57.9	42.8	34.6	<45	<9	<45	308	<9	<9
21.2	52.4	144	69.9	62.6	347	39.5	67.3	274	87.7	191	73.3	199	267	27.6	<75	237	28.2	<15
0.0213	0.0332	0.182	0.0453	0.0626	0.105	<0.015	0.051	0.375	0.0474	0.204	0.048	0.319	0.494	0.0622	0.112	0.0788	0.0305	<0.015
<0.118	0.244	1.63	0.364	0.477	1.03	<0.118	0.308	2.91	0.387	1.8	0.5	2.54	3.43	0.401	<0.59	1.88	0.154	<0.118
103	98.9	99.3	105	98.9	89.8	88.1	82.7	91.6	68.3	94.9	72.4	90.2	104	90.7	88.9	102	95.7	91.3
97.7	95.6	94.7	104	92.8	89.3	89	83.4	94.4	72.5	95.1	77.7	89.2	91.6	92.8	85.6	97	89.8	93
93.9	94.9	94.3	109	90.1	84.3	87.9	84.8	94.9	60.9	96.6	74.1	92.8	99.4	96.7	85.8	93.8	91.9	92.8
83.9	84.9	82.3	102	88.6	50.6	71	77.4	80.1	45.1	95.9	70	93.7	97	101	61.4	92.8	90	88.4
88.5	82.1	74.2	95.2	81.3	38.4	65.9	72.4	75.1	32.2	91.4	66	87	83	97.6	57.2	92.6	93.3	89.6
15.3	14.1	31.9	20.5	24.7	22.8	196	225	62.6	94.2	91.3	37	189	136	242	188	15.7	4.84	0.902
14.3	6.29	39.4	6.98	22.9	43.7	35.4	68.2	69.3	45.3	43.5	0.978	125	99.7	318	152	100	46.7	13
29.6	20.4	71.3	27.4	47.7	66.5	232	294	132	140	135	38.1	314	236	560	340	116	51.6	13.9
257000	-	207000	-	-	-	-	-	-	-	-	136000	-	149000	136000	-	96400	115000	-
20100	-	27900	-	-	-	-	-	-	-	-	15900	-	10900	14800	-	7360	17100	-
0.0107	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0114	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	02/07/2018	-	29/06/2018	04/07/2018	-	10/07/2018	10/07/2018	-
-	-	-	-	-	-	-	-	-	-	-	Lucy Caroe	-	Lucy Caroe	ata Bozhkov	-	rzej Ferfecki	rzej Ferfecki	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Detected	Not Detected	-
-	-	-	-	-	-	-	-	-	-	-	ypical of AIB	-	0	0	-	0	0	-
109	106	109	115	118	116	116	112	102	104	109	111	111	110	114	115	107	104	104
99.7	97.8	99.6	98.5	96	96.3	98.7	92.9	97.9	96.8	98.6	98.7	97.9	98.2	97	98.5	94.2	94.2	94.9
95.5	93.1	94.1	92.3	83.7	94	87.3	104	96.4	96.7	102	90.6	92.3	86.1	82.5	90.2	103	104	110
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	0.9	2.33	0.71	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	5.64	7.21	8.28	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	6.49	9.38	8.93	-	-	-	-	-

40AG19V	40AG22V	40AG25V	40AG27V	40AH10	40AH10	40AH10	40AH14	40AH14	40AH16	40AH19	40AH19	40AH19	40AH21	40AH26	40AH26	40AH27
3.503.50	3.203.20	3.103.10	3.3	0.400.40	1.001.00	2.002.00	0.500.50	1.001.00	0.500.50	0.500.50	1.001.00	1.601.60	1.001.00	0.5	1.2	0.5
03/07/2018	05/06/2018	05/06/2018	30/05/2018	22/06/2018	22/06/2018	22/06/2018	28/06/2018	28/06/2018	03/07/2018	03/07/2018	03/07/2018	03/07/2018	07/06/2018	30/05/2018	30/05/2018	30/05/2018
7.31	4.22	3.52	2.98	2.55	0.683	4.69	7.34	0.679	9.81	4.59	1.22	0.931	9.36	1.76	49.7	3.59
16.2	10.6	11	12.8	<6	7.58	8.16	17.6	13.1	23.5	15.8	5.39	5.44	10.2	4	6.32	6.56
0.31	0.259	0.382	0.399	5.74	0.802	0.218	1.24	0.101	1.61	<0.2	<0.02	<0.02	0.547	1.2	0.441	0.869
32.1	32.2	34.9	32	185	268	41.1	77	5.24	15.1	88.2	26.4	21.3	84.3	197	101	49.6
32.8	23.5	25	16.8	21.7	18.8	14.2	37	14.1	45	57.6	<1.4	<1.4	25.1	19.9	26.2	18
39	27	37	26.4	58.7	27.4	11.6	360	24.7	631	106	23.2	30.9	50.6	77.9	52.3	85.8
<0.14	<0.14	<0.14	<0.14	<1.4	<1.4	<0.14	<14	<0.14	0.335	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
28.2	36.5	31.6	31.7	16.8	9.45	15.3	29.9	21.7	22.9	42.1	4.34	4.65	24.8	11.3	16.1	13.8
<1	<1	1.22	1.15	10.5	13.8	4.01	<10	<1	<1	<10	5.96	5.71	3.5	6.65	5.26	3.65
49.4	50.8	54.5	51.1	283	430	83	90.4	19.4	27.9	95.5	32	23	203	207	157	96.2
136	109	129	132	126	55.5	64.7	2070	97.2	2450	434	282	368	190	209	84.9	343
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.325	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.66	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1.14	<0.1	<0.1	0.19	0.364	0.307	0.102	5.3	<0.1	1.71	3.34	<0.1	0.297	<0.1	2.09	<0.1	3.49
1.45	<0.1	<0.1	<0.1	6.04	1.75	0.894	23.3	<0.1	10.8	8.8	2.2	0.921	1.06	13.6	5.28	18.8
9.11	<0.1	1.25	2.28	49.4	16.4	9.39	81.3	1.96	75.6	39.5	15.3	9.26	28.6	158	44.2	186
<0.1	<0.1	<0.1	3.32	24.2	6.86	5.91	21.7	<0.1	16.2	4.31	1.47	0.782	3.38	80.2	12.1	81.7
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.217	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.44	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.208	1.17	<0.1	3.19	2.63	0.244	0.174	2	1.53	0.939	1
1.21	1.26	<0.1	<0.1	3.67	2.9	1.87	11.1	1.67	9	6.34	1.25	0.652	6.84	7.62	3.67	8.41
46.3	9.09	0.112	2.58	89.3	31.7	16	40.1	<0.1	62.6	36.1	9.62	7.02	63.4	119	24.1	105
4.73	9.74	0.549	5.57	31	13.1	12.8	14.2	<0.1	32.3	10.8	2.96	1.29	17.7	139	11.1	77.6
<0.1	4.87	<0.1	2.83	10.1	4.79	5.77	4.78	<0.1	12.7	4.03	0.994	<0.1	6.81	60	4.27	32.3
<12	<12	<12	<12	<12	<12	<12	14.7	<12	<12	<12	<12	<12	67.4	<60	<12	16.6
<8	<8	<8	<8	47.2	9.44	12.1	<8	<8	13.5	<8	<8	<8	18.8	122	16.1	14.7
<16	<16	<16	<16	166	32.6	45.2	57	<16	47.2	<16	<16	<16	119	88.7	28.8	41.1
<14	<14	<14	<14	1530	428	133	158	<14	97.4	73.4	31	16.6	428	380	192	202
<15	<15	<15	<15	2090	551	159	135	<15	107	78.4	49.3	19.8	367	375	243	266
<15	<15	<15	<15	2670	747	262	262	<15	249	92.8	53.2	30.3	663	534	305	373
<14	<14	<14	<14	1060	302	80.1	78.5	<14	82.1	40.4	27.5	<14	206	185	125	139
<24	<24	<24	<24	1950	501	141	114	<24	128	116	56.4	33	270	321	184	232
<10	<10	<10	<10	1460	475	163	218	<10	165	90.9	36.5	25.2	442	387	209	253
<0.023	<0.023	<0.023	<0.023	357	86.5	<0.023	29	<0.023	30.9	<0.023	<0.023	<0.023	67.4	<0.115	39.4	57.5
<0.018	<0.018	<0.018	<0.018	1620	441	160	119	<0.018	145	77.9	36.3	<0.018	301	331	188	239
<0.017	<0.017	<0.017	<0.017	2080	575	324	441	<0.017	186	107	45.1	32.6	757	677	267	354
<10	<10	<10	<10	15.1	<10	19.7	19.3	<10	30.9	<10	<10	<10	75	66.9	19.5	11.8
<9	<9	<9	<9	40.8	14.9	83.8	94.5	<9	107	26.3	<9	<9	268	80.4	49.7	37.7
<15	<15	<15	<15	612	140	301	241	<15	255	67.3	26.1	22.4	451	319	155	150
<0.015	<0.015	<0.015	<0.015	2.27	0.611	0.275	0.381	<0.015	0.164	0.125	0.0525	0.0366	0.592	0.593	0.294	0.406
<0.118	<0.118	<0.118	<0.118	18	4.92	2.16	2.36	<0.118	1.81	0.895	0.414	0.216	5.09	4.46	2.31	2.79
85.1	90.3	91.1	92.3	85.9	93	90.6	88.3	94.8	88	89.6	93.3	89.6	103	90.9	78.8	93.1
82.8	86.5	87.9	85.5	86.7	84.8	97	83.5	92.1	87.4	83.1	87.7	86.4	93.2	83.6	75.3	93.1
94.2	85.6	91.7	88.3	96.6	96.1	97.6	84.5	92.8	86.3	81.8	99.4	93.9	96	93.1	58.3	89.1
88.2	81.6	98	94.8	82.5	90.4	80.9	68.6	89.3	75.3	80.3	94.2	90.5	98.6	89.5	38.7	75.7
89.5	91.5	107	89	86.2	89.9	78.4	62.5	94	70.3	79	94.5	91.1	97.8	84.3	30.6	77.8
11.7	<0.1	1.25	5.8	80	25.3	16.3	132	1.96	104	56	18.9	11.3	33	253	61.5	290
52.2	20.1	0.661	8.15	124	47.7	30.9	66.6	1.67	107	55.8	14.1	9.14	90	268	39.8	192
63.9	20.1	1.91	13.9	204	74.6	47.2	198	3.63	211	112	33	20.4	123	521	101	482
224000	-	-	118000	152000	-	-	-	-	-	-	181000	-	216000	189000	-	184000
31100	-	-	9720	23300	-	-	-	-	-	-	26300	-	31800	25200	-	30200
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0163	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.375	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.114	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.505	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
10/07/2018	-	-	-	-	-	-	-	-	-	-	04/07/2018	-	04/07/2018	04/07/2018	-	04/07/2018
anek-Walsh	-	-	-	-	-	-	-	-	-	-	anek-Walsh	-	rzej Ferfecki	Magdziarek	-	Magdziarek
-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected
0	-	-	-	-	-	-	-	-	-	-	0	-	0	0	-	0
108	105	107	111	109	109	111	119	98	110	105	111	110	109	116	110	110
94.8	90.9	98.2	98.3	97.3	97.8	96.1	95.7	94	93.2	96	95.6	99.8	97.4	98	98.7	106
109	78.4	89.5	86.8	94.8	99.8	90.1	85	109	114	98.7	80.4	91.8	92.9	87	94.4	84.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	6.31	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	2.55	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	5.83	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	0.98	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	3.19	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	58.2	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	59.6	-	-	-	-	-	-	-	-	-	-

40AH27	40AH10V	40AH14V	40AH16V	40AH19V	40AH21V	40AI11	40AI11	40AI11	40AI13	40AI13	40AI13	40AI15	40AI15	40AI16	40AI17	40AI18	40AI19	40AI19
1	3.303.30	1.301.30	1.001.00	3.803.80	1.401.40	0.500.50	1.201.20	1.801.80	0.500.50	1.001.00	1.501.50	1.501.50	2.702.70	0.500.50	1.001.00	2.002.00	0.500.50	1.301.30
30/05/2018	22/06/2018	28/06/2018	03/07/2018	03/07/2018	07/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	28/06/2018	03/07/2018	03/07/2018
4.64	23.4	5.09	1.29	6.05	3.41	3.45	0.379	1.13	2.05	<0.35	0.945	5.41	4.12	2.93	1.74	2.88	0.607	0.728
4.87	14.8	12.7	10	12.4	7.96	7.3	2.4	4.39	7.36	<6	4.7	10.8	9.79	9.16	7.24	9.79	7.17	3.95
0.706	0.255	<0.02	<0.02	0.22	0.254	0.12	<0.02	<0.02	<0.2	<0.2	<0.02	0.146	0.164	0.282	0.0692	<0.02	<0.02	<0.02
40.5	31.6	39.4	26.7	34.5	38.5	95.5	4.04	44.4	442	423	118	6.69	11	12.8	6.19	16	<0.9	2.13
11.7	28.4	31.8	10.1	31.5	21.2	8.35	<14	4.45	<14	<14	7.01	20.2	14.7	15.8	9	22.6	7.81	<1.4
56.4	27.5	22.2	25.6	37.4	23.8	135	<0.7	35.7	90.4	13.1	33.7	88.5	30.1	47	9.67	25.2	5.81	12.2
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
8.93	30.4	42.7	34.3	30.2	41.4	11.2	0.777	3.62	9.12	3.88	3.43	17.1	17	15.1	9.88	19.8	6.83	4.29
2.85	1.71	<1	<1	<1	1.29	2.76	9.41	4.83	<10	<10	2.42	<1	1.3	1.01	<1	1.38	4.73	6.23
57	48.1	57.2	50.4	52.3	57.7	86.1	14.5	49	297	261	81.3	25.9	31.2	54.1	15.2	34.2	21.3	23.3
310	91.6	102	108	137	91.4	989	23.4	214	424	196	332	337	177	267	46	76.1	104	153
<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0416	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0723	<0.04	<0.04	<0.04	<0.04	<0.04
2.28	1.99	0.228	<0.1	<0.1	<0.1	1.69	1.7	2.56	15	8	8.45	3.5	9.75	0.67	0.851	2.94	0.633	<0.1
12.4	4.54	0.131	<0.1	<0.1	<0.1	18.1	7.34	8.19	49.4	30.3	34.9	11.7	30.8	4.02	2.16	8.51	0.951	0.488
118	58.7	0.915	0.369	7.97	<0.1	181	18.8	24.4	247	154	170	46	40.8	24.9	11.5	28.1	5.02	3.33
42.9	1.18	<0.1	<0.1	<0.1	<0.1	123	6.83	6.6	34.8	17.2	26.1	12.2	7.98	4.97	2.46	6.28	<0.1	<0.1
<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0482	<0.04	<0.04	<0.04	<0.04	<0.04
0.719	1.97	<0.1	<0.1	<0.1	<0.1	0.225	<0.1	<0.1	4.1	1.48	1.92	0.791	1.15	1.13	<0.1	0.841	9.51	<0.1
4.85	7.84	<0.1	<0.1	1.75	<0.1	7.23	1.26	1.64	13.8	8.15	8.05	6.83	11.9	6.34	1.02	6.16	44.3	<0.1
46.1	225	1.91	1.51	26.2	3.71	158	9.65	9.57	59.7	43.9	40.1	44.8	32.8	40.1	7.6	46.2	101	1.49
35.1	33.8	<0.1	<0.1	9.83	1.01	167	12.4	6.72	19.5	9.85	14.1	18	8.21	18.3	0.737	31	35.7	<0.1
15.3	9.55	<0.1	<0.1	2.89	<0.1	73.8	5.96	2.58	7.36	3.56	5.52	6.35	2.56	8.11	<0.1	13.5	15.1	<0.1
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	16.3	<12	<12	<12	<12	<12	<12
9.02	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	39.9	13	<8	<8	14.6	<8	<8
25	<16	<16	<16	<16	<16	35.4	<16	<16	<16	<16	<16	84.8	28.9	26.8	<16	19.7	<16	<16
145	<14	<14	<14	<14	<14	181	<14	49.9	46.1	33	48.7	795	180	223	26.5	51.6	<14	<14
138	<15	<15	<15	<15	<15	194	<15	41.9	40.8	27.3	39.3	1120	216	281	23.8	60.6	<15	<15
216	39.1	<15	<15	<15	<15	335	<15	83.3	110	60.9	85.9	1300	340	401	36.7	104	<15	17.7
68.6	<14	<14	<14	<14	<14	120	<14	28.1	33.2	17.8	30.8	517	117	152	<14	34.4	<14	<14
137	<24	<24	<24	<24	<24	223	<24	46.8	51.6	31.2	41.7	835	175	225	<24	61	<24	<24
169	26.7	<10	<10	<10	<10	176	<10	52.7	79.9	58.1	77.3	741	220	233	27.3	65.7	<10	<10
31.4	<0.023	<0.023	<0.023	<0.023	<0.023	59.4	<0.023	<0.023	<0.023	<0.023	<0.023	193	45	55.8	<0.023	<0.023	<0.023	<0.023
128	<0.018	<0.018	<0.018	<0.018	<0.018	188	<0.018	44.7	47	30.2	38.7	688	175	244	21.6	44	<0.018	<0.018
236	<0.017	<0.017	<0.017	<0.017	<0.017	289	<0.017	132	113	71.6	115	1030	253	296	50.8	91.8	<0.017	<0.017
<10	<10	<10	<10	<10	<10	11.9	<10	<10	<10	<10	<10	28.2	17.6	11.7	<10	15.9	<10	<10
24.5	<9	<9	<9	<9	<9	53.6	<9	<9	17.1	<9	16.4	42.9	40.3	37.3	29.5	22.7	<9	<9
117	<15	<15	<15	<15	<15	130	<15	73.3	66.9	38.4	44.9	346	114	81.1	49.8	89.4	<15	<15
0.265	<0.015	<0.015	<0.015	<0.015	<0.015	0.275	<0.015	0.11	0.1	0.0658	0.114	1.07	0.257	0.284	0.0425	0.0775	<0.015	<0.015
1.71	<0.118	<0.118	<0.118	<0.118	<0.118	2.27	<0.118	0.663	0.706	0.434	0.652	8.86	2.19	2.55	0.309	0.753	<0.118	<0.118
99.8	94	91.8	90.3	89.2	92.5	91.2	98.1	98.4	93.6	89.6	96.5	98.6	90.7	90.6	95	98	90.1	92.8
98	94.2	90.7	87.8	88.3	91.2	96.6	93.6	92.2	81.2	80.2	90.4	94	85.6	76	96	101	85.9	91.3
101	96	90.8	95.1	99.5	88.1	96.1	89.9	85.6	96.4	90.4	92.9	90.5	90.5	87.7	99.8	106	96.1	101
91.1	85	86.3	92.9	97.9	79.8	84.7	84.3	82.3	83.3	87.7	79.3	84.5	77.6	85.4	89.9	83.6	92.1	96
90	88	89.1	93.5	101	81.8	74.8	91.7	83.3	81.4	89.2	79.7	80.5	75.5	80.1	90.5	81.2	92.2	97.7
176	66.4	1.27	0.369	7.97	<0.1	323	34.6	41.7	347	210	240	73.4	89.3	34.6	17	45.9	6.61	3.82
86.8	268	1.91	1.51	37.7	4.72	333	23.3	17.9	97.2	63.4	64.2	70.3	54.1	65.9	9.36	84.2	190	1.49
262	335	3.18	1.87	45.7	4.72	656	57.9	59.6	444	273	304	144	144	100	26.3	130	197	5.31
73600	58200	117000	216000	74800	-	147000	-	-	42800	-	73100	130000	-	-	-	-	-	-
7090	7180	13100	11800	16100	-	25900	-	-	12500	-	8220	19200	-	-	-	-	-	-
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	0.0119	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.107	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.068	<0.015	<0.015	0.138	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.245	<0.035
-	-	-	-	-	-	-	-	-	-	-	0.002	-	-	-	-	-	-	-
04/07/2018	04/07/2018	04/07/2018	04/07/2018	04/07/2018	-	10/07/2018	-	-	15/06/2018	-	-	-	-	-	-	-	-	-
ata Bozhkov	ata Bozhkov	Magdziarek	Magdziarek	Magdziarek	-	Lucy Caroe	-	-	es Richards	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	0.002	-	-	-	-	-	-	-
Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-	-
Not Detected	Not Detected	Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-	-
Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-	-
Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-	-
Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-	-
Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-	-
Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	-	Not Detected	-	-	Not Detected	-	-	-	-	-	-	-	-	-
0	0	fibres in soil	0	0	-	0	-	-	0	-	-	-	-	-	-	-	-	-
116	117	110	118	116	104	105	105	105	106	115	106	112	114	110	114	107	99.3	107
96.9	97.6	99.7	96.9	92.7	95	94.8	95.5	95.5	96.5	94.2	99.8	99.1	94.4	89.5	99.7	96	93.1	95
79.1	83.3	82	84.1	79.1	109	110	109	91.5	88.1	94	86.1	91.3	89.8	70.9	88.1	98	109	94.8
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	2.06	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

40AI19	40AI25	40AI25	40AI26	40AI26	40AI27	40AI27	40AI11V	40AI15V	40AI16V	40AI19V	40AI25V	40AI26V	40AJ10	40AJ10	40AJ10	40AJ12	40AJ12
2.002.00	0.500.50	0.900.90	0.5	1.2	0.7	1.5	4.954.95	0.400.40	1.001.00	4.304.30	1.001.00	2.6	0.500.50	1.001.00	1.501.50	0.500.50	1.001.00
03/07/2018	07/06/2018	07/06/2018	30/05/2018	30/05/2018	30/05/2018	30/05/2018	27/06/2018	28/06/2018	28/06/2018	03/07/2018	07/06/2018	30/05/2018	22/06/2018	22/06/2018	22/06/2018	27/06/2018	27/06/2018
0.374	2.84	6.98	4.17	7.24	6.33	4.91	76.5	6.12	1.69	4.22	2.31	6.86	1.93	2.78	2.65	1.83	2.9
2.85	14.7	7.48	7.3	7.03	8.11	5.46	45.8	14.6	11.5	10.4	9.26	12.8	8.32	5.36	7.15	7.34	16.7
<0.02	1.31	0.444	0.658	0.276	0.887	0.812	<0.02	<0.02	<0.02	<0.02	0.286	0.65	0.565	0.431	0.847	0.279	0.509
1.52	26.8	11	85.1	119	68.2	79.4	7.25	39.2	35.2	34	34.6	42.5	65.4	51.3	33.8	30.4	100
<1.4	38.4	21.2	22.8	24.1	23.7	16.5	13.4	29.9	16.5	16.3	23.7	28.8	20.6	7.74	16.1	33	64.9
7.44	378	33.5	59.7	21.2	121	66.6	3.55	26.6	25.9	27.6	25.6	41.6	32.6	23.4	57.6	38.1	74.2
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4
2	73.3	23.9	18	19.8	15.6	10.4	11.8	33.4	40.4	33.1	36.8	28.5	16.6	8.07	11.8	7.91	18.9
8.26	1.32	1.26	4.74	4.09	3.55	3.24	2.61	<1	<1	<1	1.15	1.37	5.31	5.16	6.03	3.32	1.65
15.6	480	34.1	165	88.1	107	111	18.9	60.9	57.7	59.8	54.7	54.1	94.3	119	77.1	63.2	94
113	551	86	260	67.3	305	204	38.8	110	109	107	116	148	336	101	206	179	331
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.112	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.364	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0851	0.524	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.571	0.139	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
0.507	2.06	1.34	1.45	1.16	1.97	10.3	<0.1	0.676	0.308	0.254	0.428	1.04	<0.1	2.36	2.45	0.854	0.616
2.61	11.8	2.73	14.4	3.35	17.1	27.9	<0.1	<0.1	<0.1	0.479	<0.1	2.2	2.67	13	8.73	9.06	7.35
9.33	123	12.5	94.7	15.4	160	345	136	2.28	1.18	3.83	0.218	13.6	19.5	35.3	44.1	46.3	65.1
<0.1	40.3	1.82	64.1	5.84	41.5	237	<0.1	<0.1	<0.1	<0.1	0.21	1.33	4.46	6.2	15.6	13.8	24.9
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0672	0.35	<0.04	<0.04	0.0428	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.381	0.0918	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04
<0.1	1.3	1.38	0.664	1.74	0.194	13.4	3.2	0.18	<0.1	0.383	<0.1	<0.1	0.542	<0.1	1.08	2.2	1.37
0.648	6.55	4.25	10.1	4.65	4.56	34.6	8.17	<0.1	<0.1	0.901	<0.1	<0.1	3.33	<0.1	5.23	5.71	9.27
4.25	70.7	13.9	104	12.3	51.8	561	944	10.3	2.98	12.4	4.6	37.3	30.8	3.73	42.5	17.9	103
1.07	44.7	4.48	92.1	5.42	34.6	453	24.4	<0.1	<0.1	1.14	0.711	10.9	16.5	<0.1	24.9	9.66	22.2
<0.1	18.2	1.4	41.7	2.27	14.2	198	3.51	<0.1	<0.1	<0.1	<0.1	3.54	6.17	<0.1	9.82	4.22	23.1
<12	<60	<12	<24	<12	<12	<60	<12	<12	<12	<12	<12	<12	<12	<12	<12	40.9	35.4
<8	<40	<8	<16	<8	12.8	2660	178	<8	<8	<8	<8	<8	11.9	8.75	12.8	45.2	61.2
<16	<80	<16	56.7	<16	21	622	182	<16	<16	<16	<16	<16	32.6	23.3	36.9	163	224
<14	436	41.3	706	<14	97.6	274	216	<14	<14	<14	<14	46	253	169	248	616	585
<15	480	33.9	904	<15	90.1	187	158	<15	<15	<15	<15	43.7	285	252	327	593	590
<15	671	58.7	1120	<15	134	406	273	<15	<15	<15	<15	96	494	393	498	851	989
<14	255	24	379	<14	63.7	126	126	<14	<14	<14	<14	28.9	154	134	160	303	300
<24	458	27.5	754	<24	102	158	145	<24	<24	<24	<24	<24	315	286	313	453	503
14.6	572	53.9	771	<10	106	276	256	<10	<10	<10	<10	72.7	233	187	253	631	634
<0.023	<0.115	<0.023	125	<0.023	<0.023	<0.115	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	58.6	49.1	64.2	129	126
<0.018	487	25.9	739	<0.018	93.4	118	88	<0.018	<0.018	<0.018	<0.018	36.7	224	253	217	392	412
<0.017	595	64.2	1130	19.8	168	1390	700	<0.017	<0.017	<0.017	<0.017	62.6	370	231	360	1200	1130
<10	<50	14.1	<0.02	<10	14.2	1700	242	<10	<10	<10	<10	<10	<10	<10	<10	45.2	73.7
<9	<45	12.1	<0.018	27.3	24.5	3720	537	<9	<9	<9	<9	<9	21.4	23	51	89.3	154
<15	198	69.6	345	27.3	93.7	3760	1030	<15	<15	<15	<15	34.3	143	112	171	631	744
0.0175	0.495	0.0466	1.25	<0.015	0.173	1.02	0.628	<0.015	<0.015	<0.015	<0.015	0.0484	0.36	0.245	0.371	0.981	0.898
<0.118	4.65	0.472	8.28	<0.118	1.19	16.4	4.76	<0.118	<0.118	<0.118	<0.118	0.469	2.96	2.37	3.08	7.16	7.45
90.1	98.1	85.6	87.9	107	90.8	90.9	92.7	95.7	89.3	84.7	80.2	90.4	80.8	89.9	81.8	105	105
84.2	94	83	91.4	99.8	92	93.5	95.4	98.5	91.5	87	84.5	87.6	84.4	97.6	83.9	99.9	107
93.8	97.9	79.8	92.9	98.2	92.3	89.3	96	96.1	83.1	96.8	89.3	94.4	94.5	115	94.9	97.9	111
89.6	99.5	84.5	80.2	82.7	72.9	74.9	70.8	91.8	87.9	94.6	72.2	97.1	78.2	99	80.4	94.4	88
88.2	102	85.4	80	80.6	68.9	73.6	72.3	93.5	89.7	94.8	70.5	94.6	78.6	96.1	79.2	90.1	87.5
12.4	177	18.4	175	25.8	220	620	136	2.95	1.49	4.56	0.857	18.2	26.6	56.9	70.9	70	98
5.97	123	24	207	24.1	91.2	1060	980	10.5	2.98	14.8	5.31	48.2	51.2	3.73	73.7	35.4	136
18.4	300	42.3	381	49.9	312	1680	1120	13.4	4.47	19.4	6.17	66.4	77.8	60.6	145	105	234
-	-	157000	-	180000	-	130000	171000	-	63100	248000	-	48500	128000	-	112000	-	-
-	-	22700	-	51700	-	23400	12000	-	5110	7370	-	8760	17500	-	31400	-	-
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0486	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0465	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-
-	-	02/07/2018	-	04/07/2018	-	04/07/2018	04/07/2018	-	15/06/2018	18/06/2018	-	-	-	-	05/07/2018	-	-
-	-	Magdziarek	-	Lucy Caroe	-	Lucy Caroe	Magdziarek	-	ata Bozhkov	stian Hallam	-	-	-	-	anek-Walsh	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-
-	-	Trace	-	Detected	-	Not Detected	Not Detected	-	Detected	Not Detected	-	-	-	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-
-	-	Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	Not Detected	-	-
-	-	fibre in soil	-	ACM debris	-	0	0	-	fibres in soil	0	-	-	-	-	0	-	-
105	108	111	106	108	107	109	104	102	119	99.2	110	110	109	112	110	105	110
99	98.2	98.1	99.2	96.6	97.6	97.6	98.2	94.5	83.3	96.9	93.1	100	97.7	94.5	90.5	98.9	98.7
91.2	88.9	88.8	94	86.3	81.7	85.1	100	88	71.2	98.7	81	90.7	93.2	90.7	77.5	104	99.3
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<1.8	<0.09	<0.09	<0.09	<0.09	<0.18	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<1.4	<0.07	<0.07	<0.07	<0.07	<0.14	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.8	<0.04	<0.04	<0.04	<0.04	0.185	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<2.6	<0.13	<0.13	<0.13	<0.13	1.1	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<8	<0.4	<0.4	<0.4	<0.4	<0.8	<0.4	<0.4
-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
-	0.78	0.96	0.76	-	-	-	-	-	-	-	-	-	-	-	-	-	2.69
-	9.41	8.79	11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	51.7
-	10.1	9.67	12.3	-	-	-	-	-	-	-	-	-	-	-	-	-	53

40AJ12	40AJ14	40AJ14	40AJ23	40AJ23	40AJ23	40AJ26	40AJ27	40AJ27	40AJK16	40AJK16V	40AJ10V	40AJ12V	40AJ14V	40AJ23V	40AJ26V	40AK11	40AK11
2.002.00	0.500.50	1.001.00	0.700.70	1.601.60	2.002.00	1.5	0.7	1.5	0.500.50	1.501.50	2.702.70	2.602.60	1.201.20	2.202.20	2.8	0.500.50	1.001.00
27/06/2018	28/06/2018	28/06/2018	07/06/2018	07/06/2018	07/06/2018	30/05/2018	30/05/2018	30/05/2018	28/06/2018	28/06/2018	22/06/2018	27/06/2018	28/06/2018	07/06/2018	30/05/2018	22/06/2018	22/06/2018
3.34	2.19	7.21	1.7	4.14	2.07	1.71	3.9	1.81	4.19	8.07	12.7	1.09	57.6	6.76	1.18	1.18	2.17
7.95	29.8	8.73	11.7	4.12	9.28	5.18	6.98	6.22	7.36	16.6	12.7	10.1	11.2	15.6	10.4	7.04	7.67
<0.02	<0.02	0.0817	0.28	0.205	0.418	0.187	0.805	1.74	0.228	0.362	0.174	<0.02	<0.02	0.638	0.187	0.575	0.704
64.6	24.3	14.2	10.8	6.02	22.7	12.9	138	144	15.3	34.6	38.7	33	8.88	32.5	28.2	72.5	106
26.5	37.4	29.3	33	6.8	24.3	19.5	53.6	16.6	16.3	25.9	26.2	12.6	12.7	27.7	12	14.7	19.5
40.9	40.1	21.4	37.3	8.03	25.8	25.3	56.2	115	31.6	35.8	39.1	29.9	5.23	44.4	25	28.2	73.4
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	1.38	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
20.4	14.3	23.8	24.5	7.16	24.9	16.7	13.1	14	13.4	34.2	36	39.4	21.5	28.2	37.6	9.07	12
4.43	2.98	<10	1.3	<1	1.38	1.21	3.94	4.21	2.54	<1	<1	<1	2.34	1.29	<1	5.11	6.94
116	50.4	30.1	40.2	13.7	40.9	21.7	161	133	38.3	55.1	54.6	60.2	20.7	51.2	50.1	132	127
202	197	91.8	128	27.7	104	80.7	258	613	126	150	123	114	20.6	154	105	106	249
<0.04	<0.04	<0.04	<0.04	0.0982	<0.04	<0.04	<0.04	<0.04	0.248	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.0805	<0.04	<0.04	<0.04	0.977	0.0836	<0.04	<0.04	<0.04	3.9	<0.04	0.0584	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.23	<0.04	<0.04	<0.04	2.78	0.602	<0.04	<0.04	0.106	10.1	<0.04	0.0917	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.57	<0.04	0.0655	<0.04	4.61	2.06	<0.04	<0.04	0.141	16.1	<0.04	<0.04	<0.04	<0.04	0.0512	<0.04	<0.04	<0.04
13.3	2.38	4.93	21.2	256	30	0.149	0.816	16	816	<0.1	4.47	<0.1	<0.1	<0.1	<0.1	4.79	3.9
30.8	8.57	9.92	69.7	626	44.4	19.7	12.9	106	1100	<0.1	4.91	<0.1	<0.1	<0.1	<0.1	19.7	11.9
137	89.7	222	253	1800	112	61.6	251	431	3580	7.38	20.9	<0.1	71.5	4.89	<0.1	116	71.4
57.1	16.4	20.1	107	830	53.2	8.15	85.3	128	1380	<0.1	<0.1	<0.1	0.835	<0.1	<0.1	39.2	21.4
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.158	<0.04	<0.04	<0.04	1.85	0.415	<0.04	<0.04	0.148	6.7	<0.04	0.0605	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.381	<0.04	0.0429	<0.04	3.08	1.37	<0.04	<0.04	0.095	10.7	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
3.97	0.732	7.02	9.68	282	14.7	<0.1	3.06	16.1	507	<0.1	9.01	<0.1	1.16	1.16	<0.1	<0.1	0.738
15.4	4.2	17.9	63.4	790	34.4	<0.1	49.4	75.1	1360	<0.1	13.4	<0.1	7.51	2.23	<0.1	2.1	4.35
99.1	31.9	74.4	335	2240	99	9.46	162	226	4070	35.3	74.4	0.314	330	35.6	2.44	17.3	30.3
72	16.9	17.1	157	880	46.7	8	59.6	79.5	1250	6	16.7	<0.1	45	6.65	<0.1	4.22	18.2
30.9	7.56	6.78	67.3	372	19.3	3.39	22.5	33	532	1.62	4.59	<0.1	14.1	1.43	<0.1	1.13	7.69
<12	<12	<12	<60	372	<60	<12	<60	43.9	1040	<12	<12	<12	<12	<12	<12	<12	21.3
60.2	10.6	94.8	<40	2420	128	<8	124	263	6190	<8	54.2	<8	<8	<8	<8	8.94	9.2
60.1	20.4	20.6	<80	1670	115	<16	607	506	3990	<16	105	<16	<16	<16	<16	76.4	131
239	75.7	51.3	94.2	2050	161	16.7	2520	986	7500	<14	77.9	<14	<14	<14	<14	301	379
295	85.6	50.1	117	1200	101	<15	1650	624	5080	<15	107	<15	<15	<15	<15	207	259
491	127	81.5	102	937	103	26.9	2500	890	2800	25.8	226	<15	<15	<15	<15	341	416
159	43.3	26.3	<70	195	<70	<14	806	322	862	<14	68.5	<14	<14	<14	<14	135	135
303	73	48.4	229	688	<120	<24	1000	433	2340	<24	129	<24	<24	<24	<24	189	193
292	91.8	83.6	146	4740	264	20	2390	1130	12600	<10	163	<10	<10	<10	<10	284	332
59	<0.023	<0.023	<0.115	267	<0.115	<0.023	256	142	1070	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	43.7	52.1
310	65.3	34.9	<90	328	<90	20.8	1060	387	1060	<0.018	103	<0.018	<0.018	<0.018	<0.018	157	155
532	152	104	<0.085	1470	184	30.5	5910	1860	6090	28.4	381	<0.017	<0.017	<0.017	<0.017	776	723
42.2	<10	17.6	<50	2810	202	<10	185	294	6540	<10	95.3	<10	<10	<10	<10	<10	15.4
74.9	22.3	42.1	<45	408	69.5	<9	<45	215	828	31.5	24.7	<9	<9	<9	<9	41.6	25.1
237	86	159	<75	9540	446	24.7	2440	2400	5300	<15	729	<15	<15	<15	<15	332	283
0.496	0.152	0.108	0.184	4.65	0.358	0.0287	4.95	2.15	18.3	<0.015	0.256	<0.015	<0.015	<0.015	<0.015	0.752	0.626
3.65	1.01	0.922	0.872	33.7	2.13	0.168	26.4	12.6	81.6	<0.118	2.52	<0.118	<0.118	<0.118	<0.118	3.64	3.76
89.2	98.6	99.1	88.5	86.3	92.9	97.7	92.6	91.9	110	85.7	104	105	99.2	83.1	85.4	83.3	93.4
85.5	94.6	93.1	85.6	91.9	90.1	91.2	89.5	99.9	115	86.3	102	98.9	99.7	83.8	86.1	85.7	101
85.6	92.2	89.3	85.6	95.8	90.3	94.8	96.4	97.7	105	85.9	99.5	106	102	90.4	89.8	99.5	115
82.7	90.5	90.3	76.5	76.3	85.6	82.8	95.9	85.8	99.8	82.1	97	93.4	92.3	89.1	79.8	82.1	97.5
85.2	88.5	83.5	76.7	71.3	83.3	82.6	89.4	84.6	112	84	93.2	96	92.4	96	79.1	85.4	100
238	117	257	451	3510	240	89.6	350	681	6880	7.38	30.3	<0.1	72.3	4.89	<0.1	180	109
190	53.7	116	565	4200	195	17.5	274	397	7180	41.3	113	0.314	383	45.6	2.44	23.6	53.6
430	171	373	1020	7720	439	107	624	1080	14100	48.7	144	0.314	456	50.6	2.44	204	162
-	-	-	-	172000	-	141000	-	139000	-	73900	259000	-	92500	-	-	164000	-
-	-	-	-	32600	-	17700	-	21000	-	15700	41500	-	16800	-	-	23200	-
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0826	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	0.0165	<0.01	<0.01	<0.01	0.0103	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0109
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0207	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.114	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	02/07/2018	-	02/07/2018	-	02/07/2018	-	-	-	-	-	04/07/2018	-
-	-	-	-	Lucy Caroe	-	Magdziarek	-	es Richards	-	Lucy Caroe	-	-	-	-	-	anek-Walsh	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	Detected	-	Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-
-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-
-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-
-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-
-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-
-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-
-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-
-	-	-	-	sbestos rope	-	stos cement	-	0	-	0	-	-	-	-	-	0	-
106	110	108	107	107	108	107	114	111	110	107	94	108	105	103	109	111	108
99.8	88.6	97.4	100	98.4	97	97.2	92	98.1	98.5	98.2	99.8	98.4	99	98.8	98.6	97.8	98.2
88.8	81.2	96	104	94.8	90.2	93.9	80	88.5	87.7	88.1	103	91.5	95.9	103	99.7	81.9	87.8
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	3.64	-	-
-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	1.91	-	-
-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	3.2	-	-
-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	<0.5	0.59	-	-
-	-	-	-	1.39	1.31	1.21	1.71	1.1	1.31	<0.5	-	-	-	1.97	3.37	-	-
-	-	-	-	9.11	10	8.96	6.14	9.67	12.8	8.44	-	-	-	39.8	45.7	-	-
-	-	-	-	10.4	11.2	10.1	7.74	10.7	13.9	8.44	-	-	-	40.9	47.5	-	-

40AK11	40AK13	40AK13	40AK13	40AK15	40AK27	40AK27	40AK27	40AK11V	40AK15V	40AL10	40AL10	40AL10	40AL10	40AL12	40AL12	40AL12	40AL15	40AL17
2.002.00	0.500.50	1.001.00	2.002.00	0.500.50	0.5	1	1.7	2.902.90	0.900.90	0.500.50	1.001.00	1.501.50	2.002.00	0.500.50	1.501.50	2.502.50	0.500.50	0.700.70
22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	30/05/2018	30/05/2018	30/05/2018	22/06/2018	22/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	27/06/2018	28/06/2018	22/06/2018
1.1	1.93	3	3.4	2.74	0.45	54	12.1	2.93	10.7	2.17	2.33	1.84	1.67	6.55	1.76	3.45	3.05	4.43
8.03	6.89	9.02	8.06	11.4	1.35	7.81	6.75	16.6	21	30.2	25.7	10.3	7.37	7.42	6.84	5.12	13.2	12.7
1.7	2.02	0.985	0.821	0.515	0.542	3.37	0.7	<0.02	0.579	0.315	0.722	<0.2	<0.02	<0.02	0.128	<0.02	0.0366	1.64
141	434	65.3	72	73.2	397	<0.9	72.1	39.3	37	77.6	55.3	101	19.1	118	80.2	80.8	5.64	144
25.4	36.1	24.7	18.7	16.9	<1.4	19.3	14.8	23.9	28.1	34.9	34	24.1	13.8	18.7	17.1	15.7	14.7	25.1
82.4	91.5	64.7	69.6	38.4	11.9	138	57.8	28.3	51.3	161	132	48.8	26.1	21.2	49.8	24.4	31.1	80.7
<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<1.4
16.7	14.1	22.3	12.9	19.4	1.04	43.4	15.9	39.1	26	13.3	12.8	22	19.4	3.19	11.8	8.74	17	19
<10	18.1	7.98	4.36	1.95	7.99	<1	2.49	<1	<1	6.21	3.92	<10	<1	9.2	2.56	3.89	<1	<10
193	702	109	125	70.9	274	16.8	59.6	69.6	60.5	128	111	164	37.8	397	108	127	21.7	216
283	120	325	362	129	34.9	727	207	70.3	170	2160	2080	330	140	94.6	266	90.2	55.6	341
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0598	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0469	<0.04	<0.04	<0.04	<0.04	<0.04
0.0857	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0511	0.0587	<0.04	<0.04	<0.04	<0.04	<0.04
13.5	8.2	23.1	16.7	1.82	<0.1	<0.1	<0.1	<0.1	<0.1	11.1	8.68	7.22	3.6	1.17	3.87	2.97	5.51	3.89
31.5	51.6	59.2	45	5.6	0.653	3.55	4.57	<0.1	<0.1	38.9	29.9	22.5	9.76	8.32	16.9	15.8	11.8	9.81
114	1000	239	218	22.8	11.6	84.2	56.4	2.55	8.39	221	189	126	57.7	64.8	78.2	126	27.3	34.5
40.5	948	94.5	108	5.58	0.78	5.13	19.4	<0.1	<0.1	62.7	56.6	59.6	21.7	27.9	24.6	24.1	6.48	12.1
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0512	<0.04	<0.04	<0.04	<0.04	<0.04
0.0578	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
4.06	2.92	31.7	6.45	0.683	<0.1	<0.1	0.527	<0.1	0.524	3.38	2.84	1.69	3.6	0.902	1.74	1.95	2.49	2.15
15.9	22.9	<0.1	26.3	3.39	<0.1	2.38	2.59	<0.1	3.59	15.3	14.5	8.86	8.06	23.5	8.37	15.1	6.18	10
59.7	245	147	181	17.2	2.3	26	33.7	8.5	82.1	121	95.1	76.8	44.6	91.2	39.9	89.6	21.8	38.3
39.5	261	101	145	7.63	<0.1	7.85	32.5	1.23	13	66.2	51.5	59.6	29.4	41.5	24.3	35.8	9.33	18.2
17.3	129	41.8	60.8	2.9	<0.1	2.51	14.5	<0.1	3.95	27.2	20.8	25.5	11.6	16.3	10.4	13.6	3.7	7.41
<12	<12	19.9	<24	<12	<12	<12	<12	<12	<12	58.5	52.6	<12	<12	16.6	<12	<12	<12	125
46.8	71	55.3	189	27.6	<8	<8	<8	<8	<8	28.9	34.3	17.9	30.1	123	25.3	34.2	<8	42.3
166	653	155	183	51.6	<16	<16	28.7	<16	<16	140	171	51.2	39.7	1530	108	378	<16	284
396	1420	577	445	137	<14	19.1	148	<14	40.4	1190	626	182	107	6520	417	774	46.7	576
323	1270	546	383	106	<15	<15	158	<15	44.1	1160	593	151	87.5	4820	329	566	48.5	490
467	1960	902	615	196	17	28.6	232	<15	92.3	1660	826	239	171	7800	532	857	65.2	601
157	803	343	229	59.3	<14	<14	84.9	<14	38.4	706	318	92.4	55.9	2800	205	359	26.4	248
239	1200	546	376	86.2	<24	<24	165	<24	45.8	862	474	122	74.2	3070	277	421	49.8	402
331	1450	557	445	124	13.7	30.7	188	<10	66.2	1070	555	167	142	6410	480	807	51.5	499
52.7	198	96.1	75	28.6	<0.023	<0.023	33.7	<0.023	<0.023	202	109	30.4	<0.023	764	58.2	92.8	<0.023	98
197	957	472	275	78.5	<0.018	<0.018	151	<0.018	40	844	419	102	74.7	3070	274	429	38.7	339
1090	1990	1210	1060	311	<0.017	80.4	221	<0.017	121	1760	962	381	234	10600	965	2270	84.5	1480
35.6	24.2	<10	96.7	17.9	<10	<10	13.6	<10	<10	46.6	61.4	16.7	36.5	121	17	33.4	<10	142
41.4	22.6	71.1	134	28.6	<9	31.9	29.2	<9	<9	65	79	37.9	94.7	60.2	33	35.7	17.2	827
906	593	802	806	127	<15	74.7	155	<15	63.5	511	514	211	184	4150	468	1940	62.6	893
0.914	5	1.2	1	0.293	<0.015	0.0605	0.208	<0.015	0.0944	1.53	0.945	0.322	0.178	13.3	1.2	1.9	0.0801	1.14
5.36	17.6	7.55	6.31	1.67	<0.118	0.326	1.82	<0.118	0.646	11.8	6.74	2.12	1.51	65.1	5.39	10.9	0.571	8.19
86	88.1	91.7	87.2	88.9	91.2	91.9	90.5	95.2	101	94.6	96.6	90.8	87.5	98	96.6	88	97.7	78.5
92.5	96.2	93.5	93.1	96.6	90.7	85.2	94.9	91	105	97.6	101	96.4	74.5	87.4	92.2	89.5	90.7	75.6
104	103	103	102	107	91.4	69.6	95	89.5	108	95.5	99.5	95.9	87.3	98.1	88.1	91.7	90.3	91.7
87	71.8	88.7	91.7	81.1	88.2	31.6	72.4	85.5	87.4	77.1	86.2	82.7	76	107	92.5	87.7	88.1	76.1
92.1	73.3	89	86.9	81.2	83	16.6	71.3	85.2	88.9	72.2	83.1	80.1	75.5	112	96.2	90.3	86.9	77.3
199	2010	416	388	35.7	13.1	92.8	80.3	2.55	8.39	333	284	215	92.8	102	124	169	51	60.2
119	532	280	359	28.9	2.3	36.2	69.3	9.72	99.2	206	164	147	85.8	157	74.2	142	39.8	68.7
318	2540	696	746	64.7	15.4	129	150	12.3	108	539	448	362	179	259	198	312	90.9	129
168000	-	208000	-	205000	40500	-	198000	243000	-	50500	205000	-	26600	-	-	-	-	-
17100	-	26500	-	24100	2370	-	15700	19100	-	7960	16700	-	1760	-	-	-	-	-
<0.01	<0.01	<0.01	<0.01	0.048	<0.01	0.0116	0.0113	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	0.0112	<0.01	<0.01	<0.01	0.0113	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	0.048	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04/07/2018	-	04/07/2018	-	04/07/2018	04/07/2018	-	02/07/2018	18/06/2018	-	18/06/2018	-	-	-	-	-	-	-	-
Lucy Caroe	-	Lucy Caroe	-	anek-Walsh	ata Bozhkov	-	es Richards	anek-Walsh	-	Magdziarek	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-
Not Detected	-	Trace	-	Not Detected	Not Detected	-	Not Detected	Detected	-	Not Detected	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-
0	-	fibres in soil	-	0	ibres in soil.	-	0	ibres in soil.	-	0	-	-	-	-	-	-	-	-
110	104	109	109	107	113	110	103	107	106	108	110	112	109	106	111	119	102	105
98.4	98.2	97.1	97.5	95.5	99.9	97.6	96.4	97.1	98.2	95.5	99.8	98.5	97.4	98	99.4	89.7	98.8	97.2
85	81.6	88.1	85.2	85.9	81.6	86.2	87.9	91.8	95.5	86	104	92.2	81.5	85.7	86.8	75.2	105	94.6
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	0.56	0.15	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	3.79
-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	1.87
-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	3.4
-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	0.5
-	-	-	-	-	-	1.06	1.11	-	-	-	-	-	-	-	-	-	-	3.2
-	-	-	-	-	-	11.3	10.6	-	-	-	-	-	-	-	-	-	-	49.2
-	-	-	-	-	-	12.2	11.6	-	-	-	-	-	-	-	-	-	-	50.8

40AL17	40AL20	40AL20	40AL20	40AL28	40AL28	40AL28	40AL28	40AL10V	40AL12V	40AL15V	40AL17V	40AL20V	40AL28V	40AM27	40AM28	40AM28
1.701.70	0.500.50	1.001.00	2.502.50	0.500.50	1	1.5	2.5	2.802.80	3.503.50	1.001.00	3.203.20	3.503.50	3	1.001.00	0.5	1
22/06/2018	05/06/2018	05/06/2018	05/06/2018	29/05/2018	29/05/2018	29/05/2018	29/05/2018	27/06/2018	27/06/2018	28/06/2018	22/06/2018	05/06/2018	29/05/2018	30/05/2018	29/05/2018	29/05/2018
1.45	3.07	1.57	3.69	1.98	4.72	>100	21.7	7.19	31.7	2.16	15.6	12.5	4.1	18.4	3.57	3.57
13.3	2.45	16	11	4.82	3.88	4.22	5.98	16.8	9.15	10.2	11.8	22.3	10.3	7.67	6.6	9.91
1.87	0.449	0.417	0.377	0.664	0.561	0.227	0.509	<0.02	0.134	<0.02	0.178	0.931	0.278	0.389	1.69	0.866
277	12.5	18.5	16.6	180	81.2	21.8	291	37.8	13.8	35.8	32.6	36.3	35.4	12.1	44.7	64.2
34.7	8.2	30.5	24.8	16.8	10.2	63	21.7	25.4	15.6	16.2	24.8	31	17	28	19.9	88.5
75.7	28.6	23.3	29.5	25	15.6	20.4	23.9	38.4	15.8	23.7	37.9	67	24.3	31.2	47.6	72.8
<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
20.5	6.74	41.4	34	8.62	7.24	8.01	15.2	31.2	23.7	38.5	31.5	27.8	29.6	18.3	14.2	18.2
10.5	2.79	1.36	2.06	5.08	3.59	1.5	7.48	<1	<1	<1	<1	1.42	<1	1.76	2.56	3.13
632	38.3	44	35.4	301	172	38.1	714	62.8	27.9	57.5	49.9	56.9	55.5	75.6	118	138
318	114	104	106	80.1	73.6	35	76.7	130	69	105	134	176	103	140	204	219
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0432	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.048	<0.04	<0.04	<0.04	0.0728	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.048	<0.04	<0.04	<0.04	0.0455	<0.04	<0.04	<0.04	<0.04
8.17	4.72	1.32	5.8	2.28	<0.1	3.94	10.2	<0.1	<0.1	<0.1	0.213	<0.1	<0.1	0.398	5.39	3.89
19.8	19.1	2.54	6.8	7.11	4.8	25.4	20.6	<0.1	1.83	<0.1	1.24	<0.1	<0.1	0.559	23.3	16
62.1	143	8.97	6.89	48	42.4	363	93	8.22	41.6	2	16.7	2.02	1.02	20.7	189	107
18.3	41.5	1.87	1.7	21.1	15.8	111	37	<0.1	<0.1	<0.1	0.469	<0.1	<0.1	7.9	69.3	31.4
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0491	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
3.85	2.83	<0.1	0.98	<0.1	<0.1	3.18	1.67	<0.1	<0.1	<0.1	0.204	2.49	<0.1	0.609	2.3	1.39
14.6	11.9	<0.1	3.36	<0.1	3.08	19	8.58	1	4.34	<0.1	2.77	2.38	0.312	2.03	11.2	7.72
59.5	65.6	2.54	7.36	20.2	28.2	125	56.6	47.4	131	7.37	97	37.3	11.9	16.4	83.2	47.5
28.3	37.6	5.7	6.44	15.9	17.8	88.6	35.4	14	31.5	1.3	19.4	4.16	2	11	48.6	23
10.9	15.4	3.21	3.4	6.41	7.45	38.1	14.9	5.49	9.94	<0.1	3.35	0.521	0.491	4.52	20.1	8.81
1620	18.8	<12	<12	<12	<12	17.2	<12	<12	<12	<12	<12	<12	<12	40.5	69.9	25.4
192	12.1	<8	<8	17.9	11.1	22.9	16.8	<8	<8	<8	<8	24	<8	<8	51.7	36.1
2970	129	<16	<16	39.9	55.1	99.4	52	<16	<16	<16	<16	31.3	<16	85.9	170	74.8
3390	648	26.8	38.4	292	243	288	554	23.7	<14	<14	<14	146	<14	577	526	352
2600	559	23.2	35.9	371	266	224	587	24	<15	<15	<15	150	<15	803	606	351
3800	574	33.2	61.6	399	338	403	841	52.9	77.3	<15	61.4	215	<15	861	862	572
1210	292	<14	18.6	156	123	172	286	<14	<14	<14	<14	77.8	<14	359	330	176
1850	378	<24	<24	311	224	221	378	<24	<24	<24	<24	107	<24	673	537	291
2220	679	27.3	66.4	317	261	325	579	38.4	55.7	<10	44	185	<10	534	500	434
469	84	<0.023	<0.023	63.5	44.2	72.2	87.1	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	125	120	56.7
1710	317	<0.018	24	316	242	176	368	<0.018	<0.018	<0.018	34.5	96.2	<0.018	638	521	280
9940	1850	46.9	65.8	421	411	454	756	60.5	118	<0.017	69.9	402	25.6	1080	995	634
2670	19.7	<10	<10	<10	<10	48.6	<10	<10	<10	<10	<10	63.4	<10	19	85.9	42.6
38100	35.9	<9	28.7	20.4	24.7	91	69.1	<9	<9	<9	<9	<9	<9	30.3	211	89
11600	607	28.6	121	161	178	385	239	34.2	<15	<15	30.7	197	<15	287	618	338
6.32	1.41	0.0411	0.0515	0.494	0.441	0.434	0.838	0.046	0.0812	<0.015	0.0524	0.335	<0.015	1.07	0.898	0.604
90.7	7.61	0.227	0.512	3.38	2.86	3.43	5.65	0.28	0.332	<0.118	0.293	2.03	<0.118	7.18	7.1	4.36
73.3	91.6	91.9	92.3	91	91	83.4	87.4	89.9	102	82.1	88.5	92.6	90.1	85.4	93.7	88.3
85.9	94.5	93.3	84.7	93.7	95	88.7	91.6	87.9	107	80.5	89.1	94.7	89.2	85.2	94.1	88.8
95.3	95.3	93	81.4	94.9	98.3	89.2	92.7	91.7	112	80.1	89.5	95.9	85.5	83.1	93	99.2
76.9	85.1	79.9	73.7	80.9	83.6	70.7	93.2	89.4	88.8	79.8	88.6	90.4	77.3	68.7	79.4	96.6
79.3	83.2	74.1	73.3	79.2	81.2	63.3	79.5	86.5	89.5	82	88.4	86.3	81.3	63.6	86.1	88.3
108	208	14.7	21.2	78.4	63	503	161	8.22	43.5	2	18.6	2.02	1.02	29.6	287	159
106	118	8.24	18.1	36.2	49.1	236	102	62.4	167	8.67	119	46.3	14.2	30	145	79.6
215	326	22.9	39.3	115	112	739	263	70.7	211	10.7	138	48.5	15.2	59.6	433	238
-	-	69400	113000	-	125000	-	-	160000	-	3490	-	-	265000	-	165000	-
-	-	10500	23800	-	15900	-	-	13700	-	1470	-	-	26700	-	35500	-
0.0182	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0112	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
0.0182	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0162	<0.01	0.0105	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	02/07/2018	-	21/06/2018	-	-	18/06/2018	-	18/06/2018	-
-	-	-	-	-	-	-	-	es Richards	-	anek-Walsh	-	-	es Richards	-	rzej Ferfecki	-
-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	0.001	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-
-	-	-	-	-	-	-	-	0	-	0	-	-	0	-	0	-
107	111	113	106	108	107	107	109	114	105	113	121	107	114	114	107	121
95.2	99	95.1	97	98.7	99.1	94.5	97.6	99	97.7	99.7	99.7	95.3	96.2	97.2	95.4	97.6
94	94.2	87.7	92	87.5	90.6	84.1	86.1	88	86.1	94.6	95.6	92.6	91	94.1	87.1	96.3
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-	-	-	-
-	-	-	-	-	-	-	1.02	0.71	0.77	-	-	-	-	-	-	-
-	-	-	-	-	-	-	6.42	9.43	8.64	-	-	-	-	-	-	-
-	-	-	-	-	-	-	7.37	10.1	9.34	-	-	-	-	-	-	-

40AM28	40AM27V	40AN11	40AN11	40AN11	40AN13	40AN13	40AN24	40AN24	40AN24	40AN24	40AN26	40AN26	40AN26	40AN26	40AN28	40AN28	40AN11V	40AN13V
2	1.8	0.500.50	1.001.00	1.501.50	0.500.50	1.101.10	0.500.50	1.001.00	1.701.70	2.302.30	0.500.50	1.001.00	1.701.70	2.302.30	0.5	1	2.202.20	1.001.00
29/05/2018	30/05/2018	22/06/2018	22/06/2018	22/06/2018	14/06/2018	14/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	29/05/2018	29/05/2018	22/06/2018	14/06/2018
1.59	18.8	6.02	7.81	10.7	4.86	6.59	1.78	1.39	1.1	1.42	2.71	1.76	5	3.03	4.57	4.86	2.07	2.57
11	9.21	10.4	11.6	9.41	6.42	16.1	5.13	8.26	3.84	4.4	9.54	5.14	8.59	7.14	14.3	24.5	11.5	8.1
0.337	0.314	2.13	2.16	2.51	0.221	0.37	1.58	1.48	0.282	0.943	0.673	0.194	0.383	0.92	0.698	1.04	<0.02	0.353
88.4	17.7	34.1	117	216	<0.9	40.8	23.9	31.8	33.5	19.5	44.7	11.1	9.15	80	162	342	32.8	10.1
18.5	16.8	38.8	32.6	29.5	15.9	32.2	27.4	43.3	6.56	14.1	24.9	8.61	12	32.3	73	117	22.9	13
20.8	20.5	149	135	102	11.3	33.3	78.7	113	12.2	59.9	42.4	11.7	16.2	67.6	71.3	252	23.5	15.9
<0.14	<0.14	<1.4	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	1.2	<0.14	<0.14
10.9	21.3	26.3	25.1	30	19.3	36.4	12.6	20.3	4.99	11	25.7	17.6	33.4	17.9	24.8	26.6	36.1	35
3.6	1.74	<10	<10	<10	<1	1.73	1.94	1.43	4.02	3.31	2.52	<1	<1	3.29	3.56	2.32	<1	1.24
85.3	38	58.6	359	160	16.3	64.5	53.2	56.9	84.9	46	80.6	17.4	20.9	168	104	83.2	52.7	25.6
105	105	614	468	409	40.7	122	268	298	50.1	86.5	131	48.2	103	202	270	491	90.7	74.2
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0472
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0779
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.343	0.54	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	1.43
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	1.16	2.7	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	17.8
2.36	<0.1	6.17	3.19	2.89	8.28	0.847	20	19	43.5	107	35	1.81	3.06	3.43	3.28	0.73	<0.1	997
6.52	5.1	28.2	15	13.9	24	1.22	62.1	116	100	233	41.1	9.98	5.38	16.3	13.7	4.06	<0.1	709
57.2	37.1	104	71.6	74.9	31.9	2.02	216	577	86.5	257	50.6	60.6	21.5	118	88.3	26.7	1.49	176
13.8	<0.1	24.8	19.7	23.6	3.38	<0.1	62.3	178	23	55.8	10	42.8	2.58	30.7	25.5	6.37	<0.1	13.2
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.229	0.36	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.953
<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.776	1.8	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	11.8
<0.1	<0.1	1.64	1.16	2.16	5.17	<0.1	3.85	4.74	15.8	41.4	5.29	0.687	1.7	1.09	1.7	0.974	<0.1	188
<0.1	5.43	9.9	8.46	9.71	13.2	0.203	21.5	49.3	35.1	108	17.4	4.27	6.82	6.41	9.87	4.77	<0.1	295
38.2	63.3	50	47.4	53.9	18.2	12.8	97.2	242	39.7	102	34.9	48	17.4	54.8	56.2	23.2	8.52	82
8.69	3.22	22.2	26.2	30	4.16	2.02	73.3	115	26.2	28.7	15.7	62.8	2.96	31	27.1	9.29	3.11	15.8
3.16	<0.1	8.8	10.6	11.8	1.14	<0.1	32.4	47.5	12.6	9.87	6.29	30.7	<0.1	13.2	10.9	3.75	1.13	6.58
<12	<60	17.6	13.8	17.4	<12	<12	<60	<60	<12	<12	<12	<12	<12	<60	48	32.1	<12	<12
<8	159	14.5	13	26.1	<8	<8	<40	<40	20.9	35.7	<8	<8	<8	<40	85.6	76.4	<8	<8
<16	<80	55.1	43.6	76.8	<16	<16	149	<80	37.4	30	20.9	17.2	<16	<80	223	243	<16	<16
22.7	<70	216	190	332	16.6	<14	194	<70	181	54.9	61.5	82.6	41.2	434	701	1040	<14	28.3
<15	<75	255	202	365	<15	<15	188	99.6	105	46.3	63.4	95.9	34.2	446	708	932	<15	<15
29.5	<75	358	347	576	23.9	<15	305	109	135	86.8	105	173	79.3	828	860	1360	<15	39.7
<14	<70	140	105	183	<14	<14	126	<70	65.2	29.6	35.9	57.1	22.2	284	374	461	<14	<14
<24	<120	234	177	286	<24	<24	231	155	63.5	128	67.3	106	42.7	353	505	571	<24	<24
27.4	<50	232	197	325	23.1	<10	249	75.4	190	61.4	67.8	108	93	512	610	1070	<10	36.2
<0.023	<0.115	51.2	<0.023	59.5	<0.023	<0.023	<0.115	<0.115	<0.023	<0.023	<0.023	<0.023	<0.023	<0.115	116	132	<0.023	<0.023
<0.018	<90	207	194	304	<0.018	<0.018	169	98.7	49.5	50.8	49.8	110	28.3	386	532	610	<0.018	<0.018
38.3	208	335	320	532	23.2	<0.017	313	150	434	132	117	118	75.7	585	1330	1950	<0.017	110
<10	115	17.9	11.1	30.4	17.5	<10	<50	<50	102	153	<10	<10	<10	<50	109	101	<10	<10
16.3	<45	65.3	78.1	129	32.7	<9	<45	<45	20.8	22.5	17.9	26.2	31.1	<45	266	163	<9	<9
39.2	496	196	196	302	67.5	<15	184	87.9	236	296	84.1	105	168	258	848	884	<15	<15
0.0363	<0.075	0.327	0.329	0.494	0.0225	<0.015	0.308	0.195	0.434	0.166	0.107	0.115	0.0759	0.59	1.11	1.62	<0.015	0.0951
0.21	0.978	2.72	2.42	4.04	0.227	<0.118	2.42	0.97	2.07	1.29	0.797	1.11	0.692	4.68	8.42	11.2	<0.118	0.309
87.9	91.7	95.2	99.4	95.8	86.7	85.9	88.4	91.2	90.5	95.7	85.1	94	92	85.9	89.6	84.8	91.1	101
86.4	93.9	94.3	100	97.9	86.4	90.4	94	95.3	92.3	104	88.4	91.5	92.6	86.3	89.8	84.9	89.4	104
89.1	93	101	95.8	96.4	83.5	94.5	91.3	97.1	93	102	92.3	91.8	94.4	84.1	96	81.6	90	95
84.2	76.5	87.2	84.9	85.3	84.1	78	81.2	80.4	82.2	109	82.5	96.2	77.1	86.1	96.4	82.2	86.6	90.6
78.4	75.8	82.2	80.4	84.2	84.2	80.2	80.9	81.1	79.3	113	82.8	96.4	71.6	82.9	92.2	75.3	88.1	97
79.9	42.1	163	109	115	67.6	4.08	360	890	253	652	137	115	32.6	168	131	37.8	1.49	1890
46.8	72	83.7	83.3	95.8	40.8	15	196	412	117	280	73.3	116	28.9	93.3	94.9	38.3	11.6	581
127	114	246	193	211	108	19.1	556	1300	372	938	210	231	61.4	261	226	76.1	13.1	2510
74400	-	138000	-	105000	-	-	-	-	-	115000	104000	-	-	94700	176000	-	140000	-
32600	-	31100	-	18500	-	-	-	-	-	12900	12800	-	-	12200	33200	-	13400	-
<0.01	<0.01	<0.01	0.011	0.0658	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.16	0.147	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0114	0.0113	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0228	0.0226	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	0.0658	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.194	0.181	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18/06/2018	-	18/06/2018	-	-	-	-	-	-	-	20/06/2018	21/06/2018	-	-	21/06/2018	21/06/2018	-	21/06/2018	-
Magdziarek	-	rzej Ferfecki	-	-	-	-	-	-	-	Lucy Caroe	anek-Walsh	-	-	rzej Ferfecki	Lucy Caroe	-	Lucy Caroe	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Detected	-	-	Not Detected	Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Detected	-
Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	Not Detected	-	-	Not Detected	Not Detected	-	Not Detected	-
fibres in soil	-	0	-	-	-	-	-	-	-	0	ibres in soil.	-	-	0	stos cement	-	ypical of AIB	-
105	110	109	106	104	108	112	109	112	109	111	101	105	105	107	105	104	106	106
98	95.7	96.4	98.3	99.2	97.9	95.9	98.8	97.9	98.6	96.9	97.4	94.7	98.6	93.6	99.9	96.2	95.5	95
83.9	84.8	89	92.5	96.5	91.4	81	99.7	95.3	94.3	87.5	97.2	93	97	97.7	96.2	95.3	92	93.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	1.68	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	30.2	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	31.4	-	-	-	-	-	-	-	-	-	-	-	-	-

40AN20V	40AN26V	40AN28V	40AO14	40AO16	40AO16	40AO16	40AO16	40AO17	40AO17	40AO17	40AO17	40AO23	40AO23	40AO23	40AO25	40AO25	40AO25	40AO25
0.800.80	2.602.60	1.2	0.500.50	0.500.50	1.001.00	2.002.00	3.003.00	0.500.50	1.001.00	2.002.00	3.003.00	0.500.50	1.001.00	1.301.30	0.500.50	1.001.00	2.002.00	2.802.80
14/06/2018	06/06/2018	29/05/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018
5.34	1.1	1.78	3.14	3.88	3.15	6.55	5.45	1.97	3.78	2.22	2.64	2.26	4.45	2.17	1.48	0.952	1.09	0.705
13	9.36	13.5	15.9	7.01	6.29	12.1	9.59	10.1	40	7.66	4.39	4.75	7.04	5.34	<6	6.22	<6	3.35
0.381	0.239	0.294	0.767	0.353	1.89	1.1	0.938	0.859	0.875	1.46	0.435	1.62	1.5	1.33	0.796	0.88	0.743	0.447
39.6	30.6	34.8	14.2	55.5	99.6	78.1	56.1	128	76.5	173	40.4	29.4	31.8	82.5	292	273	155	49.2
25.9	11.9	12.7	38.9	23.3	24.8	48.1	318	63	37.8	35.9	13	20.1	50.9	19.7	<14	40.2	21.5	37.5
32.1	28	26.2	74.3	48.1	787	123	69.7	112	91.2	76.2	33.9	93.2	120	66	42.7	55	59.7	39.2
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	0.171	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<1.4	<1.4	<1.4	<0.14
37.5	38.7	34.8	25.1	17.4	10.9	19.3	41.8	12.7	33.7	13.9	9.4	10.7	15.1	14	7.67	11.4	18.7	8.43
1.32	<1	<1	2.59	2.2	5.95	3.21	2.59	3.58	16.1	<10	2.17	3.16	3.24	2.74	<10	10.4	<10	4.13
59.5	51.8	58.2	50.7	99.7	185	242	116	156	117	305	56.5	77.1	55.6	108	486	537	297	141
115	111	116	145	187	165	336	251	238	225	262	126	253	320	179	149	113	134	100
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.0415	<0.04	0.061	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.0501	<0.04	1.14	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	0.0515
<0.04	<0.04	<0.04	<0.04	<0.04	0.166	<0.04	0.306	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	0.196
<0.1	<0.1	<0.1	1.03	6.54	1.79	7.62	5.97	4.1	5.36	5.04	4.02	4.14	4.7	2.4	87.9	1.19	7.85	5.17
<0.1	0.157	<0.1	4.82	22.2	8.96	32.6	24.8	19	19.7	23.8	16.7	16.7	17.9	8.71	279	20.8	32.5	6.64
7.22	1.02	7.71	85.7	115	52.7	171	149	126	93.4	238	93.5	62.8	79.5	34.7	859	166	199	10.3
<0.1	<0.1	1.33	18.4	70.3	14.4	54.4	45.6	45.5	26.7	207	31.8	22.3	47.9	9.45	145	42	58.1	1.4
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.764	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	0.111	<0.04	0.203	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	0.13
<0.1	1.66	<0.1	1.49	2.18	1.19	4	3.18	1.71	<0.1	2.3	1.31	1.31	<0.1	1.81	8.1	1.41	1.22	1.25
<0.1	1.59	<0.1	4.28	11.7	4.98	17.3	14.4	11.7	<0.1	14.5	7.14	5.19	<0.1	5.32	48.8	10.3	10.2	3.94
13	3.74	2.6	40.3	72.9	34.7	86.1	92.1	66.8	18.7	162	48.7	31.6	3.69	26.3	192	82.3	103	5.48
1.44	0.636	5.21	15.2	87.2	15.5	39	37.9	39.2	10	156	25	17.4	7.58	13.6	115	42	76	1.87
<0.1	<0.1	2.21	5.04	42.1	6.15	15.9	15.6	16	2.72	67.3	9.93	6.93	3.38	5.43	47.9	16.1	29.3	<0.1
<12	<12	<12	<12	13.8	<12	14.6	<12	31.3	<60	<60	<24	<12	<12	19.7	<60	<12	<60	<12
<8	<8	<8	12.3	22	13.2	79.4	22.7	28.7	<40	47.7	53.8	11.3	<8	23.2	<40	19.3	55.5	19.8
<16	<16	<16	22.7	80.7	53.3	290	81.3	104	<80	141	87.8	34.9	28.2	110	<80	50.8	112	28.8
<14	<14	<14	86.5	251	165	386	293	473	111	290	280	163	116	726	230	466	662	101
<15	<15	<15	74.6	223	170	273	212	523	117	249	249	193	122	412	179	531	748	78.6
<15	<15	<15	162	447	278	529	352	875	161	459	449	310	237	908	408	894	1270	183
<14	<14	<14	58.9	173	89.6	192	99.8	286	<70	153	142	95.3	102	442	137	312	369	50.4
<24	<24	<24	75	214	152	230	152	431	<120	226	248	202	142	369	228	487	711	61.1
<10	<10	<10	111	281	196	448	301	519	141	298	313	193	160	934	319	625	816	133
<0.023	<0.023	<0.023	<0.023	44.6	33.5	44	40.7	95	<0.115	<0.115	<0.046	31.7	26.6	78.4	<0.115	73.5	<0.115	<0.023
<0.018	<0.018	<0.018	53.7	161	120	259	144	333	<90	250	165	157	129	388	179	341	535	65.8
<0.017	<0.017	<0.017	146	430	308	1280	498	781	228	677	522	302	183	1910	564	1000	1390	239
<10	<10	<10	19.5	17.9	12.9	50	21.7	30.7	<50	<50	30.3	<10	<10	13.9	<50	<10	<50	19.5
<9	<9	<9	30.2	77.7	48.1	77.4	54	74.4	<45	75.5	72.7	47.2	23.5	37.4	<45	18.3	53.4	36.5
<15	<15	<15	104	238	215	1560	367	329	130	512	424	172	124	762	207	349	621	152
<0.015	<0.015	<0.015	0.132	0.392	0.292	1.07	0.437	0.802	0.246	0.621	0.5	0.299	0.17	1.44	0.516	0.921	1.46	0.21
<0.118	<0.118	<0.118	1.09	3.07	2.15	6.78	3.08	5.72	1.13	4	3.54	2.21	1.56	8.58	2.97	6.09	8.81	1.38
101	92.8	76.7	102	104	102	89.1	93.6	95.9	89.9	80.8	106	89.3	85.1	88.8	92.2	92.8	93.6	97.2
87.6	88.8	77.6	93.9	94.6	91.5	92.3	95.7	83.9	82.3	83.9	91.7	89.6	86.6	89.5	93.1	94.6	91.5	93
76.2	89.5	84.4	85.8	94.4	84.1	94.8	99.5	87.2	87.2	87.2	87.5	90.7	88.7	86.8	93.7	95.7	92.9	92.6
98.2	91.4	85.4	97	100	86.9	79.8	107	94.3	77.1	71.4	96.8	82.6	85.3	91.4	84.5	86.5	84.1	96.7
99.7	94	81.3	98.9	103	87.7	74.2	93.3	96.4	76.5	70.7	100	81.8	85	91.6	86	88	78.6	95.3
7.22	1.18	9.04	110	214	77.9	266	225	195	145	473	146	106	150	55.3	1370	230	297	23.5
14.5	7.63	7.81	61.2	174	56.4	146	148	119	28.7	335	82.2	55.5	11.3	47.1	365	136	190	12.5
21.7	8.82	16.8	171	388	135	412	375	314	174	808	228	162	161	102	1740	366	488	36.4
-	161000	-	198000	-	207000	-	100000	-	-	-	-	-	116000	-	163000	-	-	141000
-	36300	-	36200	-	28600	-	16800	-	-	-	-	-	16200	-	22000	-	-	20700
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	0.0112	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0219	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
-	18/06/2018	-	15/06/2018	-	15/06/2018	-	-	-	-	-	-	-	02/07/2018	-	02/07/2018	-	-	29/06/2018
-	ata Bozhkov	-	ata Bozhkov	-	ata Bozhkov	-	-	-	-	-	-	-	es Richards	-	es Richards	-	-	Lucy Caroe
-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Detected	-	Not Detected	-	-	Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	Not Detected	-	Not Detected	-	-	Not Detected
-	0	-	0	-	0	-	-	-	-	-	-	-	ndles in soil	-	0	-	-	fibres in soil
104	104	111	109	108	103	107	106	112	103	108	110	112	109	106	107	111	109	101
97.2	98.2	96.8	95.7	93.2	95.5	97	98.3	98.6	96.1	88.1	94.7	97.2	96.7	97.2	98.3	95.6	98.4	88.2
95.1	93.6	94.1	91.4	92.2	94.4	93.4	94.7	92	96.6	80.5	90.6	99.8	88.1	89.7	90.4	85	95.5	70.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	0.147	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
-	-	-	-	-	-	-	-	-	-	-	-	-	0.56	1.08	1.22	1.14	1.13	1.09
-	-	-	-	-	-	-	-	-	-	-	-	-	9.24	8.91	8.99	8.46	9.77	9.61
-	-	-	-	-	-	-	-	-	-	-	-	-	9.75	9.9	10.1	9.5	10.8	10.6

40AO28	40AO14V	40AO16V	40AO17V	40AO25V	40AO28V	40AP10	40AP10	40AP10	40AP10	40AP11	40AP11	40AP11	40AP11	40AP13	40AP13	40AP13	40AP15	40AP15
0.7	0.700.70	3.603.60	4.004.00	3.003.00	1	0.500.50	1.001.00	1.701.70	2.302.30	0.500.50	1.001.00	1.501.50	2.002.00	0.400.40	1.001.00	1.501.50	0.500.50	1.001.00
30/05/2018	14/06/2018	14/06/2018	14/06/2018	06/06/2018	30/05/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	22/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018
3.19	7.29	4.38	64.1	10.8	6.4	5.86	3.43	3.29	2.12	3.72	3.78	1.79	1.17	1.18	1.07	3.83	2.57	12.3
10	15.5	12.9	5.55	20.9	13.5	9.9	14.8	10.1	11.9	9.67	9.21	8.34	9.62	14.1	8.3	11.2	8.85	10.4
0.85	0.52	0.466	0.236	0.74	0.451	0.841	1.83	1.02	0.726	2.53	2.03	0.23	0.51	1.15	0.24	0.342	1.09	0.647
52.8	39.9	30.4	15.6	33.8	32.5	48.1	137	66.5	56.1	115	71.5	96.7	127	16.5	3.83	8.37	77.4	54.9
40.8	33	17.8	30.9	25.8	17.7	22	28.5	34	29.1	36.4	24.5	17.7	23.3	23.7	8.5	24.9	27.9	31.3
94	38.8	29.6	7.14	50.3	38.1	98.1	208	97.8	90.3	110	150	38.5	49.4	95.5	14.4	16.6	67.8	57.2
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
16.4	33.2	38	20.4	27.6	25.4	16.2	19.5	16.7	16.5	26.2	18	11.9	17.4	19.2	7.48	19.1	14.8	17
2.67	1.48	<1	2.58	1.29	<1	3.28	<10	3.15	2.65	<10	<10	4.03	6.25	2.38	<1	1.41	3.4	2.83
105	63.5	51.4	32.1	53.6	51.6	80.9	162	88.4	94.7	163	127	129	102	37.8	8.59	16.9	139	71.2
260	128	117	62.4	154	135	281	296	297	251	467	512	191	265	252	22.3	58.2	470	233
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0459	<0.04	<0.01	<0.04	0.0433	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0885	<0.04	<0.01	<0.04	0.0682	<0.04	0.0547	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	0.049	<0.04	0.0613	<0.04	<0.04	0.327	<0.04	<0.01	0.0515	0.0573	0.0699	0.137	0.0757	<0.04	0.0941
3.1	0.718	<0.1	<0.1	0.854	<0.1	12	11.5	10.2	21.7	4.96	4.44	4.91	4.81	5.19	1.08	1.41	6.03	6.68
15.9	0.712	<0.1	<0.1	<0.1	<0.1	23.5	32.5	31.1	50.1	18.7	17.4	18.8	17.5	14.2	2.52	2.73	35.3	28.9
82.8	5.04	<0.1	78.1	6	9.07	105	134	139	131	91.1	102	93	82.1	66.6	12.7	8.91	106	86.1
21.3	<0.1	<0.1	<0.1	<0.1	<0.1	41.1	32.2	39	28.7	25.1	29.7	23.9	23.9	22.1	3.5	1.19	20.1	12.7
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.065	<0.04	<0.01	<0.04	0.0509	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0405	<0.04	<0.04	0.218	<0.04	<0.01	<0.04	<0.04	0.0466	0.0905	0.0509	<0.04	0.0627
1.24	0.267	<0.1	<0.1	0.277	<0.1	4.1	3.47	0.298	30	1.46	1.95	2.49	1.6	1.02	1.8	2.54	1.15	2.96
8.34	0.663	<0.1	4.12	0.996	1.5	13.8	15.1	8.93	<0.1	9.34	11.1	10.4	7.6	4.24	2.69	3.11	9.27	14.1
48.6	19	11.6	344	30.2	38.4	78.6	65.5	74.4	86	49.4	58.4	43.3	33.5	21.6	10.3	5.05	39.6	54
23.4	3.47	<0.1	28.2	3.24	5.86	52.5	35.6	31.9	31.4	23	29.5	22.8	22.7	14.4	4.28	1.21	13.7	19.4
9.51	<0.1	<0.1	9.41	<0.1	2	21.6	15.1	11.9	13	9.28	11.9	9.58	10.2	6.2	1.5	0.17	4.91	7.29
22.1	<12	<12	<12	<12	<12	17.9	24.7	37.9	18.1	183	26	<12	<12	<12	<12	<12	13.5	18.8
41.6	<8	<8	<8	<8	30.1	60.7	57.1	43.8	51.2	50	26.6	80.4	54.3	<8	24.1	<8	27.6	20.4
140	<16	<16	<16	<16	<16	188	130	158	111	205	93	654	89.7	<16	130	<16	57.7	50.2
571	<14	<14	<14	44.4	23.4	650	492	867	378	1450	563	1160	206	23.2	1060	<14	284	288
465	<15	<15	<15	46	<15	739	425	769	308	1750	435	736	165	21.2	839	<15	295	284
666	<15	<15	<15	111	38.2	1080	738	1300	536	2410	706	939	228	39.3	890	<15	484	423
253	<14	<14	<14	29.2	<14	335	235	411	165	766	266	395	100	<14	455	<14	160	134
303	<24	<24	<24	<24	<24	630	342	676	262	1210	355	457	127	<24	431	<24	260	229
569	<10	<10	<10	72.4	26.9	612	572	790	371	1410	580	1080	216	30.3	865	21.2	300	319
83.1	<0.023	<0.023	<0.023	<0.023	<0.023	107	80.8	163	61	223	68.4	117	<0.023	<0.023	179	<0.023	63.5	47
324	<0.018	<0.018	<0.018	51	<0.018	648	348	501	204	1320	416	570	150	24.1	428	<0.018	268	194
1020	<0.017	<0.017	<0.017	108	51.7	1110	812	1120	658	1630	672	3030	549	33.5	1100	<0.017	488	500
53	<10	<10	<10	<10	<10	55.1	45	45.9	38.9	47.2	18.6	142	27	<10	41	<10	25.2	21.4
79.6	<9	<9	<9	<9	39.7	66.5	107	113	105	107	77.1	86.7	74	<9	23.9	34.9	80.3	47.2
573	<15	<15	<15	71.5	35.7	607	574	540	498	609	295	2310	470	29	498	93.1	314	266
0.961	<0.015	<0.015	<0.015	0.0862	0.0415	1.16	1.06	1.69	0.997	2.17	1.32	2.37	0.503	0.0356	0.83	<0.015	0.564	0.527
6.12	<0.118	<0.118	<0.118	0.619	0.287	8.06	6.05	9.23	4.76	15.5	5.91	14.1	2.96	0.236	7.79	0.149	3.68	3.37
87.3	102	85.9	106	95.6	89.3	96.7	93.7	86.7	89.2	95.1	98.8	93.5	93.1	88.8	94.8	85.9	86.3	98
91.2	92.1	84.8	94.9	88.6	92.1	96.6	105	91.6	99.2	97.8	101	95.4	101	92.4	93.5	84.5	91.5	88.9
96.7	85.6	89.9	90.2	91.9	95.2	97	116	105	108	97.8	100	96.6	103	93.4	97.9	83.7	95.7	87.8
105	97.5	99.7	98.5	92.3	82.1	89.3	101	83.7	86.4	88.9	93.6	91.6	83.8	78	113	72.9	75.3	104
93.3	104	90.2	102	91.8	82.8	91.5	101	85.9	89.3	88.2	92.6	90.6	82.6	72.6	101	75.1	75	104
123	6.47	<0.1	78.1	6.85	9.07	181	210	219	232	140	154	141	128	108	19.8	14.2	167	134
81.6	23.3	11.6	376	34.7	45.8	149	120	116	147	83.2	101	79	65.5	41.2	19.1	11.9	63.6	90.5
205	29.8	11.6	454	41.6	54.9	330	330	335	380	223	255	220	194	149	39.2	26.3	231	225
-	169000	-	284000	49400	-	91300	145000	-	-	-	-	-	203000	86800	-	151000	161000	-
-	28600	-	5290	16300	-	12100	15600	-	-	-	-	-	12400	11500	-	20600	16800	-
0.0112	0.0433	<0.01	<0.01	<0.01	<0.01	<0.01	0.0222	0.0109	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.522	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0116	<0.01	0.0232	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.186	<0.015	<0.015
<0.035	0.0433	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.731	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	02/07/2018	-	21/06/2018	21/06/2018	-	20/06/2018	21/06/2018	-	-	-	-	-	21/06/2018	21/06/2018	-	15/06/2018	15/06/2018	-
-	Magdziarek	-	es Richards	Magdziarek	-	anek-Walsh	Magdziarek	-	-	-	-	-	es Richards	rzej Ferfecki	-	ata Bozhkov	ata Bozhkov	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	Detected	-	Not Detected	Not Detected	-	Detected	Detected	-	-	-	-	-	Detected	Not Detected	-	Trace	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-	-	-	-	-	Not Detected	Not Detected	-	Not Detected	Not Detected	-
-	e fibre in soil	-	0	0	-	ibres in soil.	fibres in soil	-	-	-	-	-	ment debris	0	-	fibres in soil	0	-
104	108	116	117	111	106	118	111	114	108	112	110	115	112	124	108	105	105	105
99.4	100	99.8	99.8	99.1	98.6	97.7	95.3	88.9	96	98.7	88.7	94.3	96.8	96.3	99.5	97.8	96.9	98.2
98.2	95.7	93.7	96.3	92.9	93.9	94.8	88.2	74	87.3	105	75.7	83.8	92.9	93.5	92.9	96.4	94.6	98.8
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-
<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-
<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-
<0.5	<0.5	-	-	-	-	-	-	-	<0.5	<0.5	-	-	-	-	-	-	-	-
1.12	1.08	-	-	-	-	-	-	-	1.98	1.52	-	-	-	-	-	-	-	-
9.79	9.31	-	-	-	-	-	-	-	33.9	33	-	-	-	-	-	-	-	-
10.8	10.3	-	-	-	-	-	-	-	35.2	34	-	-	-	-	-	-	-	-

40AP15	40AP15	40AP10V	40AP11V	40AP13V	40AP15V	40AQ18	40AQ20	40AQ20	40AQ21	40AQ24	40AQ24	40AQ24	40AQ27	40AQ27	40AQ27	40AQ27
2.002.00	3.003.00	2.602.60	2.402.40	2.002.00	4.204.20	0.200.20	0.800.80	1.501.50	1.501.50	0.500.50	1.001.00	2.002.00	0.200.20	0.700.70	1.201.20	1.901.90
14/06/2018	14/06/2018	22/06/2018	22/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	07/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018	06/06/2018
3.83	4.38	5.03	5.26	46	58.6	0.469	3.19	2.83	2.74	2.43	1.47	6.36	1.6	<0.35	<0.35	<0.35
7.48	8.11	11.5	12.6	31.2	11	6.84	10.6	6.77	10.7	5.97	5.37	8.15	9.48	<6	6.7	<6
0.465	0.528	<0.02	<0.02	0.58	0.266	0.485	0.384	0.229	0.326	0.448	0.573	0.547	0.732	0.657	0.401	0.443
33	24.8	33.3	37.2	13.4	12.7	25.8	27.8	9.45	51	283	155	162	266	416	466	468
18.2	24.7	24.3	26.2	34.1	17.1	10.1	22.2	42	18	17.8	17.6	30.2	18.5	14.9	<14	<14
30.6	45.5	25.1	30.9	9.86	9.55	21.2	25.9	28.5	19.9	47	34.5	67.7	45.7	14.4	16.1	19.2
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<1.4	<1.4	<1.4
14.3	16.8	31	34.6	57.9	26.1	7.78	18.5	33.1	12.9	12.4	10.3	12.4	18.4	5.34	2.99	<2
1.59	2.57	<1	<1	3.26	2.91	<1	2.46	1.17	2.31	7.35	6.13	6.97	<10	12.4	14.2	13.7
58.7	48.6	52	55.3	49.1	28.6	43.1	80.9	28	44.5	248	276	237	444	965	929	1020
83.4	140	113	115	75.8	27.6	79.7	53.8	102	46.6	238	171	416	131	36.2	24	33.9
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0479	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.106	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.0888	0.384	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0644	<0.04	<0.04	<0.04	<0.04	<0.04
8.37	10.8	<0.1	<0.1	<0.1	<0.1	6.19	0.863	<0.1	<0.1	8.26	8.23	5.08	0.407	10.7	4.53	1.27
66.8	107	<0.1	<0.1	2.56	5.8	23.6	3.58	1.44	4.48	20.8	25.6	17.1	4.81	20.9	13.9	3.01
1820	3220	11	7.04	133	201	60.9	20.3	1.53	24.4	134	231	146	69	67.1	63.8	29.4
632	841	<0.1	<0.1	3.4	46.9	9.35	3.25	<0.1	2.81	32.2	50.5	35.9	29.8	13.7	9.08	13.8
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0718	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.0599	0.256	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0433	<0.04	<0.04	<0.04	<0.04	<0.04
6.42	9.3	<0.1	<0.1	2.71	<0.1	1.77	1.34	<0.1	1.14	1.5	2.36	1.07	0.558	<0.1	<0.1	<0.1
22.2	32.1	<0.1	0.555	6.96	10.4	7.06	3.11	0.7	3.87	10.7	18	7.21	5.47	3.56	0.814	1.21
412	732	41.4	29.2	304	253	21.4	21.4	<0.1	11.1	46.2	92.2	57.9	61.9	5.76	1.36	26.6
383	239	10.6	8.8	25.8	59.7	5.15	3.61	<0.1	1.38	16.3	49.1	29.9	45.9	<0.1	0.565	23.2
173	65.8	3.52	3.31	7.36	23	1.69	<0.1	<0.1	<0.1	6.42	18.9	12.3	17.8	<0.1	<0.1	9.38
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	13.3	<12	<12	<12
21.7	89.2	<8	<8	<8	<8	<8	<8	<8	11.1	10.8	<8	12.6	<8	35.2	78.2	<8
19.5	137	<16	<16	<16	<16	<16	<16	<16	<16	64.3	<16	100	51.6	45.7	154	<16
101	396	<14	<14	<14	<14	31.4	<14	<14	26.1	545	108	342	422	387	322	54.7
117	330	<15	<15	<15	<15	21.6	<15	<15	20	340	77.6	329	310	178	161	50.9
137	407	<15	<15	<15	<15	35.7	32.7	<15	27.6	377	133	453	628	416	267	86
66.7	180	<14	<14	<14	<14	<14	<14	<14	<14	202	57.1	246	294	178	111	27.7
135	216	<24	<24	<24	<24	<24	<24	<24	<24	215	69.4	280	291	163	110	48.2
110	388	<10	<10	<10	<10	38.1	25.2	20.3	29.6	477	130	360	482	441	283	62.8
<0.023	43.4	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	46.2	<0.023	55.7	60.2	38	28.1	<0.023
104	195	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	188	62.3	237	302	187	117	42.6
185	857	<0.017	<0.017	<0.017	<0.017	75.6	30.9	29	70.2	1180	131	422	680	830	1070	180
29.4	81.2	<10	<10	<10	<10	<10	<10	14	11.6	11.5	<10	15	<10	<10	13.8	<10
44.5	65.6	<9	<9	<9	<9	15.1	13	36.4	15.5	24.9	32.6	44.4	16.5	14.2	49	<9
182	868	<15	<15	<15	<15	90.6	53	117	62.7	122	65.9	217	282	525	471	229
0.176	0.751	<0.015	<0.015	<0.015	<0.015	0.0557	0.0275	<0.015	0.0639	1.42	0.282	0.6	0.618	0.742	0.883	0.144
1.43	5.01	<0.118	<0.118	<0.118	<0.118	0.364	0.182	0.216	0.338	5.22	1.15	3.71	4.45	4.18	4.12	0.926
89.9	91.5	93.7	92.4	92.1	99.7	94.1	83.8	92.9	92	88.3	92.4	91.4	88.2	87.1	90.3	89.8
90.1	91	91.1	87.2	95.4	97.3	92.4	88.4	87.3	91.7	86.3	90.8	89.3	89.3	88.1	94.8	93.5
85.7	99.5	91.4	88.1	100	98	97.3	95.1	89.1	93	92	93.1	91.5	92.2	84.5	99.2	98.2
91	108	91.6	86.4	82.8	97.9	107	78.3	84	89.5	91.5	88.4	86.7	95.3	89.3	94.7	90
94	90.6	90.8	85.9	74.6	99.1	94.6	77	82.3	93.7	92.5	93.9	91.1	97.2	93.1	90.5	84.7
2530	4180	11	7.04	139	254	100	28	2.96	31.7	196	315	204	104	112	91.3	47.4
823	1010	52.1	38.5	339	323	35.3	29.5	0.7	17.5	74.7	162	96.2	114	9.32	2.74	51
3350	5190	63.1	45.6	478	577	135	57.5	3.66	49.2	270	477	300	218	122	94	98.4
188000	-	252000	-	255000	-	-	-	-	-	155000	-	83400	255000	-	169000	-
21500	-	6760	-	7470	-	-	-	-	-	17500	-	7980	17700	-	41300	-
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0264	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.176	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.176	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15/06/2018	-	18/06/2018	-	18/06/2018	-	-	-	-	-	29/06/2018	-	29/06/2018	20/06/2018	-	15/06/2018	-
ata Bozhkov	-	anek-Walsh	-	Magdziarek	-	-	-	-	-	Lucy Caroe	-	rzej Ferfecki	anek-Walsh	-	ata Bozhkov	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	Not Detected	-	Not Detected	-
0	-	0	-	0	-	-	-	-	-	ndles in soil	-	0	0	-	0	-
109	109	98.9	99.6	8.9	118	107	105	103	108	109	112	107	116	113	113	123
97.7	97.2	97.9	97.8	94.9	100	95.4	92.5	97.2	97.7	98.1	99.2	99.6	98.9	97.4	95.9	97.6
95	95.9	97	97.5	98.7	97	81.7	81.9	98.9	97.2	93.9	93.5	99.7	95.1	92.5	95.5	95
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	<0.5	-	-	-	-
-	-	-	-	-	-	-	-	-	-	1.05	0.6	<0.5	-	-	-	-
-	-	-	-	-	-	-	-	-	-	6.72	12.6	15.2	-	-	-	-
-	-	-	-	-	-	-	-	-	-	7.7	13.2	15.2	-	-	-	-

40AQ18V	40AQ20V	40AQ21V	40AQ24V	40AQ27V	40AR11	40AR11	40AR11	40AR16	40AR16	40AR21	40AR25	40AR25	40AR11V	40AR13V	40AR16V	40AR21V	40AR25V	40AS12
0.300.30	1.801.80	3.003.00	2.102.10	2.002.00	0.500.50	1.001.00	1.701.70	0.500.50	1.001.00	0.500.50	0.500.50	1.001.00	2.302.30	0.200.20	1.401.40	0.700.70	1.301.30	0.500.50
14/06/2018	14/06/2018	07/06/2018	06/06/2018	06/06/2018	22/06/2018	22/06/2018	22/06/2018	14/06/2018	14/06/2018	07/06/2018	06/06/2018	06/06/2018	22/06/2018	14/06/2018	14/06/2018	07/06/2018	06/06/2018	14/06/2018
3.53	26.4	81.2	1.68	1.41	2.33	1.5	0.379	2.1	2.53	0.893	1.57	0.872	7.48	1.7	50.2	1.11	1.17	4.69
8.79	14.9	3.64	9.48	12.8	7.81	5.9	9.65	6.68	11.3	7.37	8.82	6.74	17.5	8.9	14.2	12.6	9.82	10.2
0.424	0.378	0.0904	0.251	0.208	0.69	0.409	0.322	0.743	1.5	0.471	0.804	0.242	<0.02	0.229	0.281	0.21	0.245	0.399
60.6	29.6	5.01	43.8	32.8	57	63.6	8.18	91.6	222	36.9	124	52.3	35.8	37.9	11	30.3	31.7	10.7
54.2	30.9	8.31	15.2	13.6	15.2	6.34	5.73	19.6	75.3	18	49.8	21.2	24.3	15.6	17.5	11.6	12.7	22.9
42.2	16.7	2.2	30.4	25.6	58.4	20.9	13.1	49.4	91.4	45.9	61.2	17.9	37.3	29.5	6.62	28.4	28.4	25.5
<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
52.8	34.9	9.48	39.7	40.3	16.2	6.99	9.06	12	65.7	12.4	21.4	8.1	29	42	30.7	38.1	37.7	44.6
1.61	2.74	1.88	1.26	<1	3.71	3.53	1.79	5.2	<10	1.83	<10	4.75	<1	<1	1.98	<1	1.13	1.45
59.8	49.1	10.4	72.2	57.8	106	137	40	157	329	42.3	183	137	57.6	60.6	28.4	53.2	56.5	35.9
1270	53.9	9.1	116	104	236	104	126	170	476	144	116	46.7	136	98.3	21.5	111	108	128
<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.103	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0814	<0.04	<0.04	<0.04	<0.01	0.217	0.0749	<0.04	<0.04	<0.04	0.0472	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0902	<0.04	<0.04	<0.04	<0.01	1.19	0.339	<0.04	<0.04	<0.04	0.189	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0564
<0.1	0.873	1.05	<0.1	0.166	2.39	28.6	7.37	4.19	6	2.7	39.5	15.3	<0.1	0.267	0.296	1.31	1.46	3.71
<0.1	2.09	0.952	0.335	<0.1	18.9	48.8	23.8	17.2	22.7	10.6	96.7	42.2	<0.1	0.355	0.572	1.72	3.33	6.53
<0.1	53	70.5	7.84	0.449	111	74.7	31.7	153	132	99.3	325	200	3.18	1.36	8.84	1.48	17.4	15.5
<0.1	<0.1	0.353	0.63	<0.1	36	26.6	10.9	40.7	41.1	26.4	87.6	27.1	<0.1	<0.1	5.83	<0.1	1.65	4.89
<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.01	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.055	0.151	<0.04	<0.04	<0.01	0.145	0.0491	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0594	<0.04	<0.04	<0.04	<0.01	0.79	0.226	<0.04	<0.04	<0.04	0.125	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	0.493	<0.1	<0.1	<0.1	9.08	1.77	2.03	2.68	0.329	<0.1	4.11	0.114	<0.1	0.188	<0.1	0.402	1.77
<0.1	7.02	3.54	0.602	<0.1	0.45	20.3	8.69	13.5	19.6	3.46	23.1	18.9	1.2	<0.1	4.58	0.425	2.52	4.65
<0.1	178	445	2.74	1.17	8.04	45.4	22.9	76.9	107	31.4	59.7	60.5	54.8	2.93	127	0.865	11.2	13.6
<0.1	19.8	14.1	0.41	0.834	1.37	24.8	14.6	38.4	52.3	17.3	8.16	15.3	17.2	0.677	56.2	5.18	1.95	3.47
<0.1	3.82	<0.1	<0.1	0.21	1.06	9.9	5.82	15.4	20.2	8.01	1.76	5.63	7.35	<0.1	28.5	3.1	<0.1	1.18
<12	<12	<24	<12	<12	22.4	<12	<12	<60	21.6	<12	<12	<12	<12	<12	<12	<12	<12	<12
<8	<8	<16	14.9	<8	19.5	13.6	13	62.5	25.2	27.6	138	223	<8	<8	<8	<8	23.2	<8
<16	<16	<32	29	<16	70.3	33.4	23.1	192	150	32.6	225	269	<16	<16	<16	<16	30.4	<16
<14	<14	<0.028	63.9	<14	471	73.8	21.9	758	2110	113	913	1070	<14	<14	<14	<14	112	21.1
<15	<15	1210	55.7	<15	421	63.1	<15	506	1390	91.5	880	1200	<15	<15	<15	<15	106	<15
<15	<15	<3	86.5	<15	614	120	27.8	878	2740	183	1240	970	31.1	<15	<15	<15	155	31.8
<14	<14	<0.028	28.9	<14	222	36.2	<14	342	1040	63.2	420	438	<14	<14	<14	<14	47.3	<14
<24	<24	<0.048	50.2	<24	360	61.8	<24	419	988	84.1	619	719	<24	<24	<24	<24	73.6	<24
<10	<10	<0.02	70.4	<10	458	87.4	24	788	2000	146	944	1000	22.7	<10	<10	<10	124	35.2
<0.023	<0.023	<0.046	<0.023	<0.023	81.7	<0.023	<0.023	<0.115	222	<0.023	116	156	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023
<0.018	<0.018	<0.036	38	<0.018	326	53.5	<0.018	450	794	74.1	566	611	<0.018	<0.018	<0.018	<0.018	65.7	<0.018
<0.017	<0.017	<0.034	174	<0.017	616	141	58.5	2130	1200	264	1570	2160	33.2	<0.017	<0.017	<0.017	201	36.6
<10	<10	<0.02	<10	<10	22.5	14.8	16.3	<50	13.4	12.9	79.8	126	<10	<10	<10	<10	14.5	<10
<9	24.1	<0.018	17.4	19.7	63.6	33.4	10.7	87.7	66.6	22	97.4	143	<9	<9	<9	<9	23.2	13.6
<15	<15	<3	143	<15	238	89.4	57.5	858	394	217	832	1210	<15	<15	<15	<15	135	58.2
<0.015	<0.015	<0.03	0.179	<0.015	0.874	0.152	0.0592	2.24	4.65	0.261	1.7	2.01	<0.015	<0.015	<0.015	<0.015	0.178	0.0283
<0.118	<0.118	1.21	0.951	<0.118	4.88	0.973	0.312	9.71	17.8	1.59	10.3	12.3	<0.118	<0.118	<0.118	<0.118	1.29	0.225
80.6	97.1	96.8	90.4	87.5	93.1	89.7	98.7	92.2	102	99.1	88.2	89.7	84.2	91.2	99.6	83.8	87.7	89.3
83.2	95.6	97.1	86.6	57.4	102	101	100	77.2	93.4	95.5	95	92.2	81	91.2	91.9	80.5	90.4	91.4
90.1	94.7	99.5	89.4	94.3	121	111	101	97.1	99.2	97.8	98.2	97.2	84.4	99.2	92.2	86.9	94.6	95.1
89.4	87.8	109	89.3	93.1	99.7	101	97.1	77.4	95.3	101	90.2	86.8	84.9	105	96.3	88.7	92.4	80.4
92.9	88.1	107	95.4	88.6	95.7	103	100	79.6	94.7	96.5	85.1	89.8	83.6	91.8	100	89.2	87.6	76.3
<0.1	55.9	72.9	8.81	0.615	168	179	73.7	215	202	139	549	284	3.18	1.99	15.5	4.52	23.8	30.6
<0.1	205	463	3.75	2.01	9.87	99.6	48	131	182	52.5	91	98.8	73.2	3.6	188	6.47	16	23.4
<0.1	261	536	12.6	2.62	178	281	122	346	384	191	641	383	76.4	5.59	203	11	39.9	54.1
161000	-	-	-	-	-	24700	-	144000	-	107000	-	170000	-	-	-	135000	-	114000
12900	-	-	-	-	-	6420	-	17200	-	29600	-	24700	-	-	-	40500	-	27600
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0318	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0174	<0.01	<0.01	0.0106	<0.01	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.0424	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18/06/2018	-	-	-	-	-	21/06/2018	-	21/06/2018	-	21/06/2018	-	18/06/2018	-	-	-	10/08/2018	-	10/08/2018
anek-Walsh	-	-	-	-	-	rzej Ferfecki	-	rzej Ferfecki	-	es Richards	-	Magdziarek	-	-	-	ata Bozhkov	-	ata Bozhkov
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Detected	-	Detected
Not Detected	-	-	-	-	-	Not Detected	-	Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected
Not Detected	-	-	-	-	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	Not Detected	-	Not Detected
0	-	-	-	-	-	0	-	fibres in soil	-	0	-	0	-	-	-	ibres in soil.	-	ACM debris.
106	110	108	103	110	110	123	109	115	104	114	109	138	110	111	104	99.5	97.3	98.6
97.1	99.1	99.6	89.9	97	96.8	96.9	99.8	96.3	94.4	100	97.6	98.7	92.1	98.7	97.3	98.7	99.3	97.8
96.2	102	98.7	70.1	96.8	96.5	90.5	94.5	91.5	77.9	95.2	96.2	103	93.8	95.7	95.4	86.1	90.7	88.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	0.266	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	1.53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	37.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	38.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

40AS12	40AS18	40AS18	40AS18	40AS27	40AS27	40AS12V	40AS18V	40AS27V	RLS2TP1	RLS2TP10	RLS2TP10	RLS2TP10	RLS2TP11	RLS2TP12	RLS2TP13	RLS2TP13	RLS2TP14	RLS2TP14
1.001.00	0.500.50	1.001.00	2.002.00	0.200.20	0.700.70	1.801.80	2.302.30	0.800.80	0.200.20	1.001.00	2.002.00	3.003.00	0.500.50	0.500.50	0.200.20	0.500.50	0.800.80	1.501.50
14/06/2018	14/06/2018	14/06/2018	14/06/2018	06/06/2018	06/06/2018	14/06/2018	14/06/2018	06/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018
2.21	2.1	3.91	1.18	1.81	1.95	11.2	8.93	3.65	16.8	2.5	3	3.15	5.72	2.59	1.18	17.4	4.22	24.8
6.82	7.27	45.1	15.5	2.74	3.67	18.3	21	12.3	18	6.02	6.65	5.64	24.2	8.16	12.4	16.4	7.12	8.03
0.336	0.221	1.84	0.998	0.253	0.263	0.757	0.735	0.509	0.641	0.688	1.18	0.579	0.783	0.356	0.76	0.271	0.513	0.553
0.989	35.9	24.2	<9	105	50.1	40.9	35.7	26.3	6.89	77.1	116	64.4	206	36	4.03	4.89	326	47.1
9.21	23.8	18.5	<14	8.66	12.9	29.6	27.7	21.3	49.3	22.1	25.5	16.5	128	15.2	9.35	20.6	36	39.2
13.1	24.9	34.8	40.6	11.7	14.8	49.8	51.5	36.3	57.4	68.3	89.6	51.1	110	24.2	20.2	20.6	47.3	48.8
<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	1.11	<0.14	<0.14	<0.14	2.69	<0.14
10.2	13.9	18.3	18.8	7.21	10.9	30.9	30.4	29	53.1	12.2	13.7	10.1	19.1	15.8	14	20.4	11.6	20.4
<1	5.3	2.53	<10	5.06	4.38	1.5	1.4	1.02	1.23	3.65	<10	2.19	2.57	1.81	2.22	1	6.33	2.07
14.2	108	49.2	16.5	199	171	70	58.3	45.3	37.5	108	123	51.5	98.4	67.6	26.6	17.9	248	82.5
31.7	49.9	447	75.4	41	54.9	146	159	154	83.7	187	344	207	388	84.4	67.5	42.7	146	109
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.223	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0627	2.66	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	0.0622	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0684	0.0414	0.0526	26	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.0754	0.106	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0616	0.132	0.0638	12.9	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1.93	6.44	14.1	0.573	1.12	0.793	<0.1	3.76	<0.1	2.47	20.8	6.86	8.07	<0.1	<0.1	<0.1	1.18	3.15	3.48
2.42	11.3	22.6	1.63	2.28	1.53	<0.1	0.559	<0.1	2.49	53.8	30.4	22.3	1.92	<0.1	<0.1	3.45	13.5	20
3.75	62.8	43.5	17.4	15.6	7.8	2.99	8.63	3.34	5.73	195	186	170	29.4	13.9	9.73	8.65	96.6	124
<0.1	27.9	11.3	3.57	3.05	0.813	<0.1	<0.1	<0.1	0.877	78.5	61.3	42.6	7.75	5.87	2.01	1.88	27.8	28.5
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	0.0531	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0456	<0.04	<0.04	17.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	0.051	0.0712	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.041	0.0885	0.0426	8.57	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	2.55	4.99	<0.1	0.461	<0.1	<0.1	1.43	<0.1	1.31	5.16	1.2	3.4	2.23	<0.1	<0.1	0.47	2.15	3.64
<0.1	6.73	10.4	0.466	2.04	<0.1	1.22	1.95	1.28	2.45	19.8	12.2	11.3	14.9	2.04	<0.1	0.841	11.9	26.4
<0.1	42.3	26.3	8.56	15.3	4.59	25.7	43	17.8	<0.1	106	96.1	97.5	79	20.4	5.83	5.86	79.3	122
<0.1	28.1	12.3	3.87	4.34	1.07	2.68	7.39	3.21	<0.1	71.5	49.2	24.2	31.8	11.9	1.24	1.8	39.3	33.7
<0.1	11.3	4.69	1.31	1.33	0.123	<0.1	2.29	<0.1	<0.1	29.2	20.6	8.33	12.2	5.16	<0.1	<0.1	14.3	11.9
<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	15.4	<24	<12	87.4	<12	<12	<12	<12	15.9
<8	13.4	96.7	<8	<8	<8	<8	<8	<8	<8	31.7	31.2	33.8	208	<8	<8	<8	155	1170
<16	20.2	79.7	<16	<16	<16	<16	<16	<16	<16	57.5	78.7	55.9	734	23.7	<16	<16	220	1440
18.5	59.9	72.8	26.1	56.1	71.9	27.2	33.3	21.2	<14	328	387	233	2030	88.5	<14	20.7	1450	5960
<15	33.8	45.2	21.3	56.5	67.3	28.2	34	21.3	<15	322	377	191	1800	87.9	<15	<15	2070	7860
22.7	95.7	101	37.7	101	111	51.9	80.6	45.6	<15	626	629	336	3030	134	18.8	39	2030	7540
<14	30.3	34.6	<14	34.4	34.4	<14	29.9	<14	<14	246	221	111	1230	46.1	<14	<14	866	3900
<24	34	41.8	<24	44.1	53.8	<24	45.9	<24	<24	307	320	154	1310	69.5	<24	<24	1830	5720
27.9	85.6	97.7	28.1	56.2	75.4	36.3	51.7	28.5	<10	420	485	258	2470	92.5	16.4	38.6	1500	5020
<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	46.1	64	34.2	327	<0.023	<0.023	<0.023	318	1120
<0.018	39.4	44.3	<0.018	51.7	55.4	<0.018	<0.018	<0.018	<0.018	335	277	163	1350	65.2	<0.018	<0.018	1500	5230
36.5	146	255	39.8	91.8	120	57.2	59.5	41.1	<0.017	448	727	380	3770	145	23.7	51.4	2000	9370
<10	<10	96.3	<10	<10	<10	<10	<10	<10	<10	31.5	30.8	38.6	255	<10	<10	21.6	74.9	555
32	39.7	119	15.5	<9	11	<9	<9	<9	13.5	59	60.1	61.8	181	41.5	13.4	124	170	474
67.7	128	423	45.8	58.1	64.8	35.3	26.6	23.3	39.9	232	402	265	2520	104	29.4	115	925	5100
0.0278	0.131	0.18	0.0335	0.0797	0.0943	0.0445	0.0502	0.0329	<0.015	0.576	0.766	0.356	2.92	0.112	0.0213	0.0393	2.13	9.79
0.233	0.858	1.69	0.248	0.63	0.759	0.281	0.412	0.214	<0.118	4.08	4.86	2.67	24.2	1.01	0.123	0.45	17.2	70.3
99.7	86.2	84.1	100	92.1	92.2	87.6	105	100	86.8	93.4	97.7	100	87.8	97.3	95.5	99.6	97.9	98.2
84.3	88.6	88.1	89.3	89.8	42.4	86.7	90	88.5	88.8	95.5	100	90.3	84.5	90.2	92	85.5	90.1	90.2
80.4	94.3	91.8	87.4	91.3	97.7	86.1	83.6	92.8	83.2	96.3	99.3	92	90.8	91.3	93.2	74.6	91.1	94.4
92.5	78.3	73.4	103	96.9	93.6	79.1	101	94.8	71.1	102	106	102	88.3	85.4	87.3	78.7	107	108
92	79.3	71.1	104	95.1	88.3	81.9	104	93.7	65.8	102	101	102	93.4	86.5	87.2	84.4	112	113
8.1	108	91.5	23.2	22	10.9	2.99	12.9	3.34	11.6	348	284	243	39	19.7	11.7	15.2	141	176
<0.1	79.7	53.9	12.9	22.1	5.66	29.6	53.8	22.3	3.77	202	159	136	128	34.4	7.07	8.97	133	186
8.1	188	146	36.1	44.2	16.6	32.6	66.7	25.6	15.5	551	443	448	167	54.1	18.8	24.1	274	362
-	67000	-	117000	-	121000	-	141000	-	-	161000	-	54800	-	128000	-	139000	-	142000
-	22400	-	11200	-	18100	-	11500	-	-	15800	-	11200	-	4870	-	26100	-	22500
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	0.0118	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	0.022	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0236	<0.015	<0.015	<0.015	<0.015	<0.015	0.0565
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.0565
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	10/08/2018	-	10/08/2018	-	10/08/2018	-	09/08/2018	-	-	21/06/2018	-	18/06/2018	-	18/06/2018	-	19/06/2018	-	19/06/2018
-	ata Bozhkov	-	ata Bozhkov	-	ata Bozhkov	-	ata Bozhkov	-	-	anek-Walsh	-	aul Poynton	-	stian Hallam	-	stian Hallam	-	stian Hallam
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Trace	-	Not Detected	-	Trace	-	-	Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected
-	0	-	ibres in soil.	-	0	-	ibres in soil.	-	-	ndles in soil.	-	0	-	0	-	0	-	0
99.7	99.2	102	94.4	92.7	96.4	107	99	96.3	103	104	109	111	107	105	99.2	103	106	106
102	93.7	102	95.9	94.2	97.1	97.1	98	97.6	95	99.9	96.9	94.9	97.2	97.8	96.7	97.5	95.9	97.3
91.1	77.2	110	83.2	81	88	89	87.9	91.1	92.4	95	93	92.7	98	97.9	92.2	97.2	92.8	95.8
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	0.362	0.53	0.302	0.247	0.211	0.245	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

RLS2TP14	RLS2TP15	RLS2TP15	RLS2TP15	RLS2TP2	RLS2TP2	RLS2TP3	RLS2TP4	RLS2TP5	RLS2TP5	RLS2TP6	RLS2TP6	RLS2TP6	RLS2TP7	RLS2TP7	RLS2TP7	RLS2TP8
2.002.00	0.500.50	1.001.00	1.501.50	0.300.30	0.700.70	0.500.50	0.200.20	0.300.30	0.800.80	1.001.00	2.002.00	3.003.00	0.800.80	2.002.00	3.103.10	1.001.00
14/06/2018	14/06/2018	14/06/2018	14/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018
2.07	3.1	5.79	2.83	1.17	4.14	1.62	2.34	3.65	2.22	3.72	5.26	1.95	1.37	5.86	3.74	5.03
4.84	<6	8.47	7.29	6.16	11.2	11.2	12.6	8.97	11.6	9.25	8.81	10.3	5.53	9.87	7.28	135
0.676	0.998	0.867	0.611	0.18	0.246	1.47	0.283	0.493	0.515	1.02	1.45	1.05	0.753	1.16	0.798	0.884
31.9	249	89.1	52.6	29.5	12	203	14	<0.9	96.7	73.9	148	121	134	318	25	98.1
14	22	25.9	18.3	14.3	16.7	25.4	19.5	14.7	20.3	29.1	21	24.7	19.8	33.1	22.8	126
49	67.9	104	49.1	12.8	19.5	52.4	15.9	16.6	24.9	65.9	49.6	61.6	69.2	118	71	81.2
<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<1.4	<1.4	<1.4	<0.14	<0.14	<0.14	<0.14
10.9	13.9	16.2	13.5	17	21.6	25.8	24.4	17.7	17.8	24.9	22.2	18.3	14.2	30	17.6	169
4.1	<10	3.44	2.01	1.19	1.83	13.8	<1	1.19	4.76	<10	<10	<10	4.58	4.14	2.11	40.2
54.8	256	152	71.4	121	35.1	532	24.1	13.1	175	111	157	136	144	128	39.1	139
109	145	353	267	40.2	54.7	156	53.2	58	72.7	290	164	134	206	332	169	217
0.0408	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.244	<0.04	<0.04	<0.04	<0.04
0.0864	<0.04	<0.04	<0.04	<0.04	0.0496	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.265	0.187	0.237	0.107	0.0439
0.158	<0.04	<0.04	<0.04	<0.04	0.131	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.0414	1.52	1.83	1.44	<0.04
0.456	<0.04	<0.04	<0.04	<0.04	0.133	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	3.58	5.33	2.18	<0.04
23.9	3.22	4.39	4.89	<0.1	<0.1	1.07	2.32	2.01	<0.1	5.57	4.97	9.93	4.08	147	35.8	4.42
34.6	18.5	16.4	22.6	<0.1	2.38	4.07	17.3	2.8	3.62	27	20.9	32.4	20.8	270	21.2	20.9
36.3	120	71.9	84.9	8.45	39.4	24.5	34.3	10.8	12.7	166	110	217	87.1	424	59.5	136
5.5	23.9	12.9	18.9	<0.1	7.86	7.67	5.6	1.79	<0.1	35.3	24	51	12.2	75.7	6.75	36.2
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.142	<0.04	<0.04	<0.04	<0.04	0.0897	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	1.03	1.31	1.01	0.045
0.304	<0.04	<0.04	<0.04	<0.04	0.0885	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	2.39	3.55	1.45	<0.04
<0.1	1.5	1.43	1.62	<0.1	1.57	<0.1	0.213	1.1	1.08	1.96	1.77	3.23	2.11	64.1	5.08	1.68
3.05	8.77	6.73	9.96	0.977	2.66	5.98	6.72	4.39	4.34	14.6	10	19.5	9.95	116	14.8	7.38
1.18	51.9	28.9	42.7	4.64	12.9	23.1	22.5	10.7	7.91	77.5	60	130	45.7	159	45.3	51
0.217	21.9	8.17	16.7	1.61	2.52	9.6	4.48	3.24	2.35	30.3	25.6	72.3	20.6	50.5	9.22	29.5
<0.1	8.29	2.66	6.43	<0.1	<0.1	3.62	1.56	1.13	0.901	12.3	9.92	29.6	7.78	20	3.31	12.1
<12	<24	<12	<12	<12	<12	<12	<12	<12	<12	14.1	14	<12	<24	140	<12	<12
15.3	40.4	33.2	57.8	<8	<8	<8	<8	<8	9.11	36.6	25.6	38.5	31.9	220	22.2	19.4
23.4	160	64.6	97.5	<16	<16	220	<16	18.6	35.8	82.9	104	106	183	385	28.6	44.9
68.4	812	222	528	<14	51.1	1520	<14	60.5	67.4	295	368	543	578	545	77.3	175
77.1	630	211	617	<15	18.6	743	<15	64.1	19.4	279	396	433	475	437	57.2	162
114	1050	370	876	<15	60.8	1800	21.6	122	47.5	550	609	725	781	667	124	264
40.7	339	134	306	<14	<14	554	<14	39.9	<14	151	228	282	307	252	36.2	101
64.8	481	193	508	<24	<24	611	<24	53.6	<24	245	322	382	385	319	44	130
69.1	817	234	554	11.3	92.3	1590	16.5	84.2	143	360	442	590	563	626	93.1	211
<0.023	99.7	46.4	98.3	<0.023	<0.023	148	<0.023	<0.023	<0.023	41.9	61.6	82.7	92.3	78	<0.023	30
54.9	372	190	491	<0.018	<0.018	697	<0.018	60.6	21	275	313	488	342	304	54.1	125
155	1360	502	1030	<0.017	38	3280	33.3	103	163	461	607	1030	1200	1300	148	330
<10	<0.02	16.9	17.1	<10	19	<10	<10	19	13.5	25.1	19	20.1	58.7	601	35.2	13.2
98.3	72.3	68.3	34.8	14.7	29	49.4	20.9	43.4	39.1	107	57.6	34	48.2	234	44.2	28.2
119	749	299	398	36.8	72.9	1310	39.2	101	183	424	370	597	1090	1720	139	198
0.148	1.24	0.469	1.07	<0.015	0.035	3.38	0.0277	0.0948	0.168	0.47	0.584	0.905	1.16	1.03	0.128	0.342
1.05	8.22	3.05	6.68	<0.118	0.417	15.9	0.159	0.864	0.909	3.82	4.52	6.26	7.29	8.86	1.03	2.17
87.1	102	86.3	86.2	91.8	98.4	91	91.7	91.4	96.4	89.4	91.5	90.1	93.5	88.2	92.8	91.6
85.8	84.7	78.1	74.5	88.1	85.4	94.3	90.5	90.5	94.8	92.3	91.9	86.8	90.3	99.2	95.3	88.4
98	84.7	94.9	93.6	90.9	88.7	98	94.3	89.1	91	93	88.5	92.5	95.2	98.1	96.9	91.4
81.3	99.4	75.5	81.6	91.9	88.5	96.9	90.9	87	83.8	102	92.7	90	104	98.7	94.7	95
84.5	102	73.6	82.9	86.1	86.4	91.6	92.1	90	80.3	102	97.7	93.7	99.8	93.9	89.8	89.9
100	166	106	131	8.45	49.6	37.4	59.4	17.4	16.3	234	160	311	124	917	123	197
4.45	84.1	45.2	71	7.23	19.7	38.7	33.9	19.4	15.7	124	97.4	225	78.3	390	74.3	89.6
106	250	151	202	15.7	69.8	76.1	93.4	36.8	32	358	258	536	211	1320	204	287
-	163000	-	146000	-	152000	-	189000	-	-	-	-	-	-	-	-	-
-	23000	-	27600	-	28400	-	19000	-	-	-	-	-	-	-	-	-
<0.01	0.0109	0.0228	0.151	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.045	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
<0.015	<0.015	<0.015	0.0232	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	0.174	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	18/06/2018	-	19/06/2018	-	19/06/2018	-	19/06/2018	-	-	-	-	-	-	-	-	-
-	aul Poynton	-	stian Hallam	-	stian Hallam	-	stian Hallam	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Detected	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
-	Not Detected	-	Not Detected	-	Not Detected	-	Not Detected	-	-	-	-	-	-	-	-	-
-	0	-	0	-	0	-	tos Bitumen	-	-	-	-	-	-	-	-	-
111	101	108	102	103	99.2	105	100	105	107	107	104	103	104	104	108	106
95.9	95.6	94.3	95.3	93.4	91.1	95.6	92.4	97.6	89	99.5	93.2	95.8	92.1	95.6	97.2	95.1
88	85.6	93.4	93	75.7	70.2	94.1	88.7	98.1	72.5	98.4	87.4	95.9	88.8	97.2	96	89.2
<0.1	<0.01	<0.1	<0.1	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.09	<0.009	<0.09	<0.09	<0.009	<0.009	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
<0.07	<0.007	<0.07	<0.07	<0.007	<0.007	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
<0.04	<0.004	<0.04	<0.04	<0.004	<0.004	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.1	<0.01	<0.1	<0.1	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.1	<0.01	<0.1	<0.1	<0.01	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.13	<0.013	<0.13	<0.13	<0.013	<0.013	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13
<0.4	<0.04	<0.4	<0.4	<0.04	<0.04	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

RLS2TP8	RLS2TP8	RLS2TP9	RLS2TP9	RLS2TP10V	RLS2TP11V	RLS2TP12V	RLS2TP13V	RLS2TP14V	RLS2TP15V	RLS2TP1V	RLS2TP2V	RLS2TP3V	RLS2TP4V	RLS2TP5V	RLS2TP6V	RLS2TP7V	RLS2TP8V	RLS2TP9V
2.202.20	2.802.80	0.500.50	1.001.00	4.004.00	0.800.80	0.700.70	0.650.65	2.252.25	2.302.30	0.400.40	1.201.20	1.101.10	0.450.45	1.301.30	5.305.30	3.803.80	3.203.20	1.601.60
12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	14/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018	12/06/2018
2.83	5.38	1.32	1.83	55.5	6.72	15.9	7.14	26.5	5.86	1.54	5.83	4.26	4.38	3.97	6.12	1.61	30.7	8.29
9.19	11.3	7.62	9.23	7.63	16.3	9.36	11.8	11.3	15.5	5.34	5.2	9.65	9.94	11.2	11.2	11.6	27.5	15.9
1.26	0.41	1.14	0.492	0.236	0.379	0.269	0.415	0.607	0.438	0.104	0.177	0.289	0.186	0.304	0.346	0.161	0.439	0.567
81.7	18.1	200	19.1	16.3	40	32	33.6	30.7	39.2	24	31.2	30.1	22.5	38.9	25.9	33.2	28.5	37
26.9	23.6	27.2	28.1	18	34.1	21.8	26.8	37	26.2	10.4	17.3	21.2	10.9	25.5	14.1	12.9	35.6	30.3
145	131	64.7	17.8	7.5	134	19.3	33.4	21.9	35.3	19.5	20.5	21.7	24.7	26.8	20.1	33.9	19.2	43.5
<0.14	<0.14	<0.14	<1.4	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
20.3	28.2	90.4	26.6	21.3	36.2	29	31.6	36.6	34.1	27.8	29.7	35.7	32.9	42.3	33.1	41.4	39.2	35
3.82	1.68	4.98	<10	3.22	1.66	1.66	1.41	2.86	1.29	<1	1.1	<1	<1	1.68	<1	<1	3.19	1.37
117	37.6	269	42.7	22.3	61.2	48.6	53	47.5	64.7	40.9	47.5	49.1	44.6	61.2	41.2	59.7	54.4	62.9
302	79.1	331	67.5	64.6	143	81.3	96.6	79.9	122	74.6	76.6	86.2	96.7	104	111	117	42.1	156
0.0433	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.0888	0.0762	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.135	0.291	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.379	0.611	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
12.7	9.17	6.54	<0.1	1.62	<0.1	<0.1	<0.1	3.46	0.102	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.13	<0.1
34	9.12	31.4	1.72	4.95	<0.1	<0.1	<0.1	7.54	2.51	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.24	<0.1
146	37.5	207	20.1	231	1.98	15.5	3.88	37.9	5.23	<0.1	1.23	0.865	6.64	1.15	2.58	<0.1	74.1	<0.1
51.3	10.9	49.6	2.32	3.39	<0.1	<0.1	<0.1	1.37	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.105	0.213	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
0.252	0.406	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
2.99	2.39	2.4	0.778	<0.1	<0.1	<0.1	<0.1	2.23	<0.1	<0.1	<0.1	<0.1	<0.1	0.304	<0.1	<0.1	<0.1	<0.1
12.9	7.05	18.2	3.51	4.52	<0.1	2.17	<0.1	5.97	0.589	<0.1	3.05	0.182	<0.1	0.115	<0.1	<0.1	4.31	2.01
70.3	31.5	117	15.6	280	7.54	111	21.6	159	17.8	7.46	34.7	5.34	26.5	5.82	7.44	3.8	284	19.3
50.6	15.2	53.8	8.42	24.8	0.891	6.33	2.31	27.1	1.88	<0.1	4.44	0.139	2.12	1.59	3.41	<0.1	25.2	2.37
22.8	6.26	20.1	3.55	8.32	<0.1	<0.1	<0.1	9.72	<0.1	<0.1	<0.1	<0.1	<0.1	0.349	1.34	<0.1	7.71	<0.1
<12	<12	15	<12	<60	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12
10.7	<8	20.5	<8	<40	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8	<8
25	<16	69.9	<16	<80	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16	<16
185	24.9	1150	155	<70	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	32.4
191	21.5	1090	93.5	<75	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	25.4
315	56.8	1810	182	<75	<15	<15	<15	<15	35.1	<15	<15	<15	<15	<15	<15	<15	<15	44.2
113	18	711	73.8	<70	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14	<14
172	<24	983	72.9	<120	<24	<24	<24	<24	104	<24	<24	<24	<24	<24	<24	<24	<24	<24
238	30.9	1250	172	<50	<10	<10	20.7	<10	20.3	<10	<10	<10	<10	<10	<10	<10	<10	38.3
34.6	<0.023	177	<0.023	<0.115	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023	<0.023
141	25.8	866	67.2	<90	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
275	64	854	136	<0.085	<0.017	<0.017	30.4	<0.017	32.4	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	68.3
<10	<10	11.8	<10	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	26.1	<10
27.2	22.8	60	28.2	<45	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	67.4
124	57.2	288	116	<75	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	<15	107
0.329	0.0522	2.36	0.335	<0.075	<0.015	<0.015	<0.015	<0.015	0.0275	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0556
2.18	0.374	11.7	1.43	<0.59	<0.118	<0.118	<0.118	<0.118	0.219	<0.118	<0.118	<0.118	<0.118	<0.118	<0.118	<0.118	<0.118	0.439
91.7	93.2	92	91	86.1	85.9	96.6	96.6	96.6	89.8	82.2	75.9	88	95.3	90.5	88.7	83	97.6	88.1
95.4	96.2	90.3	91.4	81.3	90.5	93.2	91.9	89.6	89.3	81.3	76.5	93	94.7	87.3	86	79.5	97.7	87.4
98.4	98.5	97.9	91.1	81.9	101	95	95	92.5	88.1	85.7	85.1	95.6	97.7	89.2	89.6	85	102	93
103	97.1	106	95.8	86.7	97.9	89	89.7	103	79.8	85.2	83.3	99.9	95.1	90.1	88.7	92.4	90.4	95.6
100	93.2	107	90.4	79.6	98.9	88.9	87.2	98.4	83.3	85.6	89.7	97.8	95.1	90.8	88.6	87.9	87.6	90.5
244	66.7	295	24.2	241	1.98	15.5	3.88	50.2	7.85	<0.1	1.23	0.865	6.64	1.15	2.58	<0.1	76.5	<0.1
137	56.1	192	28.3	309	8.44	120	23.9	194	20.2	7.46	42.2	5.67	28.7	7.83	10.8	3.8	314	23.7
382	124	487	52.4	550	10.4	135	27.8	244	28.1	7.46	43.4	6.53	35.3	8.98	13.4	3.8	390	23.7
-	-	-	-	-	-	-	193000	-	-	156000	-	175000	-	217000	-	-	153000	110000
-	-	-	-	-	-	-	18000	-	-	16200	-	26500	-	8890	-	-	13700	22800
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0155	<0.01	<0.01	0.0222	<0.01	<0.01	<0.01	0.0115	0.0109	<0.01	<0.01	<0.01	0.249
<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0155	<0.01	<0.01	0.0555	<0.01	<0.01	0.0111	0.046	<0.01	<0.01	<0.01	0.0108	<0.01
<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	0.0555	<0.015	<0.015	<0.015	0.023	<0.015	<0.015	<0.015	<0.015	<0.015
<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	<0.035	0.133	<0.035	<0.035	<0.035	0.0805	<0.035	<0.035	<0.035	<0.035	0.249
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	03/08/2018	-	-	17/07/2018	-	17/07/2018	-	16/07/2018	-	-	18/07/2018	18/07/2018
-	-	-	-	-	-	-	Lucy Caroe	-	-	Lucy Caroe	-	rzej Ferfecki	-	Magdziarek	-	-	es Richards	Lucy Caroe
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Detected
-	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected
-	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected
-	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected
-	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected
-	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected
-	-	-	-	-	-	-	Not Detected	-	-	Not Detected	-	Not Detected	-	Not Detected	-	-	Not Detected	Not Detected
-	-	-	-	-	-	-	0	-	-	0	-	0	-	0	-	-	0	fibres in soil
109	108	104	110	107	114	104	102	103	102	96.3	93.5	95.3	100	98.8	97.7	99.1	96.4	98.5
97.9	98.1	96.5	96.6	96.7	97.9	96.9	96.3	97.4	96.6	98	95.1	93.5	97.3	97.2	96.9	99.5	93.6	95.1
97.8	97	98.2	89.2	97.8	88.7	96.3	91.8	89.8	99	97.8	93.8	88.3	101	102	89.7	107	84.6	90.2
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<0.1	<0.1	<0.2	<2	<0.1	<0.01	<0.1	<0.1	<0.1
<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09	<1.8	<0.09	<0.09	<0.18	<1.8	<0.09	<0.009	<0.09	<0.09	<0.09
<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<1.4	<0.07	<0.07	<0.14	<1.4	<0.07	<0.007	<0.07	<0.07	<0.07
<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.8	<0.04	<0.04	<0.08	<0.8	<0.04	<0.004	<0.04	<0.04	<0.04
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<0.1	<0.1	<0.2	<2	<0.1	<0.01	<0.1	<0.1	<0.1
<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<2	<0.1	<0.1	<0.2	<2	<0.1	<0.01	<0.1	<0.1	<0.1
<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	24.3	0.286	0.76	37.1	22.5	0.786	<0.013	<0.13	0.355	0.764
<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<8	<0.4	<0.4	<0.8	<8	<0.4	<0.04	<0.4	<0.4	<0.4
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Appendix E – IOM Report

WORKING FOR A HEALTHIER FUTURE

Report 610-34464 Rev 1
12 March 2014

Final Report

Assessment of asbestos contamination at former Llanwern Steelworks site, Newport, Wales

Report prepared by:

Jane Tierney, Senior Consultant

Report reviewed by:

Alison Searl, Director of Analytical Services

OUR IMPACT ON THE ENVIRONMENT

At IOM we seek to minimise our environmental impact. We produce thousands of reports every year and these consume a large quantity of paper. To minimise our impact on the environment, we prefer to only provide an electronic copy of reports, although we can provide a paper copy on request. If you have any additional requirements please let us know.

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SUMMARY

INTRODUCTION

Asbestos contamination is present on the former Tata Steelworks, Llanwern, off Queensway Road, Newport NP19 4QZ. The site is currently being developed as residential accommodation.

The client is St Modwen Homes. Phase 1 of the development is in progress and nearing completion. This is outside the scope of Atkins/IOM involvement. Atkins is the project manager for the remediation works to the remainder of the site.

This report aims to provide the following:

- A review of the existing site investigation information
- Recommendations for further investigation and sampling
- Recommendations for construction phase and future use
- Assessment and provision of case to support our recommendations

Previous site investigations identified the presence of asbestos on this site both in the remaining office buildings and as a contaminant in the ground. Asbestos is present mainly as free fibre but also in bitumen products, board and lagging materials.

The asbestos is present as Chrysotile and /or Amosite and the highest proportion in the results to date was quantified at 0.006%.
Exposure to airborne soil dust and asbestos fibres was estimated for various construction activities using the Advanced Reach Tool (ART). The potential exposure to airborne fibre arising from the proposed works is associated with a predicted cancer risk of less than 1 in 100,000.
Exposures and risk during residential occupation of the site or for neighbours to the construction site are expected to be lower again.

In order to minimise exposure of workers and the local community during site works, measures should be in place to prevent airborne dust emissions and associated nuisance arising from site work. The recommended measures should prevent uncovered soil drying out, wind pick up of dust and mud being spread onto the local road network.

POTENTIAL FOR EXPOSURE DURING REDEVELOPMENT

The absence of significant quantities of asbestos containing materials or substantial quantities of dispersed fibre in soil at the site means that airborne dust released during disturbance of this soil is unlikely to have substantial respirable asbestos fibre content.

The workers directly involved in redeveloping the site the most likely group to be exposed to airborne asbestos released during operations involving

active disturbance of soil on this site. The highest exposures to airborne fibre are likely to arise during materials transfer operations such as excavating soil and transferring it to a truck. It should, however, be possible to control exposures to a low level through the application of appropriate working methods as described in the recommendations below.

During the redevelopment process, concentrations of airborne fibre on site are very unlikely to, even sporadically, exceed the workplace control limit of 0.1 f/ml or even the 0.01 f/ml clearance indicator (used to determine when buildings can be re-occupied after asbestos works). Average fibre concentrations are likely to be well below 0.01 f/ml, provided that that appropriate dust control measures are in place. It will be of particular importance to ensure that soil is not allowed to dry out. (see recommendations).

Offsite exposure to airborne fibre during redevelopment of this site based on results to date would be anticipated to be extremely low and well below the detection limit of available measurement methods, provide adequate measures are in place to prevent significant off-site dust nuisance occurring.

Due to the low levels of asbestos containing materials that have been identified to date on this site in our opinion the target on-site concentration of asbestos in air during remediation works should be the clearance indicator level of 0.01fibres/ml and ideally dust levels should be controlled to maintain concentrations well below this level.

POTENTIAL FOR EXPOSURE SUBSEQUENT TO REDEVELOPMENT

Following redevelopment of the site, exposure to airborne asbestos is unlikely as the ground will be covered with clean soil to a minimum depth of 0.6m. Unless there is active disturbance of the soils at depths of greater than 0.6m e.g. workers involved in occasional activities such as installing or repairing buried services could be intermittently exposed to low concentrations of asbestos. It should be possible to control these exposures to an extremely low level by ensuring that appropriate precautions are in place whenever such works are performed (see recommendations below).

Where areas of soft landscaping are proposed, the underlying soil would need to be capped with a layer of clean material, preferably with a barrier between the clean soil and underlying contaminated material in areas where asbestos is present at levels >0.001%. The depth of clean soil required would depend on the nature of any planned planting but would need to be sufficient to accommodate the root systems of plants once they have reached maturity.

RECOMMENDATIONS

During redevelopment

The following measures are likely to be appropriate during the redevelopment work:

- Workers have appropriate asbestos awareness training, know the control measures they must employ and understand the importance of implementing these control measures;
- Workers must be made aware that although the quantities of asbestos identified to date are low there may be a possibility that significant asbestos materials may be encountered during remediation;
- Soil is maintained in a damp condition throughout works;
- Drop heights kept to a minimum during materials transfer operations;
- Traffic across the contaminated soil is minimised;
- Any soil that cannot be accommodated within the excavation must be tested to ensure it is disposed of to the correct waste stream;
- A bootwash is employed with no exit from the working area with dirty footwear;
- Vehicle/plant wheels are washed on exit from the working area;
  It is unlikely that workers will be required to use respiratory protection (P3 filter) when involved in operations that involve direct handling of soil or if present in the vicinity of these operations but this may change during the works if significant ACMs are encountered;
- It may be prudent to have a watching brief for asbestos during the main excavating works as a precaution;
- Reassurance monitoring including personal samples on operatives involved in earth moving operations and fixed point samples from the site boundary.

A minimum of 0.6m of clean soil (asbestos content <0.001%) will be placed across the Llanwern site. Soil will be screened and, if asbestos contamination is less than 0.02% (200ppm) in the soil, that soil may be used in residential areas; and if the asbestos contamination is less than 0.03% (300ppm), the soil may be used in commercial areas.

Long term management of the site

As significant quantities of asbestos have not been identified to date, in our opinion there is no requirement to inform the site occupiers. If however the status changes during the works this will need to be given consideration depending on what is encountered and the levels that may be present.

1 INTRODUCTION

1.1 BACKGROUND

The site is part of the former Tata (previously Corus) steelworks at Llanwern, Newport, Wales.

It is located approximately 3km from the centre of Newport, South Wales and occupies 240 hectares.

It is being developed in stages where residential plots, services and access are constructed as required. The development occupies an area of approximately 240 hectares.

It is bounded to the north by the Swansea to London mainline railway track, to the east by Tata's remaining steel processing operations and to the south by a road (Queen's Way).

From the information provided construction of the steelworks commenced in 1958 and began with raising of site levels using imported materials. Major additions to the plant layout took place in 1971-1975 periods and it appears that the site was set out in the following way, process areas covered the central and eastern areas of the site, the materials stockyards were sited within the western end of the site which included the administrative headquarters block.

From the various ordnance survey maps provided the site was green field up to 1965, then a 1967 map shows buildings to the north west of the site and also to the south of the site mainly towards the west end. A map published in 1973 shows the presence of the office block on the west side of the site. Across the rest of the site there are small individual stand-alone buildings or structures which appear to date from 1967 also. From these dates, the former use of the site as a steelworks with associated facility buildings and our knowledge of the history of asbestos use in the UK and it is highly likely that asbestos containing materials were used on this site. In the main the buildings are now demolished and there is an element of asbestos contamination within the soil.

The phase 1 development has been sub-divided into 3 areas, Gateway and Landscaping, Western Park and the Persimmon Housing development. The housing works are on-going with many of the houses already constructed and some are occupied. To the west of phase 1 there are a few remaining buildings which we understand will be subjected to asbestos removal prior to demolition.

The purpose of this report is to review the sampling data associated with this site and then to provide a target for the remediation of the site prior to the development and also to look at the risks associated with the soils that remain or are reused on site in relation to asbestos only.

The site (Fig. 1.1) is to be redeveloped as residential accommodation and associated facilities with Western Park (western lakes and parkland) and Gateway and Landscaping (roads, footways, cycle ways and western ponds) following Phase 1 housing works.

Figure 1.1: Location of site, Llanwern, Newport

The red line demarcates the site boundary with the blue line indicating phase 1.

1.2 AIMS

The aim of this report is to:

- Review the existing site investigation information
- Provide recommendations for further investigation and sampling
- If required undertake further investigation and sampling
- Review results and recommendations for construction phase and future use
- Assess and provide a case to support our recommendations and provide

IOM were provided with the following documentation:

- Appendix A Notice of Decision from Newport City Council, Application No. 06/0471, decision date 01/04/2010, Granted with conditions

- Appendix B Landmark Envirocheck Report
  B1 – 2009 Envirocheck report
  B2 – 2002 Envirocheck historical maps

- Appendix C Exploratory Logs
  - Gateway and Landscaping
  - Western Park
- Appendix D Laboratory testing summary sheets
- Appendix E DETR Risk Classification
- Appendix F Open spaces technical note
- Appendix G Gas monitoring
- CD data
- Hawk asbestos tests
- 5111373-LLA-OUT-0005_FINAL for ISSUE May 13 ALL
- 5111373-LLA-OUT-0007_FINAL DRAFT 050213
- Appendices from 5111373-LLA-OUT-0007_FINAL DRAFT 050213
- Glan Llyn Phases 2a 2e Geo Env Interpretive Report Final v2

1.3 SITE VISIT AND DESCRIPTION

A site visit was undertaken on the 25th June 2013 to gain an understanding of the site, its dimensions and the asbestos issues associated with the site. A selection of photos showing various aspects of the site follows:

West of site showing existing office block

East of site showing area where landscaping is proposed

Monks ditch towards East side of site with Phase 1 visible in the distance

View across made ground with Phase 1 visible in distance

Perimeter fence to south of site

Figure 1.1: Photographs taken during site visit on 25 June 2013

2 METHODS

2.1 RISK ASSESSMENT

The risk assessment process involved establishing the likely levels of worker and off-site exposure to airborne asbestos fibre during remediation work on the basis of the nature and quantity of asbestos and ACMs present on site. The likely level of exposure associated with remediation was assessed on the basis of published information about dust and fibre exposure and the potential of soils to release fibres, taking account of soil type (likelihood of drying out) and climate (frequency of dry weather, particularly during the summer). The Advanced REACH Tool (ART) was used to model personal exposure to airborne dust during different activities likely to be undertaken during site remediation such as working with an excavator or as a ground worker. The prediction of asbestos concentrations in air was undertaken following established IOM procedures. In recent years we have reviewed

published dust and asbestos in air concentrations and established relationships between ground contamination, airborne dust and airborne asbestos concentrations. These relationships are continually updated as more published measurement data become available and as we increase our own measurement data base. An assessment was also made of the potential for offsite exposure.

The estimated exposures were assessed against the workplace control limit for asbestos (0.1fibres/ml) and also the clearance limit (the concentration of fibres in air at which re-occupation of a building following asbestos works is permitted which is 0.01fibres/ml).

3 REVIEW OF SAMPLE RESULTS FROM SITE INVESTIGATION

3.1 SITE CONDITIONS

From the borehole and trial pit logs, the site appears to be comprised of made ground incorporating sandy gravel, bricks, concrete, slag, sandstone and topsoil with elements of tarmac, clinker, mudstone, burnt stone and cobbles at depths of 1.5-2.5m across the site.

Table 3.1: Summary of sample analysis

Sample ref	Sample location	date	analysis	in fines	form	%
SP1	6N Area B2 SP1	03/08/2012	Chrysotile		lagging	<0.001
SP2	6N Area B2 SP2	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	<0.001
SP3	6N Area B2 SP3	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	0.003
SP4	6N Area B2 SP4	03/08/2012	Chrysotile	Amphiboles	Lagging & bitumen	0.006
SP5	6N Area B2 SP5	03/08/2012	Chrysotile		lagging	0.003
SP6	6N Area B2 SP6	03/08/2012	Amosite	Amphiboles	free fibres	0.002
SP7	6N Area B2 SP7	03/08/2012	Chrysotile	Amphiboles	free fibres	0.002
SP8	6N Area B2 SP8	03/08/2012	Chrysotile	Amphiboles	Lagging & bitumen	0.002
SP9	6N Area B2 SP9	03/08/2012	Chrysotile		free fibres	<0.001
SP10	6N Area B2 SP10	03/08/2012	Chrysotile	Amphiboles	free fibres & lagging	<0.001
SP11	6N Area B2 SP11	03/08/2012	Chrysotile & Amosite	Amphiboles	free fibres	<0.001
SP12	6N Area B2 SP12	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	0.002

Sample ref	Sample location	date	analysis	in fines	form	%
SP13	6N Area B2 SP13	03/08/2012	Chrysotile & Amosite	Amphiboles	free fibres & bitumen	0.003
SP14	6N Area B2 SP14	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	0.002
SP15	6N Area B2 SP15	03/08/2012	Chrysotile		free fibres & bitumen	0.002
NL 3981-16/3	Stockpile	18/03/2013	NAD			
NL 3981-16/4	Stockpile	18/03/2013	NAD			
NL 3981-16/5	Stockpile	18/03/2013	NAD			
NL 3981-16/6	Stockpile	18/03/2013	NAD			
NL 3981-16/7	Stockpile	18/03/2013	NAD			
NL 3981-17/2	Stockpile	18/03/2013	Chrysotile & Amosite		free fibres	0.001
NL 3981-17/3	Stockpile	18/03/2013	NAD			
NL 3981-17/4	Stockpile	18/03/2013	NAD			
NL 3981-17/5	Stockpile	18/03/2013	Chrysotile & Amosite		board	0.004
NL 3981-17/6	Stockpile	18/03/2013	Chrysotile & Amosite		board	0.001
NL 3981-25/1	SP1 retest	23/04/2013	NAD			
NL 3981-25/2	SP2 retest	23/04/2013	NAD			
NL 3981-25/3	SP3 retest	23/04/2013	NAD			
NL 3981-25/4	SP4 retest	23/04/2013	NAD			
NL 3981-25/5	SP5 retest	23/04/2013	NAD			
NL 3981-25/6	SP6 retest	23/04/2013	NAD			
NL 3981-25/7	SP7 retest	23/04/2013	NAD			
NL 3981-25/8	SP8 retest	23/04/2013	NAD			
NL 3981-25/9	SP9 retest	23/04/2013	NAD			
NL 3981-25/10	SP10 retest	23/04/2013	NAD			
NL 3981-25/11	SP11 retest	23/04/2013	NAD			
NL 3981-25/12	SP12 retest	23/04/2013	NAD			

Sample ref	Sample location	date	analysis	in fines	form	%
NL 3981-30/1	Stockpile (Disturbed)	14/05/2013	Chrysotile		free fibres	<0.001
NL 3981-30/2	Stockpile (Disturbed)	14/05/2013	NAD			
NL 3981-30/3	Stockpile (Disturbed)	14/05/2013	NAD			
NL 3981-30/4	Stockpile (Disturbed)	14/05/2013	NAD			
NL 3981-30/5	Stockpile (Disturbed)	14/05/2013	Chrysotile		free fibres	<0.001
NL 3981-30/6	Stockpile (Disturbed)	14/05/2013	NAD			
NL 3981-30/7	Stockpile (Disturbed)	14/05/2013	NAD			
NL 3981-30/8	Stockpile (Disturbed)	14/05/2013	NAD			
NL 3981-30/9	Stockpile (Disturbed)	14/05/2013	NAD			
NL 3981-30/10	Stockpile (Disturbed)	14/05/2013	NAD			
CL/1264518	6N 14/05/12 B2 1	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001
CL/1264519	6N 14/05/12 B2 10	29/05/2013	Chrysotile	Amphiboles	bitumen	0.002
CL/1264520	6N 14/05/12 B2 11	29/05/2013	Chrysotile	Amphiboles	free fibres	0.001
CL/1264521	6N 14/05/12 B2 12	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001
CL/1264522	6N 14/05/12 B2 13	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001
CL/1264523	6N 14/05/12 B2 14	29/05/2013	Chrysotile	Amphiboles	lagging	0.003
CL/1264524	6N 14/05/12 B2 15	29/05/2013	Chrysotile	Amphiboles	free fibres & lagging	<0.001
CL/1264525	6N 14/05/12 B2 2	29/05/2013	Chrysotile	Amphiboles	free fibres, bitumen & entrapped free fibres	0.001
CL/1264526	6N 14/05/12 B2 3	29/05/2013	Chrysotile	Amphiboles	free fibres	0.001
CL/1264527	6N 14/05/12 B2 4	29/05/2013	Chrysotile	Amphiboles	bitumen	0.001
CL/1264528	6N 14/05/12 B2 5	29/05/2013	Chrysotile		free fibres	0.003
CL/1264529	6N 14/05/12 B2 6	29/05/2013	Chrysotile	Amphiboles	free fibres & bitumen	0.001
CL/1264530	6N 14/05/12 B2 7	29/05/2013	Chrysotile	Amphiboles	free fibres & lagging	0.002
CL/1264531	6N 14/05/12 B2 8	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001

Sample ref	Sample location	date	analysis	in fines	form	%
CL/1264532	6N 14/05/12 B2 9	29/05/2013	Chrysotile	Amphiboles	free fibres	0.001
OSTP3	Made ground, WP & Southern Landscaping		No fibre present			
OSTP9	Made ground, WP & Southern Landscaping					
OSTP9	Made ground, WP & Southern Landscaping		No fibre present			
OSTP14	Made ground, WP & Southern Landscaping					
BH231	Made ground, WP & Southern Landscaping					
BH232	Made ground, WP & Southern Landscaping		NAD			
BH235	Made ground, WP & Southern Landscaping					
BH235	Made ground, WP & Southern Landscaping					
BH236	Made ground, WP & Southern Landscaping		NAD			
BH237	Made ground, WP & Southern Landscaping					
TP247	Made ground, WP & Southern Landscaping		NAD			
TP249	Made ground, WP & Southern Landscaping		NAD			

Sample ref	Sample location	date	analysis	in fines	form	%
TP250	Made ground, WP & Southern Landscaping		NAD			
TP252	Made ground, WP & Southern Landscaping		NAD			
TP255	Made ground, WP & Southern Landscaping					
TP256	Made ground, WP & Southern Landscaping					
TP257	Made ground, WP & Southern Landscaping					
TP268	Made ground, WP & Southern Landscaping					
TP270	Made ground, WP & Southern Landscaping					
TP273	Made ground, WP & Southern Landscaping					
TP311	Made ground, WP & Southern Landscaping					
TP312	Made ground, WP & Southern Landscaping					
TP312	Made ground, WP & Southern Landscaping					
TP313	Made ground, WP & Southern Landscaping					

Sample ref	Sample location	date	analysis	in fines	form	%
TP314	Made ground, WP & Southern Landscaping					
TP315	Made ground, WP & Southern Landscaping					
TP320	Made ground, WP & Southern Landscaping					
TP322	Made ground, WP & Southern Landscaping					
TP323	Made ground, WP & Southern Landscaping					
ATADTP6	Made ground, Gateway & Landscaping					
TP232	Made ground, Gateway & Landscaping		NAD			
BH224	Made ground, Gateway & Landscaping					
BH225	Made ground, Gateway & Landscaping					
BH246	Made ground, Gateway & Landscaping					
TP238A	Made ground, Gateway & Landscaping					
TP 267	Made ground, Gateway & Landscaping					
BH244	Made ground, Gateway & Landscaping					
TP403	Made ground, Gateway & Landscaping					

Table 3.1 shows that a total of 100 samples have been taken across this site. Out of the 100 samples 35 contained asbestos as Amosite and/or

Chrysotile. The asbestos was found in the form of free fibre, bitumen, lagging, board and mixtures of these products.

Of the 35 samples quantification shows that just over 1/3 were <0.001% and this increases to 80% up to 0.002% with the remaining 20% between 0.003-0.006%.

21 samples had asbestos contents greater than or equal to 0.001% with the highest recorded at 0.006%.

A detailed breakdown is shown in the tables that follow:

Table 3.2: Summary of samples with % asbestos

%	Number of samples
<0.001	12
0.001	8
0.002	8
0.003	5
0.004	1
0.005	0
0.006	1
Total	35

Table 3.3: Summary of samples showing asbestos form

Asbestos form	Number of Samples
Free fibre	15
bitumen	2
Lagging	3
board	2
Lagging & bitumen	1
Free fibre & Lagging	3
Free fibre & bitumen	8
Free fibre & bitumen & Entrapped free fibres	1
Total	35

Table 3.4: Summary of samples showing asbestos type

Asbestos form	No of samples
Chrysotile	3
Amosite	1
Both	19
Total	23

3.2 CONCENTRATIONS OF ASBESTOS IN SOIL

Table 3.5 shows the types and quantities of ACM and asbestos found in the samples based on the information provided. From these results it appears that there are not significant quantities of ACM present on this site. More detail is required on where the samples have been taken to understand whether there is sufficient sampling to cover the site and thus ensure the recommendations are appropriate.

The average soil asbestos content is unlikely to exceed 0.01% based on the results to date and there does not appear to be significant ACMs present at surface.

The majority of the samples with asbestos have free fibre present albeit sometimes with bitumen or other ACM. Both board and lagging was noted in about 9% of the total samples taken.

Table 3.5: Summary of sample analysis

Sample ref	Sample location	date	analysis	in fines	form	%
SP1	6N Area B2 SP1	03/08/2012	Chrysotile		lagging	<0.001
SP2	6N Area B2 SP2	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	<0.001
SP3	6N Area B2 SP3	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	0.003
SP4	6N Area B2 SP4	03/08/2012	Chrysotile	Amphiboles	Lagging & bitumen	0.006
SP5	6N Area B2 SP5	03/08/2012	Chrysotile		lagging	0.003
SP6	6N Area B2 SP6	03/08/2012	Amosite	Amphiboles	free fibres	0.002
SP7	6N Area B2 SP7	03/08/2012	Chrysotile	Amphiboles	free fibres	0.002
SP8	6N Area B2 SP8	03/08/2012	Chrysotile	Amphiboles	Lagging & bitumen	0.002
SP9	6N Area B2 SP9	03/08/2012	Chrysotile		free fibres	<0.001
SP10	6N Area B2 SP10	03/08/2012	Chrysotile	Amphiboles	free fibres & lagging	<0.001
SP11	6N Area B2 SP11	03/08/2012	Chrysotile & Amosite	Amphiboles	free fibres	<0.001
SP12	6N Area B2 SP12	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	0.002
SP13	6N Area B2 SP13	03/08/2012	Chrysotile & Amosite	Amphiboles	free fibres & bitumen	0.003
SP14	6N Area B2 SP14	03/08/2012	Chrysotile	Amphiboles	free fibres & bitumen	0.002

Sample ref	Sample location	date	analysis	in fines	form	%
SP15	6N Area B2 SP15	03/08/2012	Chrysotile		free fibres & bitumen	0.002
NL 3981-17/2	Stockpile	18/03/2013	Chrysotile & Amosite		free fibres	0.001
NL 3981-17/5	Stockpile	18/03/2013	Chrysotile & Amosite		board	0.004
NL 3981-17/6	Stockpile	18/03/2013	Chrysotile & Amosite		board	0.001
NL 3981-30/1	Stockpile (Disturbed)	14/05/2013	Chrysotile		free fibres	<0.001
NL 3981-30/5	Stockpile (Disturbed)	14/05/2013	Chrysotile		free fibres	<0.001
CL/1264518	6N 14/05/12 B2 1	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001
CL/1264519	6N 14/05/12 B2 10	29/05/2013	Chrysotile	Amphiboles	bitumen	0.002
CL/1264520	6N 14/05/12 B2 11	29/05/2013	Chrysotile	Amphiboles	free fibres	0.001
CL/1264521	6N 14/05/12 B2 12	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001
CL/1264522	6N 14/05/12 B2 13	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001
CL/1264523	6N 14/05/12 B2 14	29/05/2013	Chrysotile	Amphiboles	lagging	0.003
CL/1264524	6N 14/05/12 B2 15	29/05/2013	Chrysotile	Amphiboles	free fibres & lagging	<0.001
CL/1264525	6N 14/05/12 B2 2	29/05/2013	Chrysotile	Amphiboles	free fibres, bitumen & entrapped free fibres	0.001
CL/1264526	6N 14/05/12 B2 3	29/05/2013	Chrysotile	Amphiboles	free fibres	0.001
CL/1264527	6N 14/05/12 B2 4	29/05/2013	Chrysotile	Amphiboles	bitumen	0.001
CL/1264528	6N 14/05/12 B2 5	29/05/2013	Chrysotile		free fibres	0.003
CL/1264529	6N 14/05/12 B2 6	29/05/2013	Chrysotile	Amphiboles	free fibres & bitumen	0.001
CL/1264530	6N 14/05/12 B2 7	29/05/2013	Chrysotile	Amphiboles	free fibres & lagging	0.002
CL/1264531	6N 14/05/12 B2 8	29/05/2013	Chrysotile	Amphiboles	free fibres	<0.001
CL/1264532	6N 14/05/12 B2 9	29/05/2013	Chrysotile	Amphiboles	free fibres	0.001

Table 3.6: Summary statistics for soil samples

Parameter	% Asbestos in soil
Range	<0.001- 0.006
Mean	0.002
Standard deviation	0.001
Median	0.0035
10th percentile	0.001
90th percentile	0.003

Summary of information about site wide levels of asbestos contamination

Overall it can be noted that the quantities of asbestos detected were generally low or very low and for a site with the known industrial historic usage it is not unexpected that some asbestos would be found. Although asbestos in the form of free fibre is present, it is not in sufficient quantities to be considered to represent gross asbestos contamination.

If the 12 samples with asbestos detected at less than the detection limit (of 0.001%) are assumed to have an average content of 0.0005%, then the overall average content of asbestos over the 100 samples would be 0.001%. If we assume this indicates the average asbestos content in soil on the site, then that gives a basis for estimating the average asbestos concentration in air if the concentration of soil dust is at levels considered typical of various activities.

4 EXPOSURE ASSESSMENT

4.1 CIRCUMSTANCES POTENTIALLY LEADING TO EXPOSURE

4.1.1 Overview

This chapter describes the predicted exposure to asbestos associated with the following scenarios:

- Current remediation works;
- Future remediation works
- Current construction works – residential accommodation;
- Future construction works;
- Future occupancy of residential accommodation and associated leisure areas e.g. parkland

The receptors and scenarios for which exposure modelling has been conducted are described below.

4.1.2 Site Activities

The remediation works are still to commence, apart from Phase 1 works (undertaken by others) which is on-going. We assume there will be major excavation and piling works programmed for this site. We also assume this will include many of the following activities

- Movement of materials & soils across the site
- Excavation works
- Stockpiling of materials
- Soil treatment work

Alongside these will be further investigation work, trial pits and boreholes. The remediation works also included asbestos removal/demolition of existing buildings (office accommodation) on west of site which was completed in September 2013.

Many of the main activities will involve the use of machinery so the receptors will be located within the machine cabs. There will however be ground workers working adjacent to the mechanised activities and so must be considered when assessing exposure levels.

4.1.3 Construction of New Development

Workers involved in site redevelopment could be exposed to airborne asbestos during any activity involving disturbance of dry soil, if and where the soil contains asbestos.

4.1.4 Occupants of New Residential Accommodation

Once the site has been redeveloped, there will be no exposure to asbestos from soils that are under new buildings or under hard-standing under normal circumstances. We assume there will be cover with clean soil in the gardens to a depth of 0.5 - 1.0m. The layer of clean top soil will be generally effective as a barrier unless there is some future digging that goes down deeper than this top soil layer, for example if ground were excavated for a pond, an extension or a conservatory. Where there is ground cover to a depth of between 0.6m and 1m, it is unlikely that the underlying material would ever be disturbed by this type of work but if it is then the arisings would be a mixture of the clean surface cover soil and soil that may contain 0.001% asbestos so is likely to be less than 0.0001%.

As the house construction is taking part in phases there will be periods before all the construction has been completed when residents will be occupying new accommodation completed on part of the site and would therefore be present while part of the site is still being constructed. In effect, the new residents will be “neighbours” to an area the construction process.

In summary, once the site has been completed, almost all residents will have no exposure to asbestos.

4.2 FACTORS AFFECTING POTENTIAL EXPOSURE TO ASBESTOS

4.2.1 Quantity and type of asbestos

The quantity, type of asbestos and type of ACM have a substantial impact on the potential for fibre release from soil. The soils at this site are not heavily contaminated with asbestos and the majority of soil samples analysed did not contain detectable quantities of asbestos. However, where asbestos was detected, it was in the form of free fibres that would be relatively readily released on the disturbance of dry soil.

From a total of 100 samples, only 23 contained asbestos above 0.001%. The highest was 0.006%. Most samples were described as being free fibre or free fibre with other ACM. We will assume therefore that the asbestos is in the form of free fibre. When asbestos is in the form of free fibres there is a greater potential for airborne fibre release during disturbance of soils. As described above (section 3.3), the results from all 100 samples indicate an average soil asbestos content of about 0.001%. This value is used in our risk assessment.

We are not aware of the presence of ACMs on the soil surface but the average asbestos content in material near the surface is likely to be less than 0.001%, such that the potential exposure to airborne fibre associated with disturbance of these materials would be less than predicted below.

4.2.2 Moisture

Moisture is an extremely important determinant of the extent of potential dust and fibre release from soils. The presence of even a small amount of moisture severely inhibits dust and fibre release. Swartjes et al (2003) reported that the results of experiments undertaken by the Dutch research organisation TNO demonstrated that a soil moisture content of 5-10% reduced airborne fibre concentrations by a factor of 100. Addison et al (1988) reported that a soil moisture content of 5-10% reduced fibre emissions by a factor of ≥10.

The moisture content of soil depends on a range of factors including climate (rainfall versus evaporation/transpiration), vegetation cover, soil type and organic content and depth. Typically, in the UK, rainfall exceeds evaporation of soil water for most of the year and therefore during most of the year, soils have significant moisture content. During dry weather, especially warm dry weather with sunshine to dry the surface layer, there is likely to be dry surface soil. A succession of dry days can lead to a deeper layer of dry soils. Soil spilt onto hard surfacing (patios, paths, hard tracks) can dry relatively quickly. The number of dry days, particularly during summer, is a good indication of how often there is likely to be scope for dust to be dispersed form dry soils.

On this site, the end use will have hard-standing or turf covering the site out with the building footprints; the presence of this surface cover will protect the underlying soil from moisture loss.

4.2.3 Soil type

Soil type plays an important role in determining the likelihood that soils may dry out and potentially release fibres. Well drained sandy soils are more likely to dry out and will dry out to a greater depth than clay and/or organic rich soils. In addition, clays and organic matter help to trap fibres within the soil structure and therefore reduce the potential for fibre release. The soils at this site include a substantial component of made ground and have very variable textures ranging from clay, through sandy, gravelly clays to sands and gravels.

4.2.4 Soil disturbance

Disturbance of soil leading to the generation of airborne dust cloud is an important influence on fibre release, if free fibre is present in soil. Generation of airborne dust will usually be as a result of human activity, but wind can also be important for uncovered soils that have a relatively low clay and/or organic content and are prone to drying out, both in drying the soil and in creating windblown dust.

4.2.5 Surface cover

There is no potential for fibre release from soil beneath buildings. There is also no potential for fibre release from soil under hard standing or from soil below the top few decimetres during normal circumstances, although it is foreseeable that these buried soils may be occasionally uncovered and disturbed. The presence of vegetation greatly reduces the potential for soil disturbance by human activities, animals or the weather leading to low potential for fibre release, particularly from underneath well-established turf.

4.2.6 Climate

Soils are most prone to drying out in dry weather during the summer months when drying can be produced by sunshine, warmth and wind. In the UK, winter conditions give low evaporation rates so that soils generally remain damp during the winter months.

A summary of typical weather for the region is given by the Met Office Website:

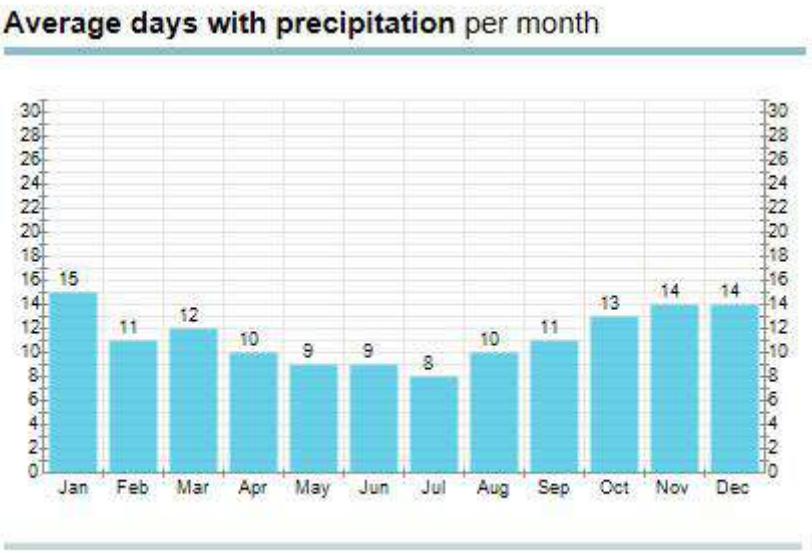
“Over much of Wales, the number of days with a rainfall total of 1 mm or more (’wet days’) tends to follow a pattern similar to the monthly rainfall totals. In the higher parts, over 50 days is the norm in winter (December-February) and over 35 days in summer (June-August). In the driest areas of

the east and south, about 40 days in winter and about 25 days in summer are typical."

From this description, about 75 days have less than 1 mm of rainfall typically during the summer months of June to August.

A similar indication is obtained from a graph of numbers of days with rainfall (recorded at Newport), obtained from
http://www.yr.no/place/United_Kingdom/Wales/Newport/statistics.html

The graph shows average amount of days (24h) with precipitation during a month. When precipitation has surpassed 1mm per day (24h) it is defined as a day with precipitation. The mean period is 1961–1990.



This information enables the weather conditions to be taken into account in assessing the likely exposure to airborne dust and airborne asbestos. This winter however there have been much higher levels of rainfall than the averages measured over previous years so this will contribute to keeping soils moist.

4.3 RELATIONSHIP BETWEEN AIRBORNE DUST AND AIRBORNE FIBRE CONCENTRATIONS

4.3.1 Published information about airborne fibre concentrations associated with soil-borne asbestos.

There are two main sources of published information on concentrations of asbestos in air from soils containing asbestos. Studies undertaken by the Dutch regulatory authorities are described first but we also refer to laboratory studies undertaken by Addison et al (1988) who measured both the asbestos in air concentration and the soil dust in air concentration. That

provides a basis for using the likely soil dust in air concentration as a basis for predicting the likely average asbestos in air concentration.

4.3.2 From reports by the Dutch authorities

The most extensive set of studies has been undertaken by the Dutch regulatory authorities (Swartjes and Tromp, 2008; Swartjes et al, 2003). They presented both laboratory studies and field measurements of fibre in air concentrations from sources with measured asbestos in soil concentrations that ranged from 10 mg/kg (0.001%) to about 1000,000 mg/kg (=100%), i.e. a 100,000 fold range. They had data for three conditions:

- Friable asbestos in soil, measured in laboratory tests;
- Friable asbestos in soil, in field measurements; and
- Bound asbestos (e.g. asbestos cement), in field measurements (note that the definition of “bound” in this Dutch study is very different from that used by the HSE in, for example, bound insulation).

Their field measurements included concentrations during activities such as digging, sorting etc. Figure 4.1 summarises the results of their study. The first two conditions (i.e. friable asbestos in soils) showed concentrations of fibres in air rising with asbestos in soil concentrations by about 1000 fold for the 100,000 fold range in asbestos-in-soil concentrations, with a 10 fold increase in asbestos in soil producing about a 4 fold increase in asbestos in air concentration.

Field measurements of fibre concentrations were consistently lower than those reported in experimental studies, but the extent of dilution is controlled within the experimental studies. The fact that there is a consistently similar trend of fibre concentration in air increasing with asbestos in soil concentration is the important comparison.

The field measurements are a compilation of results, so that the variation in the data is not surprising, and would be attributed to variations in sampling and environmental condition. Furthermore, it is not clear whether these field measurements are representative of the personal exposure of an individual disturbing the soil or merely represent the concentrations arising in relatively close proximity to activities causing soil disturbance. As an example, a soil concentration of 0.01% (100 mg/kg) gave average concentrations of asbestos fibres in air of about 0.005 f.ml-1 (5000 f.m 3) in laboratory experiments, whereas the field measurements gave average asbestos fibre in air concentrations of about 0.0002 f.ml-1 (200 f.m-3).

With tightly bound asbestos (e.g. asbestos cement), asbestos-in-soil concentrations up to 1% gave no detectable asbestos fibres in air.

The Dutch authors concluded that:

- The release of fibres from the matrix into the soil is less for more durable materials (i.e. less likely to release fibres);

- There is less release for chrysotile than for amosite for each type of matrix – which appears consistent with the physical properties of the two types of asbestos, but may also be linked to the concentrations of asbestos in the matrix (e.g. if amosite was used in higher concentrations than chrysotile in the type of matrix).

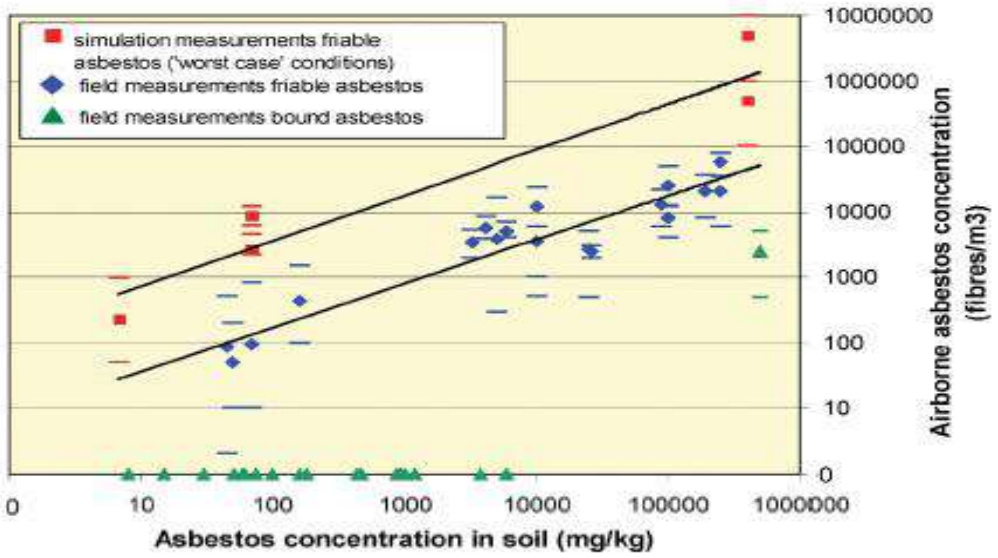


Figure 4.1: Graph reproduced from Swartjes and Tromp (2008). The ▲♦■ symbols are the average concentrations from "comparable" measurements, the horizontal bars are the 95% confidence intervals. 1 f.ml-1 = 106 f.m-3; 0.01% in soil = 1000 mg/kg.

4.3.3 From results reported by Addison et al (1988)

Discussion and explanation of the Addison et al results

Addison et al (1988) undertook a series of simulation experiments in which they measured the concentrations of airborne fibre released from three soil types: sand, clay and a mixed soil (approximately a loam). Known quantities of each of three types of asbestos were added to samples of each soil type. For this site, it is the results with amosite or chrysotile that are relevant. Addison et al (1988) recorded their results in terms of f.ml-1 per mg.m-3 respirable dust (Table 4.1). Fibre concentrations were determined by optical fibre counting and no distinction was made between asbestos and non-asbestos fibres.

Table 4.1: Normalised concentrations of airborne respirable fibre measured in experimental studies undertaken at IOM expressed as f.ml-1 per mg.m-3 respirable dust (Addison et al, 1988).

asbestos in soil %	**Normalised concentrations of airborne fibres relative to airborne soil dust concentration** $f.ml^{-1}$ per $mg.m^{-3}$ respirable dust						
	Sand		**Loam**		**Clay**		**Blank corrected average***
	Amosite	**Chrysotile**	**Amosite**	**Chrysotile**	**Amosite**	**Chrysotile**	
No asbestos	0.03	0.03	0.005	0.005	0.01	0.01	-
0.001	0.04	0.01	0.04	0.01	0.01	0.02	0.007
0.01	0.15	0.17	0.05	0.03	0.02	0.02	0.058
0.1	0.39	0.40	0.13	0.06	0.11	0.07	0.178
1.0	3.56	3.78	1.56	1.74	0.88	0.84	2.045

*Average concentration across soil types and asbestos minerals after subtraction of the background

At the lowest concentrations of asbestos in soil, the results (in Fig. 4.2) appear to show anomalously high concentrations of airborne fibre (as measured by optical microscopy). The report by Addison et al included some Scanning Electron Microscopy (SEM) analysis which indicated that a high proportion (two thirds) of the airborne fibres counted for these samples (with the lowest asbestos in soil concentration) were not asbestos; this was reflected in the fibre concentration data reported for experiments with asbestos-free soil (shown in Table 4.1 above). In contrast, the airborne fibres counted for the higher asbestos in soil concentrations were predominantly asbestos. Therefore, the fibre to respirable dust ratios reported for the soils with 0.1 and 1.0% asbestos are representative of the asbestos concentrations whereas the fibre to respirable dust ratios reported for the lowest asbestos in soil concentration (0.001%) over-estimates airborne asbestos concentrations, probably by a factor of at about 10. The right hand column of Table 4.1 shows the average fibre concentrations as f.ml-1/(mg.m-3) for each soil concentration after correction for the average background fibre concentration recorded when no asbestos was present in soil.

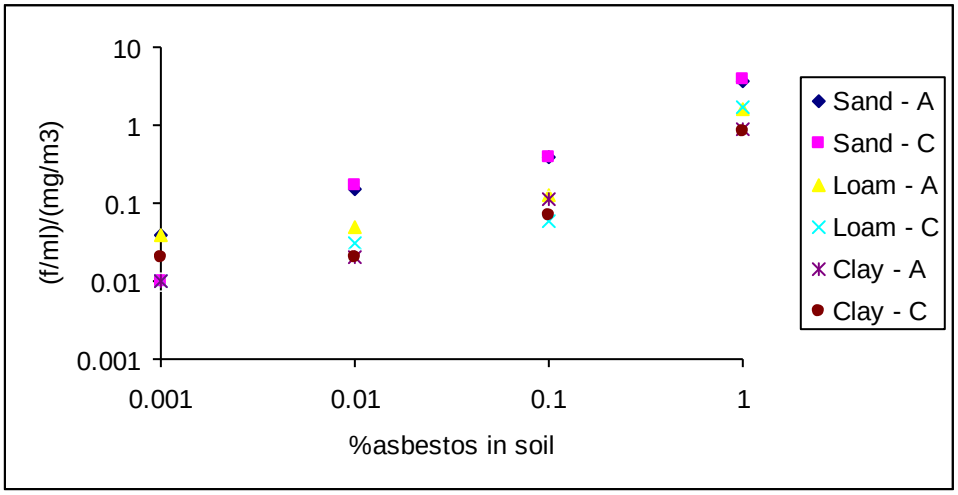


Figure 4.2: Relationship between normalised airborne fibre concentration relative to soil dust concentration plotted against the asbestos-in-soil concentration, reported by Addison et al (1988).
(In the key, A = amosite, C = chrysotile).

An approximate relationship between concentration of asbestos in soil (as a mass percentage) and the airborne concentration (in fibres/ml) can be expressed as f.ml-1 per mg.m-3, (i.e. f.ml-1 / mg.m-3).

The linear correlation between fibre in air concentration and asbestos in soil concentration is high, e.g. with a linear correlation coefficient >0.9.

The normalised fibre concentration as f.ml-1/(mg.m-3) is approximately 3.63, 1.65 and 0.85 times the percentage of asbestos in soil for the sand, loam and clay, respectively. Pooled across all the soil types, the normalised fibre concentration is about 2 times the percentage of asbestos in soil.

The data (from Table 4.1) for the average concentration (after subtraction of the background) are shown in Figure 4.3 with a straight line fit forced through the origin.

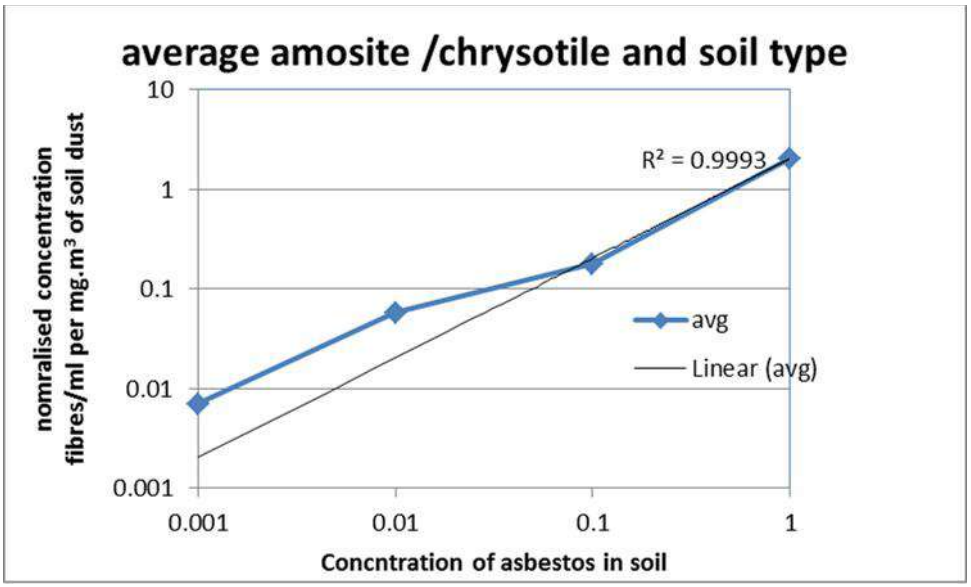


Figure 4.3: Relationship airborne fibre concentration normalised relative to airborne soil dust concentration plotted against the asbestos-in-soil concentration – using average values for amosite, chrysotile and three soil types (Table 4.1 data from Addison et al (1988)).

Application of the Addison et al findings to this site.

The discussion above provides a calibration from asbestos in soil concentration to normalised asbestos in air concentration (i.e. an asbestos in air concentration relative to the concentration of respirable soil dust in air).

For the average concentration of asbestos in soil at the level estimated from all the samples from this site of 0.001%, the normalised fibre in air concentration would be respectively 0.004, 0.002 and 0.001 f.ml-1 per mg.m-3 for sand, loam and clay respectively and 0.002 f.ml-1/(mg.m-3) for the pooled estimate. As the soil on this site is variable mixture, the pooled estimate is chosen.

The Addison et al experiments employed finely divided preparations of asbestos mixed in with the soil. On this site, the descriptions of asbestos in samples mostly reported free fibres. However, as noted above, 8 of the 23 samples containing quantifiable amounts of asbestos were described as bitumen, lagging or board. If some of the asbestos is bound into a matrix, then that would be expected to give rise to lower normalised fibre concentrations (fibres/ml per mg.m-3 of respirable soil dust) than would be the case if the fibres were all present as free fibres.

In summary, the Addison et al data appear relevant to the materials on this site, but it is possible that fibres in the soil on the site are less well dispersed into the soil than in the prepared soils used by Addison et al. The application of the Addison et al test results gives a realistic but

precautionary estimation of the average asbestos fibre in air concentrations for this site.

4.3.4 Estimated normalised asbestos fibre concentrations (relative to soil dust in air)

The concentrations of asbestos in soil on the site are variable but the estimate of the average value is based on the data from 100 samples from the site. The average concentrations in soils near the surface are likely to be lower than 0.001%. For the purposes of this risk assessment, it has been assumed that a mixture of soil types with an overall fibre content of 0.001% (as a worst case estimate) is present on site. Based on the Addison et al results, this concentration in soil would correspond to a normalised fibre in air concentration of 0.002 f.ml-1/(mg.m-3) respirable soil dust in air (as a worst case estimate).

4.3.5 Estimates of soil dust in air concentrations

If there is effective suppression of soil dust, then there will also be suppression of asbestos. However, the risk assessment has considered the exposures that would arise if the soil dust in air concentrations were of the order to be expected for the relevant activities on a construction site.

An appropriate approach to producing estimates of likely soil dust in air concentrations is the Advanced Reach Tool (ART), a web-based tool that is freely available for estimating likely exposures for a wide range of activities. The ART derived estimates of soil dust in air exposures provide the basis for using the normalised fibre concentrations from Addison et al.

4.3.6 The Advanced Reach Tool – estimation of soil dust in air concentrations

The Advanced REACH Tool (ART) (http://www.advancedreachtool.com/) is a higher tier exposure assessment tool that combines mechanistically modelled inhalation exposure predictions with available exposure data using a Bayesian approach. It was developed by a multinational team of occupational hygienists and is designed to aid exposure assessments required under by the REACH (Registration, Evaluation, Authorisation & restriction of CHemicals) Regulations.

The ART model has not yet been developed to estimate fibre exposures but it can be applied to dusts and its algorithms can model personal exposure to inhalable dust associated with different activities.

Part of the information required as input to ART is an estimate of the relative amount of fine dust in the material being processed. From observations on site, the soil contains gravel and coarse material and appears likely to have a fines content of about 10%. This was the basis of making an assumption for the release of dust from the ART model.

The Advanced Reach Tool (ART) estimates exposure in terms of inhalable dust rather than respirable airborne dust. The inhalable fraction of airborne dust includes all particles that enter the respiratory system. The respirable fraction is a sub-fraction of the inhalable fraction. The Addison et al measurements compared fibres in air to concentrations of respirable soil dust in air and therefore a conversion from inhalable dust to respirable dust is needed.

4.3.7 Relationship between respirable and inhalable dust concentrations

In a review of agricultural exposures to soil dust, Schenker (2000) reported that typical concentrations of respirable dust were in the range 1-5 mg.m-3 whereas typical concentrations of total dust were ≥20 mg.m-3. This indicates that for soil dust the respirable dust concentration may be about 25% of the inhalable dust concentration.

For the purposes of this risk assessment, it is assumed that the respirable fraction of total inhalable dust is 25%.

4.4 ESTIMATED CURRENT ASBESTOS EXPOSURES FOR SITE REMEDIATION/ DEVELOPMENT WORKERS

4.4.1 Overview

Workers at this site may be exposed to soil-derived airborne dust when they are actively disturbing the soil, particularly during dry weather. Using suitable assumptions, the likely exposures to respirable soil dust were estimated for various activities, and then the associated asbestos exposure was derived based on the information of the average asbestos content in the soil. The estimated exposures are presented in terms of likely inhalable soil dust concentrations and then in terms of the likely asbestos in air concentrations.

We would expect that if soil dust exposure is minimised, (e.g. by damping down) and kept to a level less than estimated, then the exposures to asbestos will be less than derived from the modelling.

4.4.2 Site remediation / Development Activities considered

We considered the workers on the site during the present remediation and development work. We understand that most soil handling would be undertaken using a mechanical excavator. Some manual work may be involved but not significant earth moving by hand. Excavating a deep pit is likely to involve moving soil with significant moisture content which would reduce the likely release of dust or fibres. Therefore, it is sufficient to consider the excavator operator as part of general exposure estimation in moving soils on this site.

4.4.3 Predicted Exposures associated with Disturbing Soil

The Advanced Reach Tool (ART) is used to estimate exposure to soil dust.

The people potentially exposed to airborne asbestos fibre during the remediation works and/or the adjacent construction of the new residential accommodation on the site are listed in Table 4.3 with the assumptions made in the derivation of (soil dust) exposure estimates using ART.

Table 4.3: Assumptions made in exposure modelling using the ART

Activity	Assumptions made in exposure modelling
Operator of mechanical excavator	40 hour week, mixed particle size, cab windows closed, drop height >0.5 m, transferring >1 tonne minute, driver >4 m from dust source
Piling operator	40 hour week, drop height >0.5 m, piling, driver >4 m from dust source
Truck driver	1 hour/day, 10-50% fine dust in ground surface soil layer, vehicle windows part open, driver >4 m from dust source,
Construction worker	8 hour/day, 50% fine dust, >4 m from dust source, multiple vehicle movements – exposure <10% of that of ground worker
Ground worker	40 hour week, <4m from dust source

Using these assumptions Table 4.4 shows the predicted total inhalable soil dust concentrations for 5 types of worker.

Table 4.4: Concentrations of total inhalable soil dust (mg.m-3) predicted by the Advanced Reach Tool (ART) model for soil handling activities: median and (90th percentile)

Person	Activity	Inhalable soil dust concentrations predicted by ART model Median (and 90th percentile) mg.m^{-3}					
		Dry soil		5-10% moisture		>10% moisture	
		5-10% fines	50-90% fines	5-10% fines	50-90% fines	5-10% fines	50-90% fines
Operator of mechanical excavator	Moving 100-1000kg	0.067 (0.76)	0.63 (7)	0.0067 (0.075)	0.063 (0.7)	0.00067 (0.0075)	0.0063 (0.07)
Truck driver	Transport of soils across or off site	0.067 (0.76)	0.63 (7)	0.0067 (0.075)	0.063 (0.7)	0.00067 (0.0075)	0.0063 (0.07)
Construction worker	Undertaking construction during remediation	0.34 (3.9)	3.2 (36)	0.034 (0.39)	0.32 (3.6)	0.0034 (0.039)	0.032 (0.36)
Ground worker	Ad-hoc hand digging	3.1 (35)	29 (320)	0.031 (3.5)	2.9 (32)	0.0031 (0.35)	0.29 (3.2)

The values predicted from the ART model indicate that the presence of moisture reduces dust substantially, and the degree of reduction is consistent with that reported by Addison et al for the effect of moisture in reducing concentrations of airborne asbestos released from soils.

A feature of the predicted values is that the 90th percentiles are approximately 11 times larger than the medians.

For the purposes of the risk assessment, it is assumed that the respirable fraction of total inhalable dust generated from the soils is 25%, although the actual proportion of respirable dust may be smaller.

4.4.4 Predictions of exposure to asbestos fibres derived from the ART model predictions of exposure to soil dust

Table 4.5 shows the predicted asbestos fibre concentrations based on the estimated inhalable dust concentrations shown in Table 4.4, based on an assumed respirable dust concentrations that is 25% of the inhalable dust concentrations and an average asbestos in soil asbestos concentration of about 0.001%. Table 4.5 represents the fibre in air concentrations that would arise if the soil dust concentrations are at the median values (estimated typical exposures) predicted using ART, assuming that no dust suppression was used. Table 4.6 shows estimated fibre concentrations based on the 90th percentile (reasonable worst case) estimates of exposure predicted using ART. Results are shown for the operator of a mechanical excavator, a truck driver, a construction worker and a ground worker.

Table 4.5: Predicted MEDIAN (90th PERCENTILE) concentrations of asbestos fibres (fibres.ml-1), from median and 90th percentile predictions of concentrations of soil dust in air for dry soils and soil with moisture content.

Person	Activity	Predicted Median (and 90th percentile)concentrations of asbestos fibres Fibres.ml^{-1}					
		Dry soil		5-10% moisture soil		>10% moisture soil	
		5-10% fines	50-90% fines	5-10% fines	50-90% fines	5-10% fines	50-90% fines
Operator of mechanical excavator	Moving 100-1000kg	1.68E-05 (0.00019)	0.000158 (0.00175)	1.68E-06 (1.88E-05)	1.58E-05 (0.000175)	1.68E-07 (1.88E-06)	1.58E-06 (1.75E-05)
Truck driver	Transport of soils across or off site	1.68E-05 (0.00019)	0.000158 (0.00175)	1.68E-06 (1.88E-05)	1.58E-05 (0.000175)	1.68E-07 (1.88E-06)	1.58E-06 (1.75E-05)
Construction worker	Undertaking construction during remediation	0.000085 (0.000975)	0.0008 (0.009)	8.5E-06 (9.75E-05)	0.00008 (0.0009)	8.5E-07 (9.75E-06)	0.000008 (0.00009)
Ground worker	Ad-hoc hand digging	0.000775 (0.00875)	0.00725 (0.08)	7.75E-06 (0.000875)	0.000725 (0.008)	7.75E-07 (8.75E-05)	0.0000725 (0.0008)

The main feature of the results is that all the predicted exposure concentrations are extremely small. The model output also illustrates the importance of moisture in determining exposure levels. Providing the soil is damp or wet, then exposures to airborne asbestos fibre should remain <<<0.1fml-1. In addition, the following features are apparent:

- the predicted concentrations of fibres in air are all much less than the Control Limit for asbestos (0.1 fibres/ml);
- the predicted median values are all much less than the clearance indicator (0.01 fibres/ml).

From Table 4.5, it is readily apparent that only one of the 90th percentile estimates exceeds the clearance indicator and this is for a ground worker working with dry soil with 50-90% fines which is a very unlikely scenario but yet again indicates the importance of keeping soils wetted. These values suggest that if sampling for airborne asbestos fibres had been undertaken, the measurements (of asbestos fibres) would have been less than the clearance indicator for the great majority of samples.

4.4.5 Comparison of modelled exposures to airborne fibre associated with site works with typical exposures to airborne fibre in urban environments

Asbestos is ubiquitous in the urban environment as a result of its former widespread use. This section summarises the information describing background levels of exposure to airborne asbestos fibre in the general or indoor or outdoor environment.

- The IEH (1997) reported that background outdoor (ambient) levels of respirable asbestos fibres may range from 0.000001 to 0.0001 fml-1 (1-100 f.m-3) and that most indoor air concentrations of asbestos are below 0.0002 f/ml, which rises to around 0.0005 f.ml-1 (500 fm-3) in buildings which contain asbestos in good condition.
- RIVM (2004) estimated that “for background houses”, asbestos levels in air are approximately 1×103 fibres per m3 (0.001f.ml-1).
- RIVM (2004 concluded that “Based on a hypothetical calculation, significant contribution of asbestos to house dust from asbestos contaminated soil may occur at soil concentrations greater than 100 mg/kg. To gain more insight into the contribution of exterior soil contamination to interior house dust contamination with asbestos, it is recommended to determine asbestos levels in house dust in houses adjacent to sites that are contaminated with asbestos above 1000 mg/kg for non-friable asbestos, and above 100 mg/kg for friable asbestos.”
- In a survey of airborne asbestos fibre concentrations in indoor air, Lee and Van Orden (2008) report that average indoor asbestos concentrations in US are 120f.m-3 for all buildings and 50f.m-3 for residential properties with a maximum of 4000 fm-3 reported in residential properties. Their study did not consider the possibility of any linkage to soil asbestos concentrations although they did compare indoor concentrations to outdoor concentrations. In an earlier paper, they concluded that their “results provide substantive

> verification of the findings of the U.S. Environmental Protection Agency public building study which found very low ambient concentrations of asbestos fibers in buildings with ACM, irrespective of the condition of the material in the buildings".

The modelled fibre concentrations that workers at the Llanwern site may have been exposed to are within the range of typical urban exposures. For that reason they would not be considered to represent a significant risk to health, although this is discussed in more detail in the following chapter.

4.5 PREDICTED CUMULATIVE ASBESTOS EXPOSURE DURING SITE REDEVELOPMENT

4.5.1 Estimations and assumptions for producing estimates of cumulative exposures to asbestos

The risks to health from exposure to asbestos are related to the cumulative exposure to asbestos. Cumulative exposure to asbestos is calculated as the concentration (fibres/ml) multiplied by the exposure duration (e.g. in hours) to give a cumulative exposure in fibre/ml.hours.

As noted earlier, the estimates of exposure are based on predicted levels of soil dust in air during activities that disturb dust. If necessary, the durations of such activities during the course of the day are taken into account. However, if we take the duration of such activities as being a full 8 hour day (except for driving a truck on site – where 1 hour per day appears much more appropriate), then the estimates will be precautionary. We also assume that work activities take place for 5 days per week, 48 weeks per year (240 days per year).

The summer of 2013 was a period with more than typical numbers of dry days and elevated temperatures and despite the greater than average rainfall over the winter months of 2013/4 if the summer of 2014 has a similar profile then it seems sensible to use the following assumptions for the numbers of days (per calendar year) when soil (or top layer of soil) will have been dry or with low moisture levels.

- 90 days with dry soil
- 50 days with soil at 5 to 10% moisture
- 50 days with soil at greater than 10% moisture
- 50 days with soil not releasing any dust due to high level of moisture or frost etc.

The exposure concentrations are estimated as the level derived from the median airborne soil dust concentrations derived from ART (as described earlier).

4.5.2 Cumulative exposures based upon the predicted concentrations of asbestos fibres in air

The cumulative exposures to asbestos were calculated with the assumptions described above.

For the operator of the mechanical excavator, assuming exposure for 8 hours per day, the contributions to cumulative exposure are shown in Table 4.6.

Table 4.6: Cumulative exposure for the operator of the mechanical excavator

Soil condition (moisture content)	Number of days per year	Estimated exposure concentration on these days Fibres/ml	Contribution to cumulative exposure Fibre/ml.hours
Dry	90	0.000017	0.01224
moisture content 5%-10%	50	0.0000017	0.001224
>10%	50	0.00000017	0.0001224
Wet /frozen	50	0	0
	Days / yr		Fibre/ml.hours
Total	240	Total	0.0136

For the truck driver (transporting soils across or off site), with the assumption of exposure for 1 hour per day every day, the calculated cumulative exposures are shown in Table 4.9.

Table 4.7: Cumulative exposure for the truck driver

Soil condition (moisture content)	Number of days per year	Estimated exposure concentration on these days Fibres/ml	Contribution to cumulative exposure Fibre/ml.hours
dry	90	0.000017	0.00153
moisture content 5%-10%	50	0.0000017	0.000153
>10%	50	0.00000017	0.0000153
Wet /frozen	50	0	0
	Days / yr		Fibre/ml.hours
Total	240	Total	0.0017

For the house construction worker, again with the assumption of exposure for 8 hours per day every day, the calculated cumulative exposures are shown in Table 4.10.

Table 4.8: Cumulative exposure for the house construction worker

Soil condition (moisture content)	Number of days per year	Estimated exposure concentration on these days Fibres/ml	Contribution to cumulative exposure Fibre/ml.hours
dry	90	0.000085	0.0612
moisture content 5%-10%	50	0.0000085	0.00612
>10%	50	0.00000085	0.000612
Wet /frozen	50	0	0
	Days / yr		Fibre/ml.hours
Total	240	Total	0.0679

For the ground worker, again with the assumption of exposure for 8 hours per day every day, the calculated cumulative exposures are shown in Table 4.10.

Table 4.9: Cumulative exposure for the ground worker

Soil condition (moisture content)	Number of days per year	Estimated exposure concentration on these days Fibres/ml	Contribution to cumulative exposure Fibre/ml.hours
dry	90	0.000775	0.558
moisture content 5%-10%	50	0.0000775	0.0558
>10%	50	0.00000775	0.00558
Wet /frozen	50	0	0
	Days / yr		Fibre/ml.hours
Total	240	Total	0.619

Table 4.10 shows the predicted cumulative exposures for all of the occupations considered in terms of f.ml-1.years based on an assumed working year of 1920 hours.

Table 4.10: Predicted annual cumulative exposures for site workers derived as described in the text

Activity	Hours per day	Cumulative exposure from one year on remediation / construction site	
		$f.ml^{-1}.hours$	Fibre/ml.years
Operating mechanical excavator	8	0.0136	0.0000071
Ground worker	8	0.619	0.0003224
Driving truck	1	0.0017	0.00000089
House construction	8	0.0679	0.0000354

The values estimated for the cumulative exposures in the right hand column are used to assess the consequent risk to health. It should be noted that if dust suppression is applied, exposures are likely to be less than estimated above.

4.6 PREDICTED EXPOSURES FOR NEIGHBOURS OF THE CURRENT DEVELOPMENT

For neighbours of the development / remediation site, the levels of exposure would be less than for site workers due to dilution with distance from the site activities. HSE guidance has indicated that a reduction to about a tenth can be expected with a distance of 20 to 30 feet from an activity. Given the size of the site, neighbours will be substantially more than 30 feet away from almost all site activities.

Some of the activities on site would be intermittent. For example, the movement of trucks is likely to be one of the most noticeable sources of dust disturbance but will be only intermittent.

The concentrations estimated for excavator operator and ground workers when the soil is dry has been estimated at about 0.008 fibres/ml, and substantially lower when soil contained more than 5% moisture (by a factor of 10).

Based on the expected difference compared to site operatives, the neighbours to the site are predicted to have average exposures that are around 0.00002 fibres/ml when and if soils are dry.

The durations of exposures for neighbours would depend on how long construction activities (generating any dust) take place. On the expectation that activities would only take place in specific parts of the site at any particular time, for much of the time neighbours would be at greater

distance from the source of any dust and the dilution with distance would be greater.

It is worth noting that WHO (2000) commented on the risks estimated for a lifetime exposure to a concentration of 0.0005 fibres/ml "proposed with a view to providing adequate health protection", but WHO were cautious about the validity of the assessment. On our estimation, it is unlikely that neighbours were exposed above this level even when soils are dry. If steps are taken to suppress dust, the confidence that neighbours are not exposed above this level becomes very high.

4.7 PREDICTED ASBESTOS EXPOSURE FOR RESIDENTS IN NEW DEVELOPMENT

Conditions in the new development

The potential for exposure to underlying soil with low levels of asbestos contamination will depend on how the site is used. There will be no potential exposure to soil derived dust from soil that is buried under buildings, hard standing or beneath parkland and gardens. We assume a minimum depth of 0.6m of clean material will be placed in the gardens.

Activity that could disturb underlying soil with potential contamination

There is a possibility that in the future workers may very occasionally dig down through hard-standing or other cover to build extensions or conservatories or create new or undertake maintenance on existing buried services. It is likely that the soil under hard-standing or other cover would be damp and unlikely to release significant quantities of airborne dust on disturbance. If the work was undertaken by hand, the estimated exposure concentrations for respirable dust and airborne fibre are likely to be higher than if a small mechanical excavator is used (due to the worker being in close proximity to the soil) however they will still be of the same order as during the remediation work i.e. very low. Cumulative exposures associated with any future activities that involve disturbance of buried soil would be extremely small because of the short duration of any works.

Future occupants

With regard to future occupants, we have assumed that all the additional exposure will have arisen by inhalation from dust containing asbestos fibres being made airborne by either some form of activity or from the wind. The potential routes of residents' exposure may be:

- windblown dust containing fibres,
- dust dispersed if contaminated soil reaches the surface (from installing of a pond, conservatory, etc.)
- contaminated material inadvertently being transferred into buildings and being made airborne during cleaning or other disturbance.

In domestic gardens, windblown dust is generally unusual due to ground being covered with vegetation, sheltered by vegetation and buildings and

fences, and ground cover. On the expectation that concentrations of asbestos in any arisings (that might be brought to the surface) are likely to be of the order of 0.001% or less, average concentrations in a garden where some arisings have become mixed with top soil material will be much less than 0.001%.

The concentrations of asbestos in soil are likely to be much lower than during the construction phase. Therefore, any future exposure concentrations on the site (for residents or future workers involving ground works for utilities, conservatories or ponds) are going to be from soil with lower concentrations of asbestos and airborne fibre concentrations unlikely to be as high as those estimated as possible for the construction phase. Activities leading to disturbance of buried soils are likely to be very infrequent and last only for a few days, giving rise to minimal cumulative exposure

Predicted exposures to airborne dust and fibre for future residents are shown in Table 4.13. The approach to exposure assessment is necessarily approximate and needs to consider the exposures that might occur. For many residents, it is likely that there would be no exposure if there is no disturbance of material from below the clean topsoil in their gardens.

Table 4.11: Estimated potential concentrations of asbestos fibres (fibres.ml-1), as affected by soil moisture content based on comparison to site operatives.

person	Activity	Predicted Median concentrations of asbestos fibres Fibres.ml^{-1}		
		Dry soil	5-10% moisture soil	>10% moisture soil
Residents (in occupation while site construction on-going)	Construction on part of the site	0.00002	0.000002	0.0000002

The above estimates lead to the estimates of cumulative exposure for “neighbours” or new residents who are in occupation during on-going activity on site that are shown in Table 4.12.

Table 4.12: Estimates of potential exposure for residents in occupation while the site construction is on-going.

Activity	Hours per day	Cumulative exposure from one year on remediation site	
		f.ml^{-1}.hours	Fibre/ml.years
Residents (in occupation while site construction on-going)	8	0.015	0.00001

4.8 SUMMARY OF EXPOSURES

The estimates of exposures have been based on the understanding that, at Llanwern, the measurements of amounts of asbestos in soil relate to free fibres, however some of the asbestos is in the form of bitumen, lagging and board. In the free fibre form, asbestos is readily available for dispersal into air. However, the concentrations are generally low. Asbestos does not diffuse or spread through soil, the asbestos content can remain very varied. Therefore, the estimate of average concentration can only be approximate but for this site the estimate is based on a reasonably large number of samples.

Estimates of potential exposure during the construction phase are based on the assumption that tasks are undertaken without attempts to suppress dust. The estimates of likely soil dust in air are based on the “Advanced Reach Tool”, and are believed to be realistic but may merit confirmation by measurement of actual soil dust in air concentrations.

Laboratory tests with soils prepared with accurately measured amounts of dispersed asbestos fibres added (in tests conducted by Addison et al 1988) have provided a basis for deriving the asbestos in air concentrations that would arise during exposure to given levels of soil dust in air.

Exposure to asbestos fibres is expressed as the concentration multiplied by the time. Asbestos fibre concentrations are generally expressed in fibres/ml and the exposure units used here are fibre.ml-1.hours.

The exposures calculated are all low.

For evaluation in terms of risk to health, we refer to a summary table of the risks associated with various levels of cumulative exposure in units of fibre/ml.years based on occupational epidemiological studies (i.e. studies which compared incidence of disease with exposure in the historical asbestos industries). The occupational year is normally assumed to be about 48 weeks of 40 hours, or 1920 hours. Therefore exposure in fibre/ml.hours can be converted to exposure in fibre/ml.years by dividing by the number of hours in an occupational year (i.e. by 1920 hours).

4.9 PREDICTED RISKS TO HEALTH

4.9.1 Background

Inhalation of high concentrations of asbestos fibres for long periods is known to produce a risk of asbestosis, lung cancer and mesothelioma.

Asbestosis is a fibrosis of the lung, and it occurs only after very heavy industrial exposure. This disease is not a concern at the exposure levels considered to arise from the asbestos contamination at Llanwern.

Mesothelioma is a rare form of cancer. It has been shown, in epidemiological studies and in experiments with rodents, to be caused by exposure to asbestos. Mesothelioma is a cancer of the lining of the lung (the pleura) or the abdominal cavity (the peritoneum). There is a delay of a decade at least (and generally several decades) from first exposure and any incidence of this cancer. Currently, there are annually about 2000 new cases of mesothelioma in the UK, and almost all of these cases are associated with exposure to asbestos (Peto et al, 1995). Mesothelioma leads to death, usually within 18 months of diagnosis of the disease. The risks of mesothelioma are believed to be independent of smoking habit. Risks also depend on age at first exposure, with risks being higher for younger people.

Lung cancer is much more common than mesothelioma and, in the vast majority of cases, is attributable to causes other than asbestos exposure, especially smoking.
The risk of lung cancer due to asbestos exposure increases in proportion to exposure to asbestos. Asbestos exposure causes approximately the same percentage increase in existing risk for smokers and non-smokers, but the existing risk is much greater in smokers. Therefore, most of the additional lung cancers caused by asbestos occur in smokers. Again, there is generally a delay of decades between exposure and occurrence of disease.

4.9.2 Estimated Risks

The risk estimations are generally conservative in approach. They assume relatively long periods of dry and dusty ground conditions and that time spent undertaking dusty activities is quite extensive. For future exposures, it is assumed that the asbestos containing material has been broken down into free fibres and is widely dispersed in the soils. No account has been taken in the occupational risk assessments of any control measures taken to reduce emissions and exposures. Health risks are based on Amosite exposure when it is known that there is a mixture of Amosite and Chrysotile (which is less hazardous) on site. The risk assessments are therefore close to worst case.

The residential exposures and health risks are all low as there is no clear route of significant exposure, assuming that the gardens are all covered with a minimum of 0.6m of clean soil.

The occupational risks for workers on the site are predicted to be low on an individual basis, even without additional controls, but airborne asbestos concentrations are likely to exceed acceptable levels during dry periods.

4.9.3 Levels of Risk

Hodgson and Darnton (2000) provided risk summaries for cumulative exposure included the following estimates of risk of mesothelioma for exposures starting at age 30 (Table 4.13). The highest exposures estimated for the construction activities at this site are at the level where they

described risks as insignificant. The risks are estimated as less than 1 in 100,000. These predictions are based on exposure starting at age 30, and if exposure started at age 20, the lifetime risk of mesothelioma would be about double the value for exposure from age 30.

Table 4.13: Risk summaries reported by Hodgson and Darnton (2000) – from table 11 of their paper.

Cumulative exposure	Mesothelioma – Lifetime Risk per 100,000 exposed	
Fibre/ml.years	Amosite	Chrysotile
0.1	15 (Highest arguable estimate 80 lowest 2)	(Highest 4)
0.01	3 (highest 20)	
0.005	about 2 (highest arguable 15)	Insignificant
0.00007	Highest arguable becomes insignificant	
Notes: The term 'insignificant' is used in a colloquial rather than legal sense by Hodgson and Darnton (2000).		

For lung cancer, the risk predictions from Hodgson and Darnton indicate risks to be less than 1 in 100,000 where cumulative exposures are less than 0.001 fibre/ml.years.

In summary, the best estimates of lifetime risks from the cumulative asbestos exposure that could arise from construction activities on this site are less than 1 in 100,000.

4.9.4 Comments on risk predictions

The models of relating exposure to risk are based on observations in workplace populations where the exposures were substantially higher than those estimated here. Extrapolation of a model to lower levels of exposure obviously involves uncertainty and therefore the values estimated as the risk arising from the estimated level of exposure should be treated as approximate, not as precise values.

Although the risks from this construction site activity are small, they should not be dismissed as unimportant. There are uncertainties in the evaluation of the asbestos content in fill materials and therefore practicable precautions should be taken to prevent or minimise exposure to dusts that might contain asbestos.

If control measures are taken to prevent or minimise dust release, then there can be high confidence that risk from asbestos on this site will be extremely small.

4.10 RISK ASSESSMENT – RECOMMENDED CONTROL PROCEDURES

It is important to ensure that workers on site, visitors to site, neighbours and the local environment are protected from asbestos exposure. The planning of site works and specification of appropriate control measures should take account of the following:

- weather conditions, prevailing wind and potential for soils and stockpiled materials to dry out;
- soil composition and potential for fibre release, i.e. deal with the stock piles where asbestos has been detected with suitable procedures to suppress dust release (e.g. damping down if the stockpile has dried);
- durations/times of significant activities (pay attention to dust suppression at times when earth works are taking place);
- contamination of ground/surface water (potentially an issue for run-off water from stockpiles with identified asbestos content);
- pay particular attention to dust release near the site boundary, where there is an interface with residential and commercial neighbours, and
- all persons likely to be affected by the work on this site, workers, visitors to site, machinery operators, drivers, office personnel, site security, etc.

The use of the control measures indicated below should control exposure to airborne asbestos fibre to an extremely low level and no significant risk to health would be anticipated. This could be confirmed by undertaking personal monitoring during task based activities.

4.11 CONTROL MEASURES DURING GROUND WORKS

The required control measures will depend on the quantities and types of asbestos present and the likely exposure but are likely to include:

- suitable method statements for types of tasks, indicating dampening down of materials, protection from wind blow, keeping cab windows closed (if there is a risk of dust), reducing the number of persons working adjacent to excavation/transfer of materials, etc.
- on-going inspections of excavated areas by a competent asbestos specialist to determine if there are further findings of asbestos contamination.

The risks of significant exposure to airborne fibre associated with large scale excavation and removal are likely to significantly outweigh the exposures that are likely to occur if material remains on site. It will be necessary to agree with the local authority what information must be provided for future occupiers of the site.

5 CONCLUSIONS

5.1 PRESENCE OF ASBESTOS IN SOILS

The results of the soil sampling undertaken during the site investigation and the remediation work for Phase 1 indicate that dispersed asbestos fibre is present at low concentrations in the soil across the site. There was a small quantity of ACMs as bitumen, lagging and board also present. The asbestos types encountered were Chrysotile and/or Amosite. Where Chrysotile was the main fibre type, often Amosite was present in the fines.

In total 100 samples have been analysed, with 35 containing asbestos. 23 out of 100 samples contained more than 0.001% asbestos with the highest being 0.006%.

5.2 POTENTIAL EXPOSURE TO ASBESTOS DURING SITE GROUND WORKS AND CONSEQUENT RISK TO HEALTH

The quantity of asbestos present in soil is relatively small, based on the evidence from the sample analysis. The risk assessment, based on estimates of the probable soil dust in air concentrations and laboratory data relating airborne soil dust concentrations to airborne asbestos concentrations (for fibres dispersed in soil) indicates that exposures to airborne asbestos are likely to be very low, much less than 0.01 fibres/ml for workers involved in the development process. Based on the estimated exposures and information from published occupational epidemiological studies relating to cumulative exposure, the consequent risks to health from asbestos are very low, less than 1 in 100,000. The exposures to airborne fibre and associated risk to health would be even lower for site neighbours, the first occupants and for all the future residents.

5.3 RECOMMENDATIONS FOR RETENTION OF SUITABLE SOILS DURING REDEVELOPMENT

A minimum of 0.6m of clean soil (asbestos content <0.001%) will be placed across the Llanwern site. Soil will be screened and, if asbestos contamination is less than 0.02% (200ppm) in the soil, that soil may be used in residential areas; and if the asbestos contamination is less than 0.03% (300ppm), the soil may be used in commercial areas.

It is our view that the re-use of soil at these levels in these types of areas, in combination with the proposed coverage of the site with clean soil will not materially increase the risks of mesothelioma or lung cancer amongst residents at the Llanwern site.

5.4 RELIABILITY AND UNCERTAINTIES

The site has been assessed based on the evidence provided and the results of the analysis of 100 samples of soil. The estimates of asbestos content are believed to be reliable. The estimates of airborne soil dusts are derived

from the Advanced Reach Tool which provides a reasonably robust and reliable estimate. It is however, an estimate.

An important uncertainty is that asbestos contamination in soils may be very variable. This is a site where asbestos might be locally present to a greater extent than revealed by the sampling to date. There is always a risk that ACMs may be unexpectedly encountered and this should be addressed in the site management plan.

The sample data has not indicated significant quantities of ACM to be present, neither has the bore-holing and trial pitting to date.

If precautions to prevent dust exposure are taken, then there can be high confidence that risks to health from asbestos on this site will be extremely low. In our view, this assessment is supported by the results reported by the Dutch field studies reported by Swartjes and Tromp (2008), described earlier.

5.5 ENVIRONMENTAL EXPOSURES AND RISKS FOR THE NEIGHBOURING COMMUNITY

The potential risks to the community from asbestos exposures originating from the asbestos detected on the site are estimated to be extremely low.

However, the site will be developed in phases and therefore will have close proximity to some neighbours (Phase 1 is partially completed) at various stages. This is another reason to have effective dust control. If neighbours are exposed to soil dust, they might form a perception of a risk that would require a huge amount of monitoring to refute. Good dust control is therefore important.

5.6 RECOMMENDATIONS FOR PRECAUTIONS DURING CONSTRUCTION

In order to minimise exposure of workers during site activities, the following measures should be implemented:

The normal measures required to prevent airborne dust emissions and associated nuisance arising from site work should be in place including measures to prevent uncovered soil drying out resulting in wind pick up of dust; and mud being spread onto the local road network. This will require dampening down of uncovered soil during dry weather and wheel cleaning for any vehicles leaving the site.

The risk assessment has not assumed the use of respiratory protective equipment (RPE). The contractor may wish to consider the use of appropriate RPE during dry dusty weather, but there is no requirement to use RPE when working with moist soils. Workers are likely to be better protected by measures to prevent soils drying out and wind pickup of dust

than by the use of RPE. If RPE is employed, each individual must be face-fit tested for the mask to be used. There are various RPE options: disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3), half mask respirator (to standard EN140) with P3 filter, or-semi-disposable respirator (to EN405) with P3 filter. A half mask will give a more reliable fit (and protection) than a disposable respirator.

The following measures are likely to be appropriate during the redevelopment work:

- Workers have appropriate asbestos awareness training, know the control measures they must employ and understand the importance of implementing these control measures;
- Workers must be aware that asbestos may be present in soil even when the soil does not contain visible ACMs and therefore it is sensible (and to their benefit) to minimise airborne soil dust;
- Soil be maintained in a damp condition throughout works;
- Drop heights be kept to a minimum during materials transfer operations;
- Traffic across the infill in which asbestos was detected be minimised and a haul route provided that is covered with clean hard-core or paved.

5.7 POTENTIAL FOR EXPOSURE SUBSEQUENT TO REDEVELOPMENT

Following completion of the redevelopment of the site, exposure to airborne asbestos might arise as a result of any activity leading to the disturbance of underlying fill material in which there is the presence of low concentrations of asbestos. The asbestos content of the underlying fill material is sufficiently low that any such exposure will be extremely low.

Where the ground surface is covered by buildings and hard landscaping, then no exposure would be anticipated to arise from those areas during residential use of the site.

5.8 RECOMMENDATIONS FOR OCCUPATION AFTER COMPLETION OF DEVELOPMENT

Workers involved in occasional activities leading to disturbance of underlying soil such as installing or repairing buried services could be intermittently exposed to very low concentrations of asbestos. It should be possible to control these exposures to an extremely low level by ensuring that appropriate precautions are in place whenever such works are performed.

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APPENDIX 1. SITE LOCATION PLAN

Plan provided by Atkins

ATKINS

5111373-LLA-DWG-EG-0041

Key

Area Boundary

REVISIONS	Drawn By	Checked By	Date

PURPOSE OF ISSUE	Rev.	Authorised for issue	Date

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Birmingham West Midlands B1 1TF
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Fax 0121 483 5252

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CLIENT: ST.MODWEN

PROJECT: Llanwern

DRAWING TITLE: Former Llanwern Steelworks Site Location Plan

SCALES	DRAWN	CHECKED	CO-ORD CHECK
1 : 25000	AJ	HM	
	DATE 28/01/13	DATE 28/01/13	DATE –

0

SHEET	PLOT DATE
A3	28/01/13

DRAWING NO	REV
5111373-LLA-DWG-EG-0041	-

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Appendix F – Addendum Validation Information

Technical Note

Project:	P18-669 Glan Llyn, Newport
Subject:	Remediation Strategy Addendum Information
Date:	January 2022
Document Reference:	18669-RLL-22-XX-RP-O-0192
Prepared by	Chris Wilson BSc (Hons) MCIWEM
Reviewed by	Howel Morris BSc (Hons) MSc CGeol FGS

A site wide Remediation Strategy was submitted by Rodgers Leask Limited (RLL) in November 2021 for the Glan Llyn development in Newport pursuant to the discharge of condition 27 of outline planning approval 06/0471. The Senior Scientific Officer (Steve Manning) at Newport City Council (NCC) reviewed and provided a response. This note provides addendum information to the Remediation Strategy following correspondence with the Senior Scientific Officer. The paragraphs numbered below relate to the points raised by NCC and discussed in the correspondence between NCC and RLL (Technical Note 187), presented in **Appendix A**.

1. Pictorial versions of the earthworks process intended to enhance the conceptual site model (CSM) for the residential and commercial parts of the development have been prepared and are presented in **Drawings**. The Made Ground in the residential areas will be cleared to the natural underlaying clay before placement of suitable material from within the phase and from pre validated stockpiles to achieve the required formation level. Photographs of the process are inserted. The commercial area will undergo an excavation/ trim to 2m below formation level with obstructions and unsuitable material removed to natural clay before suitable material from the trim exercise and the residential site is re-engineered to achieve formation level.

2. The removal of unsuitable material from the residential phases and the turnover and placement of retained suitable Made Ground in 300mm layers is intended reduce the contamination risks (Phase 4h – vapour) by thinly spreading and compacting source material to improve consistency and reduce permeability. Monitoring (chemical surface validation sampling, gas monitoring and, where appropriate, vapour monitoring in each residential phase) will be undertaken following the remedial earthworks to assess the remediated condition and the contamination status of the formation surface. The Validation Report (submitted pursuant to the approval of NCC & partial discharge of planning condition 28) will recommended appropriate mitigation measures, if required, in addition to the clean cover as part of the listed developer actions.

3. The post remedial earthworks formation in residential areas will undergo chemical sampling (greater than 1 per 50m^2) in addition to the pre-remediation testing to comply with the recommended testing frequency but also provide information to assess the contamination status of the formation surface as recommended by NCC. The surface contamination status,

in addition to earthworks validation, will be assessed to recommend the form of mitigation measures in addition to the clean cover.

4. A clean cover provision of 600mm in landscape areas is accepted. The landscape areas will also undergo formation surface chemical sampling to assess the contamination status and whether mitigation measures are required in addition to 600mm of clean cover.

5. The trim and chase strategy (also referred to as the 1m turnover) within the Remediation Strategy applies only to the central business park. The business park will have the benefit of at least 2m of re-engineered material underlying the construction material before the hardstanding or floor slabs area constructed. This is presented in the commercial area pictorial earthworks CSM (**Drawings**). The re-engineered material will have a reduced permeability in comparison with undisturbed in situ Made Ground and the hydraulic gradient would likely be away from the engineered material towards the undisturbed Made Ground. The hydraulic gradient would protect the engineered profile.

6. The Validation Report for each phase includes a section on the developer actions. The actions typically comprise the provision of clean cover and gas protection measures. The final form of the developer actions are to be confirmed following the post remedial works monitoring and validation sampling.

General Items

It is noted that the LPA and the project team await the comments from Natural Resources Wales (NRW) regarding the controlled waters.

The NRW and NCC have accepted an invite to attend site on 26th January 2022.

It is hoped that a greater understanding of the proposed Remediation Strategy has been provided in the correspondence. It is understood that the potential mitigation measures (to break pathways) will be reviewed following the assessment of the contamination status of the surface formation. This will comprise chemical sampling of the formation surface, shallow gas monitoring of the phase and, where appropriate, vapour monitoring.

Llanwern Residential Phases, Conceptual Site Model

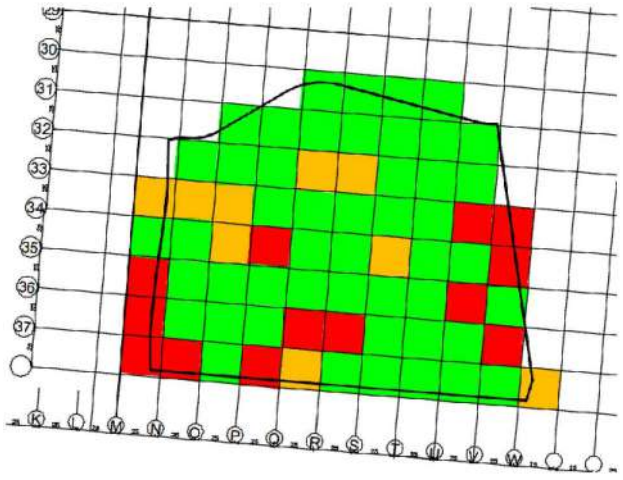
1. Pre-Reclamation Sampling Exercise

Chemical assessment undertaken on in-situ made ground and stockpiled material. Sampling across a 25m grid identifies chemically unsuitable material within phase.

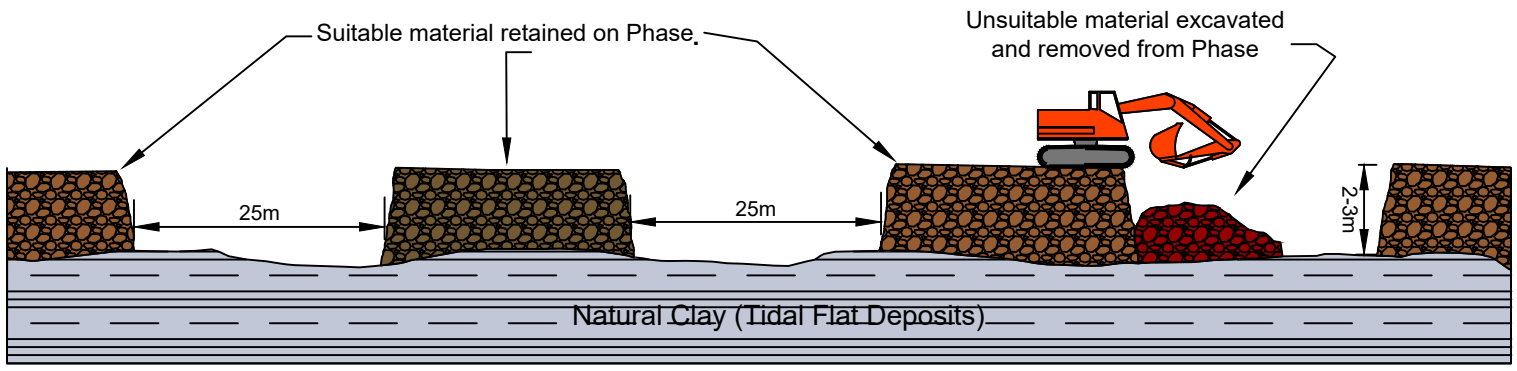
Made Ground to be excavated to natural Clay and removed for treatment or re-use on commercial area.

Potential for re-use within plot following turnover.

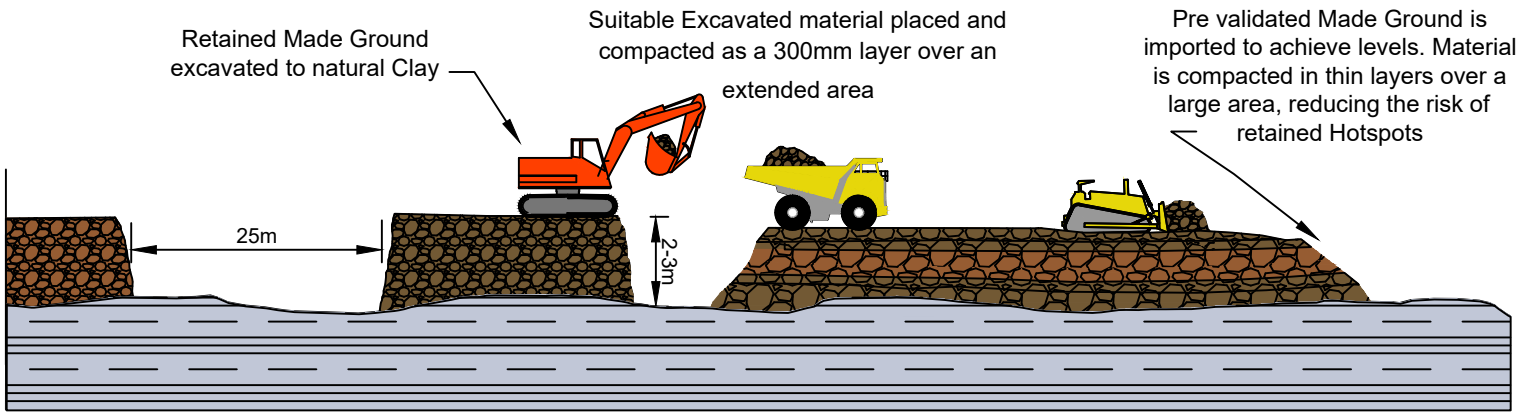
Made Ground to be turned over for re use within plot.



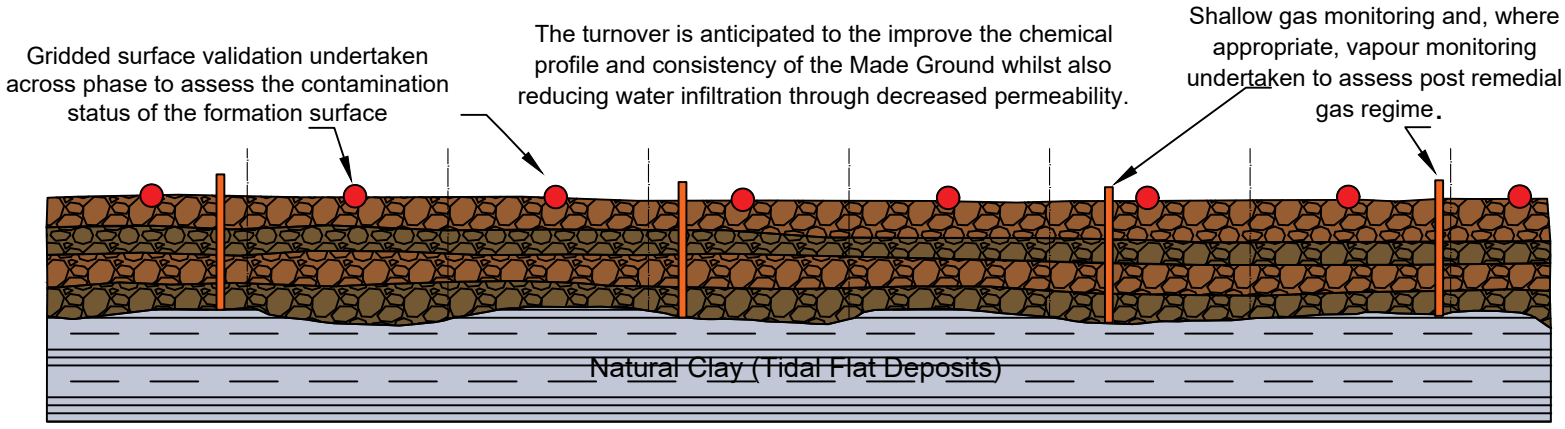
2. Unsuitable material removed from Site. Phase ready for turnover.



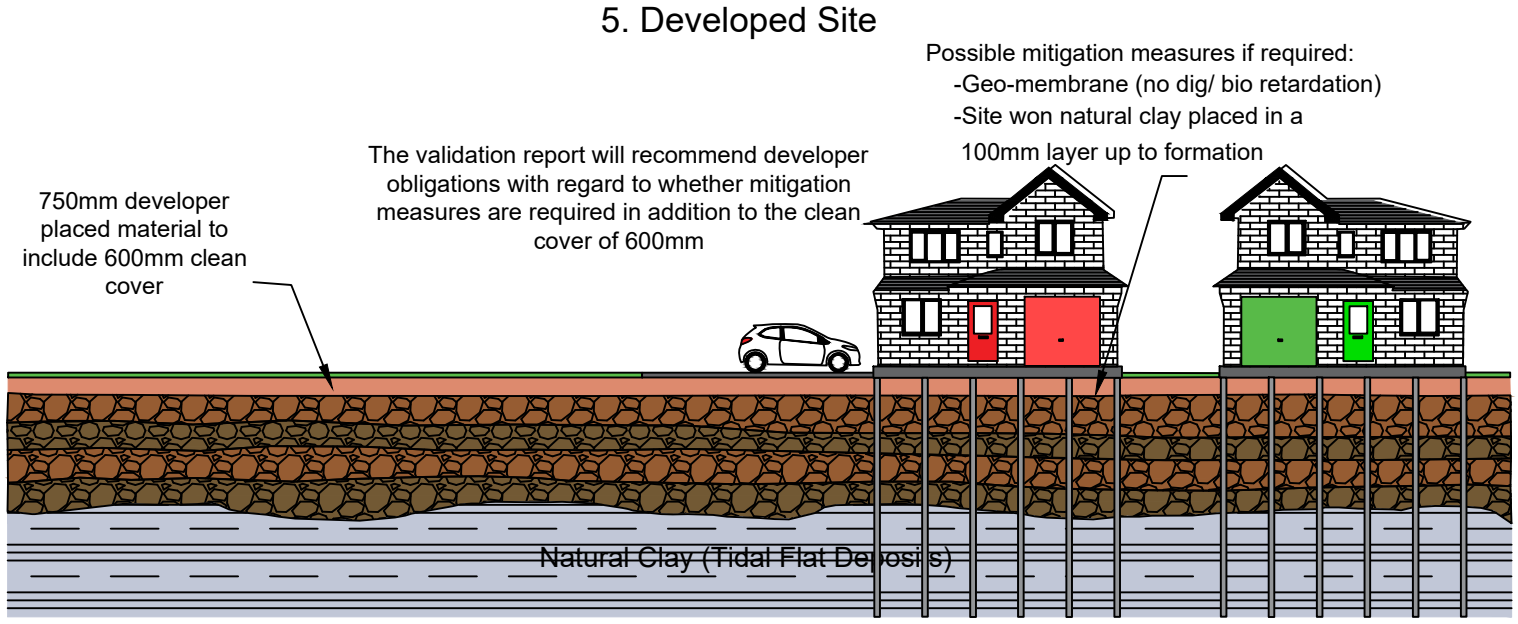
3. Turnover Exercise



4. Post Earthworks Additional Surface Validation

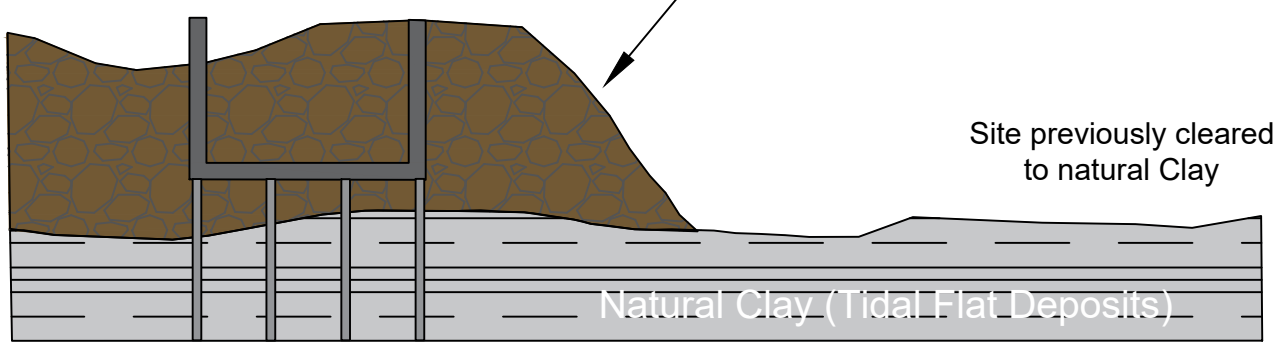


5. Developed Site



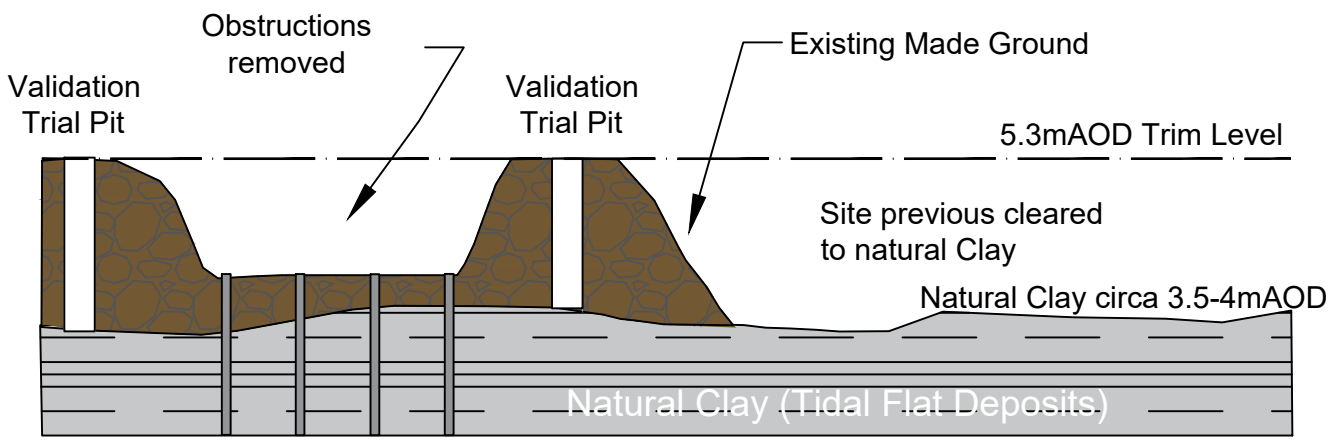
Llanwern Business Park, Conceptual Site Model

1. Site Pre-Trim



Exploratory Hole Location Plan

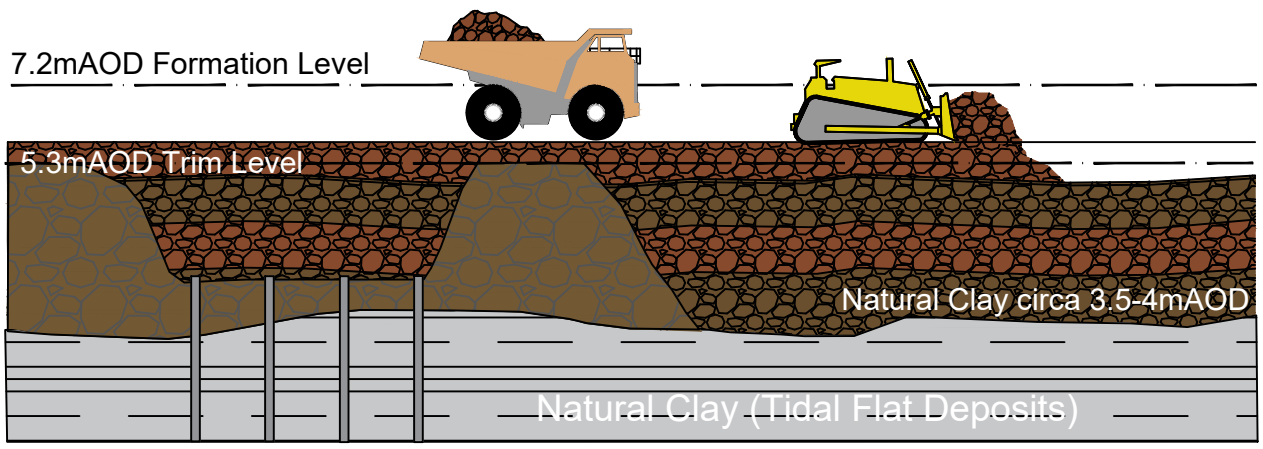
2. Site Trimmed to 5.3mAOD and obstructions removed



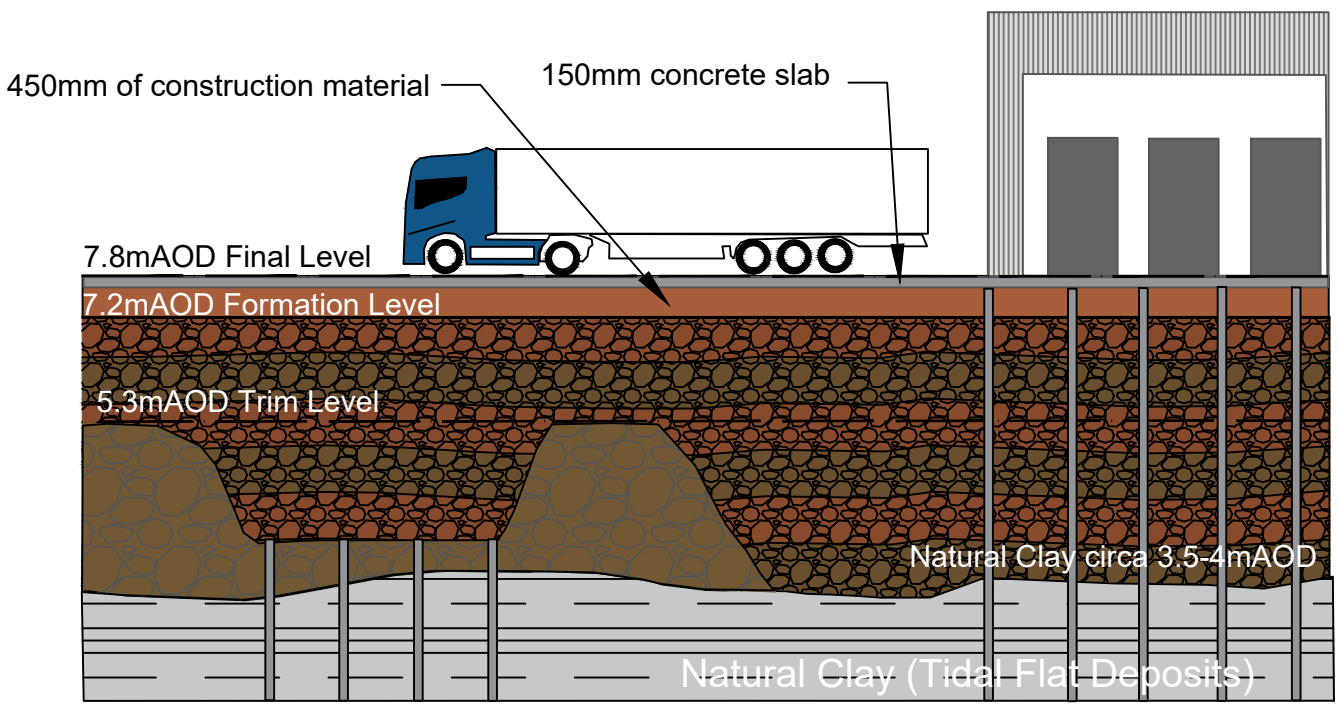
3. Fill engineered across site to formation level.

Suitable material from the trim exercise and material from the residential site placed and compacted as a 300mm layer over an extended area

Made Ground is imported to achieve levels. Material is compacted in thin layers over a large area, reducing the risk of retained Hotspots



3. Developed Site Including 0.6m of clean cover material



Appendix A – TN187, LPA Comments

Technical Note

Project:	P18-669 Glan Llyn, Newport
Subject:	Phase 4h Response to LPA Comments
Date:	December 2021
Document Reference:	18669-RLE-21-XX-RP-O-0187
Prepared by	Chris Wilson BSc (Hons) MCIWEM
Reviewed by	Howel Morris BSc (Hons) MSc CGeol FGS

It is worth stating that all made ground will be removed and only suitable material will be used in the formation of the plot. The Phase II report for Phase 4h reports the pre remediation conditions and all of the made ground will have been excavated to a validated natural clay. The full turnover of the made ground is exceptional and hugely conservative as it allows for the visual and olfactory assessment of all of the made ground in addition to chemical assessment. Approximately 40% of the made ground from Phase 4h has already been removed and stockpiled for treatment or reuse in the commercial area.

Comments:

1. Detailed cut and fill/reuse drawings for all areas requiring remediation are sought so that extents and depths can be better understood prior to works.

The site will have all unsuitable made ground removed and the remaining made ground assessed as suitable for retention will be turned over to the underlying natural clay. The removal or turnover of all of the made ground is a conservative approach where 100% of the made ground is excavated. A normal ground investigation would cover less than 1% of the material and therefore there is confidence in the consistency and suitability of the material. The natural clay will be sampled as a part of the validation testing. A base of excavation drawing showing the surface of the natural deposits and relevant validation information will be provided within the validation report. Is there an existing drawing which confirms this conceptually ? it is important NCC has a clear picture of what is intended as well as what is done.

2. Will the removal of contaminated material be sufficient to remove the vapour pathway for hydrocarbons into dwellings/garden areas ? Yes, although as a precaution we will undertake vapour monitoring post earthworks. The CSM in appendix D makes no reference to this. a vapour pathways will remain after made ground remediation then full protection of dwellings, services and garden areas needs to be considered for the benefit of future developers and the onward developer documentation trail. It is noted that a post remedial vapour assessment is proposed however this pathway needs to be included in the CSM for completeness. Accepted, we will update the CSM as an addendum to the report. Both items in red text are supported.

3. The Reuse Criteria for 40% Infiltration of Incident Rainfall into Engineered Made Ground are noted and cause concern given their high levels at a what will be depth of only 600mm below residential gardens. Engineered cover systems appear to be warranted and not simple cover systems; in view of significantly elevated levels that will exist below cover. The

earthworks will provide an engineered difficult dig layer of low permeability which will be validated to assess compliance with the earthworks specification. The formation created would prove a difficult dig for a JCB even without the 600mm above. This aspect is noted however it is the contamination status of the final formations surface that will dictate the degree to which additional separation from domestic digging activity contact is required through engineered cover. *The use of a semi permeable or impermeable membrane incorporating a bright orange geomembrane should be considered as part of engineered cover to deter against digging beneath clean material – a combined anti-dig/capillary break layer should also be considered as part of the remedial approach for final development. This is considered necessary to prevent both the upward migration of any contamination into cover systems and contact with material beneath them. The use of a 'Bentomat' type system (geotextiles with bentonite clay layer) to prevent infiltration may be warranted in this situation given the nature of contaminated material being proposed for reuse beneath cover and proposals regarding this are sought. Although 600mm is specified in the remediation strategy the formation level is set 750mm below the final ground level. Could the proposed developer actions regarding cover be recommended following review of the validation report. It is anticipated that the average concentrations will be well below the proposed thresholds. The remedial criteria is based on an average approach and the complete removal of made ground across the plot with placement of validated site won made ground. The turnover of the made ground will cause improvement of the material, where the organic concentrations are likely to be reduced, from the pre remediated state reported in the phase II report. The post remedial conditions are designed to be much improved and we can provide an isopachyte of concentrations to assist in zoning the site should enhanced protection measure be required.* This appears to be a suitably pragmatic approach to specifying final developer cover and must take the form of an engineered cover system design with detailed drawings so that requirements are clear to all when available.

4. The proposed cover of only 300mm in landscaped areas does not appear sufficient given the level of contamination that will remain as a result of the proposed Reuse Criteria for 40% Infiltration of Incident Rainfall into Engineered Made Ground. Either the reuse levels are made more conservative given the level of proposed cover ; or the level of cover is increased to a minimum of 600mm. 600mm is likely to be acceptable. 600mm will be accepted as suggested subject to its engineered nature. *Incorporation of the features in 3 above would be relevant in landscaped areas also for any thickness of cover. The reengineered ground is likely to be provide a sufficient no dig barrier.* This aspect is noted however it is the contamination status of the final formations surface that will dictate the degree to which additional separation from domestic digging activity contact is required through engineered features.

5. It is not clear whether the one metre turn over specification will prevent any lateral movement of contaminants into regions that have had the full turnover applied of full turn over ? The 1m turnover applies to the central business park where the interception of rainfall is >90% when the site is developed and the proposed levels are to be raised providing at least 2m of low permeability reengineered material above the base of excavation. The remediation strategy proposed by RLE recommends full turnover in the residential areas. Where this meets the remediation strategy proposed by Vertase FLI, the full depth of reengineered made ground would retard migration from the 1m turnover strategy. or what the significance of this would be? Graphical illustration of how this will work between areas of the two specifications is sought. If there is any risk of migration from one meter turnover regions into full turnover regions then an approach where all regions undergo full turnover may be worth considering ? This has been assessed as part of the CWRA, appended to the remediation strategy, the hydraulic gradient would suggest that the direction of migration would be from the engineered material to the non engineered material. Thus protecting the fully engineered profile. However the likely volume of perched water will be reduced due to

the reduced permeability of the engineered profile. This aspect is noted and may require further consideration by NRW – copied in for comment.

6. Onward developer action documentation needs to be provided in advance of any developers being in the frame; and the format of this is sought at this stage. A general developer actions list can be provided. The actions typically comprise the provision of clean cover and gas protection measures. Accepted that a draft format may be all that is possible at this stage in view of finalising developer engineered cover design further to validation of this first remedial phase.

It is important that the LPA obtain comments from NRW in respect of this site as controlled waters are clearly a sensitive receptor and Reuse Criteria for 40% Infiltration of Incident Rainfall into Engineered Made Ground are concerningly high. The strategy is intended to deliver an acceptable water quality into the surface waters by turning over the made ground and creating a consistent low permeability, 2m thick, engineered material. This is intended inhibit the percolation of rainwater into the made ground. The compaction also reduces the ability to disturb the made ground without the use of heavy mechanical means. This aspect is noted however it is the contamination status of the final formations surface that will dictate the degree to which additional separation from end user digging activity contact is required.

I am not at present reassured that the human health pathway will be sufficiently mitigated at both made ground remedial and developer remedial stages and as such the above matters need to be addressed before any consideration can be given to support for discharge. We would like to invite the local authority to attend site for a walkover as the benefit and scale of the remediation works are better understood during a site visit. A site meeting is welcomed and I would suggest NRW are invited to such a meeting also.

1.

Technical Note

Project:	P18-669 Glan Llyn, Newport
Subject:	CWDQRA Validation Plan
Date:	June 2022
Document Reference:	18669-RLL-22-XX-RP-O-0260
Prepared by	Chris Wilson BSc (Hons) MCIWEM
Reviewed by	Howel Morris BSc (Hons) MSc CGeol FGS

A site wide Remediation Strategy was submitted by Rodgers Leask Limited (RLL) in November 2021 for the Glan Llyn development in Newport pursuant to the sitewide discharge of part of condition 27 of the outline planning approval 06/0471. Natural Resources Wales (NRW) reviewed the strategy and the appended updated controlled water detailed quantitative risk assessment (CWDQRA). A meeting was held with NRW on 20th April 2022 and following the meeting RLL has prepared this CWDQRA validation plan to verify that material with contaminants of concern exceeding the criteria are placed at the appropriate distance from a surface water, to assess whether the hydraulic conductivity and the pore water chemical concentrations within the reengineered material are as assumed in the CWDQRA. This note provides the method to collect and assess the CWDQRA validation information as an addendum to the remediation strategy and also presents a number of points as a continency plan.

Contaminants of Concern Validation

The updated CWDQRA identified some exceedances for concentrations of contaminants of concern (CoC) in relation to a 20m compliance distance. A further assessment has shown material recording concentrations exceeding the 20m compliance criteria for the CoC is suitable when placed at a distance of greater than 30m from the compliance point. The phase specific validation report will show that material with CoC exceeding the 20m compliance criteria has been placed at a suitable distance i.e. greater than 30m.

Hydraulic Conductivity Validation

The updated CWDQRA recognises the benefits of excavating and reengineering the made ground on the permeability of the material. The earthworks validation report presents test results characterising the made ground and standard results for compaction and air voids validating that the compaction requirements have been achieved. It is considered helpful, as a line of evidence to support the poor drainage characterisation of the reengineered material, to undertake falling head tests, and where possible rising head tests, upon and within the reengineered material.

The formation falling head tests are to be undertaken using a cylinder to hold a head of water against the formation surface. Approximately 10 falling head tests will be undertaken per phase or a minimum of 1 test per 100m^2. Whilst the dimensions of the falling head test are not

complaint with BRE Soakaway test, the monitoring and assessment will be undertaken in accordance with the BRE. The standard dimensions of the BRE Soakaway test would damage the formation and potentially be influenced by the underlying clay.

The falling and rising head tests will be undertaken on the shallow monitoring wells installed, following the earthworks, in the reengineered made ground. Up to 8 shallow monitoring locations will be installed in each phase.

The CWDQRA describes the permeability of piling mat post construction. The validation report shall include, as part of the developer obligations, confirmation or verification of construction material/ piling mat with the suitable permeability characteristics in accordance with the CWDQRA & Remediation Strategy.

Pore Water Concentration Assessment

The updated DQCWRA assumed pore water concentrations as shown in Table 1.

Table 1. Calculated Pore-water Concentrations for Contaminants of Concern (CoC) Modelled in P20 Remedial Target Worksheets

Determinands	**Calculated Porewater Concentrations (mg/l) based upon laboratory derived totals soil concentrations (mg/kg) and 1806 (No.) Soil Samples**		
	Average	Upper 95 % Percentile	Maximum
Iron	113.57	314.67	2949.27
Manganese	12.00	44.70	566.00
Vanadium	0.97	3.01	13.498
Benzo(a)pyrene	2.85E-4	0.00113	0.07
Benzo(b)fluoranthene	0.0767	0.28	20.77
Naphthalene	0.231	0.165	128.68

It is intended, as part of the validation, to then compare the field chemical concentrations with the pore water concentrations adopted within the CWDQRA. This will only be possible where perched water is encountered. Where water is present within the shallow monitoring wells the sample will be collected using a peristaltic (low flow) pump.

The monitoring locations, the positions of the formation surface tests falling head tests, the results and the assessment of the results will be presented in the validation report for each phase.

Following validation of the earthworks to achieve the formation surface, it is proposed that a limited number of monitoring wells are retained (approximately 30% or 3 per phase) or

installed in landscaping areas. The validation report for each phase will contain specific information on how this will be achieved. This will allow long-term monitoring of the perched water post construction and build on a sitewide dataset of perched water quality.

Contingency Plan

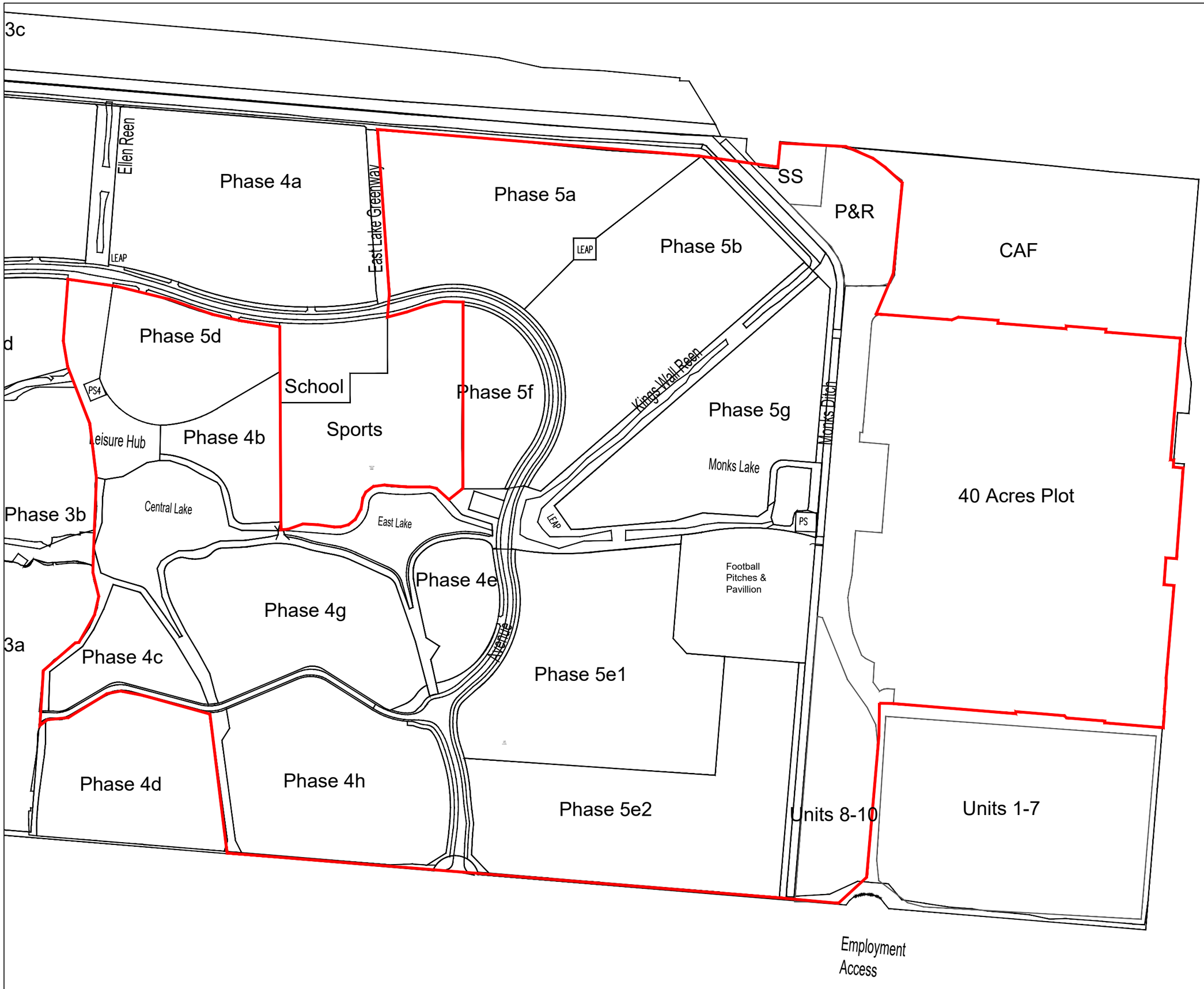
The validation assessment will also, where appropriate, compare results from adjacent phases and site wide monitoring results as part of the validation assessment. The creation of baseline set of data for the site, through the accumulation of results from individual phases, to support the maintenance of suitable site wide surface water quality. The comparison of phase specific information and sitewide information may also be used as contingency where soil concentrations exceed criteria or pore water concentrations exceed modelled parameters but monitoring indicates suitable sitewide conditions.

The CWDQRA also considers that there is a potential for natural attenuation benefits from further improving the existing surface water features on the site, which mainly comprise reens and ponds/small lakes. This is anticipated particularly through:

1. Further establishing the vegetation within the reens which will help reduce the concentrations of organic contaminants and particularly nutrients such as ammoniacal nitrogen. The reens are known to vegetate rapidly and require regular maintenance to remove surplus growth;

2. Undertaking organic matter enrichment of soils along margins of the reens and ponds/lakes into which water penetrating the Made Ground are likely to discharge. This could be undertaken by placement of locally excavated peat (obtained from Alluvial and underlying Tidal Flat Deposits) and other soils containing high concentrations of organic matter. This should enable a further stripping out of low concentrations of PAHs and TPH within these discharge waters. Amendment of these soils with other materials will also be considered, taking into consideration further knowledge of the residual contaminant profile, in order to provide a passive sustainable solution to the long-term remediation of this site.

The preliminary validation plan for Phase 4h is attached to this note as an example of the typical layout of post earthworks validation sampling and monitoring locations for a residential phase.



GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY:

DQCRWA BOUNDARY

PHASE BOUNDARIES

Rev	Date	Amendments	By	Chk

Client

St Modwen Developments

Project

P18-669 Llanwern Reclamation

Drawing Title

DQCWRA Boundary Plan

INFORMATION

	Drawn	Checked	Date
NTS	SR	CW	27.04.22

Drawing No. Rev.

18669-RLL-22-XX-DR-O-0262 A

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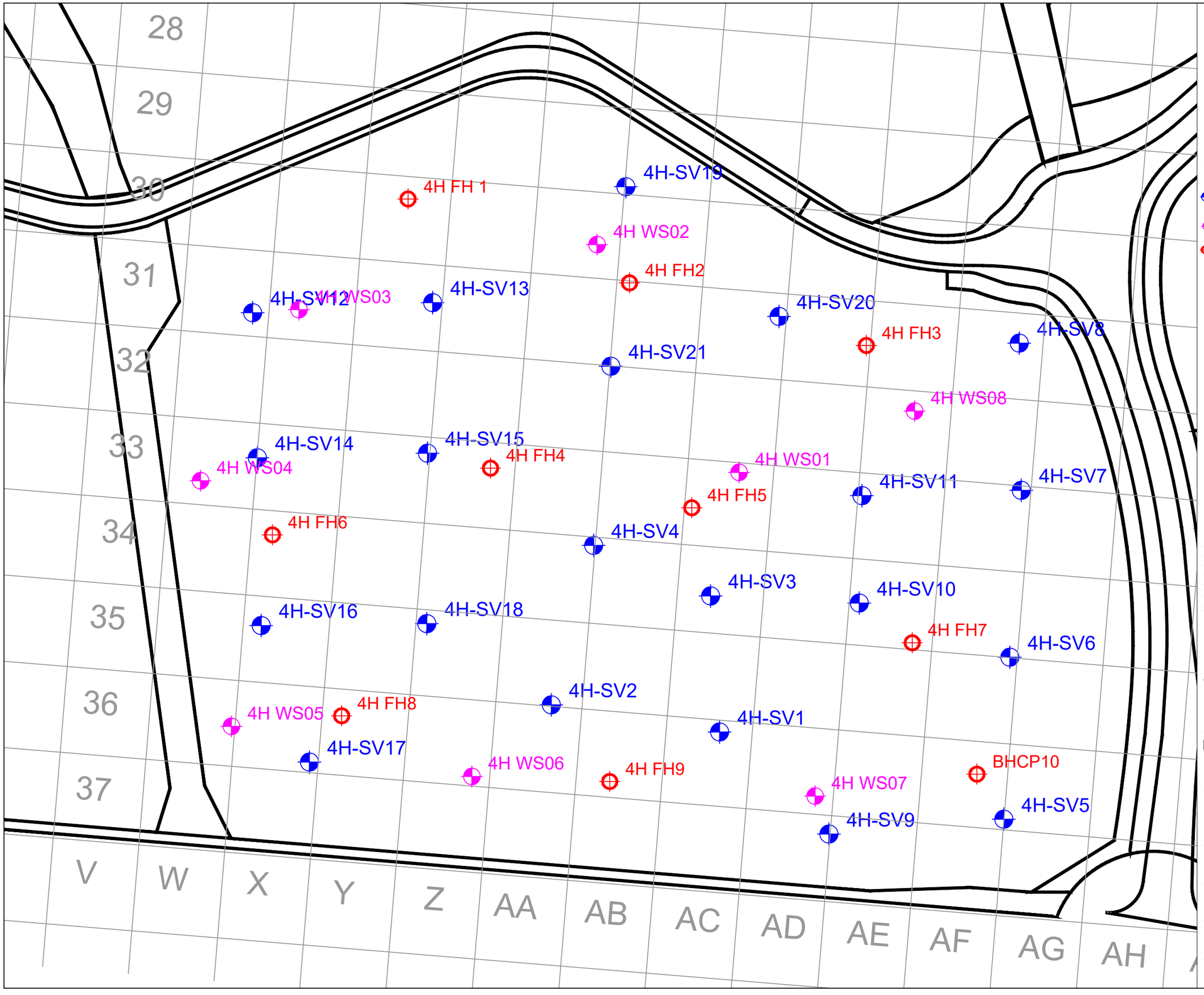

GENERAL NOTES

NO DIMENSIONS TO BE SCALED OFF THIS DRAWING.

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECT'S AND ENGINEER'S DRAWINGS.

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.

ALL LEVELS ARE IN METRES UNLESS NOTED OTHERWISE.

ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.

KEY:

- 4H-SV — SURFACE VALIDATION CHEMICAL SAMPLE LOCATION
- 4H WS08 — WINDOW SAMPLE LOCATION FOR GAS AND PERCHED WATER MONITORING
- 4H FH3 — FALLING HEAD TEST LOCATION

Rev	Date	Amendments	By	Chk

Client

St Modwen Developments

Project

P18-669 Llanwern Reclamation

Drawing Title

Phase 4H Validation Plan

INFORMATION

	Drawn	Checked	Date
NTS	SR	CW	27.04.22

Drawing No. — Rev.

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