AW2 USKMOUTH POWER STATION

Flood Consequence Assessment

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Quality Management

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1 INTRODUCTION

Project Brief

1.1 RPS Consulting Services Ltd ('RPS') has been commissioned to prepare a Flood Consequence Assessment (FCA) for land at West Nash Road, Nash, Newport, NP18 2BZ in relation to the proposed development of the AW2 Uskmouth Power Station Battery Energy Storage System ('BESS').

Assessment Procedure

1.2 The aim of the FCA is to outline the potential for the site to be impacted by flooding, the impacts of the proposed development on flooding in the vicinity of the site, and the proposed measures which could be incorporated into the development to mitigate the identified risk. The potential to provide surface water attenuation, including the use of Sustainable Drainage Systems (SuDS), is considered as a separate Drainage report.

1.3 The report has been prepared in accordance with the guidance detailed in the Planning Policy Wales and Technical Advice Note 15 (TAN15): Development and Flood Risk. Reference has also been made to the CIRIA SuDS manual (C753), the Newport City Council Preliminary Flood Risk Assessment (PFRA) and Local Flood Risk Management Strategy (LFRMS).

1.4 This report has been prepared in consultation with Natural Resources Wales (NRW) and Newport City Council as Lead Local Flood Authority (LLFA). The site is located within the Caldicot and Wentlooge Levels Internal Drainage Board (IDB) District.

1.5 The desk study was undertaken by reference to information provided / published by the following bodies:

- Natural Resources Wales (NRW);
- Newport City Council;
- British Geological Survey (BGS);
- Ordnance Survey (OS); and
- Dŵr Cymru Welsh Water.

2 PLANNING POLICY

National Planning Policy

Technical Advice Note (TAN) 15: Development and Flood Risk (2025)

2.1 TAN 15 provides technical guidance to supplement the policy set out within Planning Policy Wales in relation to development and flooding and coastal erosion. It provides a framework within which the flood risks arising from rivers, the sea and surface water, and the risk of coastal erosion can be assessed. It also provides advice on the consequences of the risks and adapting to and living with flood risk. It does not take precedence over other Technical Advice Notes and should be considered alongside other planning policies. This document replaces Technical Advice Note 14, published in 1998 and Technical Advice Note 15, published in 2004.

2.2 In relation to flood risk, TAN 15 indicates that the Assembly has a duty to ensure that development is sustainable and does not create problems for future generations. Managing flooding has an important role to ensure sustainable development by: guiding developments to locations with little or no risk from river, tidal or coastal flooding, managing consequences of flooding where developments can be justified and making provision for climate change.

2.3 The Flood Map for Planning is the starting point for consideration of flood risk in the planning system. The map uses flood zones to indicate the degree to which land is at risk of flooding from rivers, the sea, surface water and small watercourses. TAN15 outlines the actions that should be taken when considering development in the different flood zones. The Flood Map for Planning displays predicted future flood risk under the central climate change estimate.

2.4 Flood Consequences Assessment is required for any development proposal located fully or partly in Surface Water and Small Watercourses - Flood Zones 2 and 3. An assessment should also be undertaken for development on sites outside of these zones, but which has the potential to affect the course of surface water and/or excess water from ordinary watercourses. Planning authorities may provide specific local advice on this issue in Development Plans. Planning authorities should ensure any new development adjacent to Flood Zones 2 and 3 for Surface Water and Small Watercourses is appropriately set back to allow for extreme flood events. Detailed Flood Consequences Assessments, will be required to consider a range of climate change scenarios, including upper end estimates, making reference to the Welsh Government guidance on climate change allowances for planning purposes.

2.5 TAN 15 sets out the prime objectives of Flood Consequence Assessments (FCA) as developing full appreciation of;

- The risk and consequences of flooding on the development; and
- The risk and consequences (i.e. the overall impacts) of the development on flood risk elsewhere.

2.6 FCAs must allow for a range of potential flooding scenarios up to and including the flood probability of 0.1% in any year. An allowance for climate change must be made in line with current Welsh Government Guidance.

2.7 The FCA can also be used to establish whether appropriate avoidance or mitigation measures could be incorporated within the design of the development to ensure that over its lifetime, development minimises risk to life, damage to property and disruption to people living and working on the site, and does not increase flood risk elsewhere.

2.8 The approval of SuDS for a new development by the SAB is independent of the planning process. New developments of more than one dwelling or where the area covered by construction work equals or exceeds 100m² require approval from the SAB before construction can commence.

Adoption and management arrangements, including a funding mechanism for maintenance of SuDS infrastructure and all drainage elements, must be agreed by the SAB as part of this approval. This will ensure that SuDS infrastructure is properly maintained and functions effectively for its design life.

Planning Policy Wales Edition 12, 2024

2.9 Planning Policy Wales Edition 12 sets out the land use planning policies of the Welsh Government. Chapter 6 – Distinctive and Natural Places outlines the Welsh Government's objectives in terms of addressing water and flood risk.

2.10 Section 6.6 of Planning Policy Wales addresses water and floor risk. The relevant guidance is summarized below:

- The planning system should:
  - protect and improve water resources and quality by promoting and encouraging increased efficiency and demand management of water as part of new developments;
  - ensure that the infrastructure networks, including nature based solutions on which communities and businesses depend is adequate to accommodate proposed development, and takes into consideration the impacts of climate change, so as to minimise risk to human health and the environment and prevent pollution at source;
  - ensure sustainable drainage systems are an integral part of design approaches for new development; and
  - ensure the protection of the quantity and quality of surface and ground water supplies is taken into account as part of development proposals.
- Water resources and quality must be taken into account from an early stage in the process of identifying land for development and redevelopment.
- Ensuring the implementation of nature based solutions through green infrastructure provision is a key preference and protecting river corridors should be maximised. The identification of managed wetland and riparian buffer zones should be a key output of assessments to improve water quality, by reducing pollution and securing a net benefit for biodiversity and improving the attributes of ecosystem resilience.
- New development should be located and implemented with sustainable provision of water services in mind, using design approaches and techniques which improve water efficiency and minimise adverse impacts on water resources, including the ecology of rivers, wetlands and groundwater and thereby contributing towards ecological resilience.
- Planning authorities should secure better management of drainage and surface water so as to tackle these issues by:
  - ensuring sustainable drainage systems are incorporated into development enabling surface water to be managed close to or at source; and
  - ensuring connection to the sewer in sewered areas and by minimising the proliferation of private sewage systems.
- New developments of more than one dwelling or where the area covered by construction work equals or exceeds 100 square metres also require approval from the SuDS Approval Body (SAB) before construction can commence. This will ensure that SuDS infrastructure is properly maintained and functions effectively for its design life.
- The provision of SuDS must be considered as an integral part of the design of new development and considered at the earliest possible stage when formulating proposals for new development.

- Planning authorities should adopt a precautionary approach of positive avoidance of development in areas of flooding from the sea or from rivers. Surface water flooding will affect choice of location and the layout and design of schemes, and these factors should be considered at an early stage in formulating development proposals.
- Development should reduce, and must not increase, flood risk arising from river and/or coastal flooding on and off the development site itself. The priority should be to protect the undeveloped or unobstructed floodplain from development and to prevent the cumulative effects of incremental development.
- In areas of flood plain currently unobstructed, where water flows in times of flood, built development should be wholly exceptional and limited to essential transport and utilities infrastructure.
- Development should not cause additional run-off, which can be achieved by controlling surface water as near to the source as possible by the use of SuDS.
- The ability of emergency services to respond to flood events should be taken into account when considering if a development in a flood risk area is appropriate. This may involve consultation with emergency planners, local resilience forums and other professional partners such as fire rescue, police and ambulance services.

2.11 Planning Policy Wales is supplemented by a series of Technical Advice Notes (TAN). TAN15 provides technical guidance on development and flood risk.

Local Planning Policy

Newport Local Development Plan

2.12 The Newport Local Development Plan 2011-2026 was published in January 2015, and contains the following Policies relating to flood risk and drainage:

"SP3 Flood Risk

2.13 Newport's coastal and riverside location necessitates that development be directed away from areas where flood risk is identified as a constraint and ensure that the risk of flooding is not increased elsewhere. Development will only be permitted in flood risk areas in accordance with national guidance. Where appropriate a detailed technical assessment will be required to ensure that the development is designed to cope with the threat and consequences of flooding over its lifetime. Sustainable solutions to manage flood risk should be prioritised.

SP4 Water Resources

2.14 Development proposals should minimise water consumption, protect water quality during and after construction and result in no net increase in surface water run-off through the sustainable management of water resources by:

i. The use of sustainable drainage systems;

ii. The reuse of water and reduction of surface water run-off through high quality designed developments;

iii. Careful consideration of the impact upon finite water resources, particularly in terms of increased pressures on abstraction and the impact of climate change.

iv. Ensuring development is appropriately located and phased so that there is capacity in the waste water, sewerage and water supply as well as the protection of water quality."

2.15 An update to the Newport Local Development Plan is currently being prepared however it has not been adopted at current.

Preliminary Flood Risk Assessment

2.16 A Preliminary Flood Risk Assessment (PFRA) was produced by URS/Scott Wilson in 2011 for Newport City Council and was reviewed in 2017. The PFRA is aimed at providing high-level overview of flood risk from all sources of flooding within the local area, including consideration of surface water, groundwater and ordinary watercourses. Relevant information has been referenced throughout this report.

Local Flood Risk Management Strategy

2.17 A Local Flood Risk Management Strategy (LFRMS) was produced in 2014 by Newport City Council as the designated LLFA. The LFRMS aims to understand the risks of various flooding sources that Newport may face, take proactive steps to mitigate these risks, raise awareness across communities and prepare for any such event. Local flood risk is any flood risk that derives from surface runoff, groundwater, or ordinary watercourses. Relevant information has been referenced throughout this report.

2.18 A draft LFRMS 2024-2030 has been released containing updated information on flooding from the various sources in Newport.

Climate Change

2.19 The Technical Advice Note 15: Development and Flood Risk (TAN15)[1] states that when considering new development proposals, it is necessary to take account of the potential impact of climate change over the lifetime of development. Residential development is assumed to have a lifetime of 100 years while a lifetime of 75 years is assumed for non-residential developments. To ensure future development can provide a safe and secure living and /or working environment throughout its lifetime, national planning policy requires proposals in areas of high flood risk to be accompanied by an assessment of flooding consequences to and from the development, taking into account the impacts of climate change.

2.20 In line with TAN15, the climate change allowances have been informed by the latest available information on climate change projections and different scenarios of carbon dioxide (CO2) emissions to the atmosphere. Allowances are provided for different epochs (periods) of time over the next century. This guidance will be reviewed when more up-to-date climate change research is available.

2.21 Both the central and upper end allowances should be assessed to understand the range of impact. As a minimum, proposals should be assessed against the central allowance to inform design levels. It is recommended that the 2080s changes be used when considering a lifetime of a development that extends beyond 2115.

2.22 Table 1 presents both the central and upper end estimates for climate change associated with rainfall intensity to understand the range of impact whilst Table 2 present changes to river flood flows.

Table 1. Change to extreme rainfall intensity compared to a 1961-90 baseline

Applies across all of Wales	Total potential change anticipated for '2020s' 2015- 39)	Total potential change anticipated for '2050s' (2040- 2069)	Total potential change anticipated for the '2080s' (2070-2115)
Upper Estimate	10%	20%	40%
Central Estimate	5%	10%	20%

[1] https://www.gov.wales/sites/default/files/publications/2018-09/tan15-development-flood-risk.pdf

Table 2. Changes to river flood flows by river basin district (use 1961-90 baseline)

Severn	Total potential change anticipated for '2020s' 2015- 39)	Total potential change anticipated for '2050s' (2040- 2069)	Total potential change anticipated for the '2080s' (2070-2115)
Upper Estimate	25%	40%	70%
Central Estimate	10%	20%	25%

Sea Level Allowances

2.23 The science behind climate change projections for sea level rise has changed substantially in recent years. The guidance was updated in September 2021[2] to reflect the higher central allowance (70th percentile) and upper end allowance (95th percentile) of RCP28.5. This reflects an increase in global mean surface temperature of around 4.3^{0}C) by 2100.

2.24 Table 3 displays the estimates of cumulative uplift for sea level rise for Neath Port Talbot local authority area to 2100 and 2120 (to reflect the 100yr lifetime of development for residential development). The allowances are derived using the UKCP18 2100 dataset.

Table 3. Estimated mean sea level rise (in metres)

	Allowance Percentile	Mean sea level rise (metres) by 2100 (UKCP18 baseline 1981-2000)	Mean sea level rise (metres) by 2120 (UKCP18 baseline 1981-2000)
Newport	70th	0.85	1.01
	95th	1.11	1.33

2.25 Guidance states that development proposals should be assessed against the relevant regional 70th percentile to inform design levels. An assessment should also be made against the 95th percentile to inform mitigation measures, access and egress routes and emergency evacuation plans.

[2] Flood Consequences Assessments: Climate change

3 CONSULTATION

Natural Resource Wales

3.1 The FCA has been produced in consultation with the Partnership and Strategic Overview Team at NRW.

3.2 NRW has provided the Caldicot and Wentlooge (2016) model as well as information on defences surrounding the site. The information provided by NRW is included in Appendix A and is summarised in Section 6.

Internal Drainage Board

3.3 The site is located within the Caldicot and Wentlooge Levels IDB District. Consultation with the IDB has been undertaken as part of the assessment, at the time of writing a response is awaited from the IDB.

Newport City Council

3.4 Newport City Council has been contacted regarding flood risk at the site and requirements for the development. At the time of writing a response is awaited.

4 SITE DESCRIPTION

Site Description

4.1 The site is located south of Newport at National Grid Reference ST 32605 83546, is irregular in shape and occupies an area of approximately 4.6 hectares (ha). The site location is presented in Figure 1.

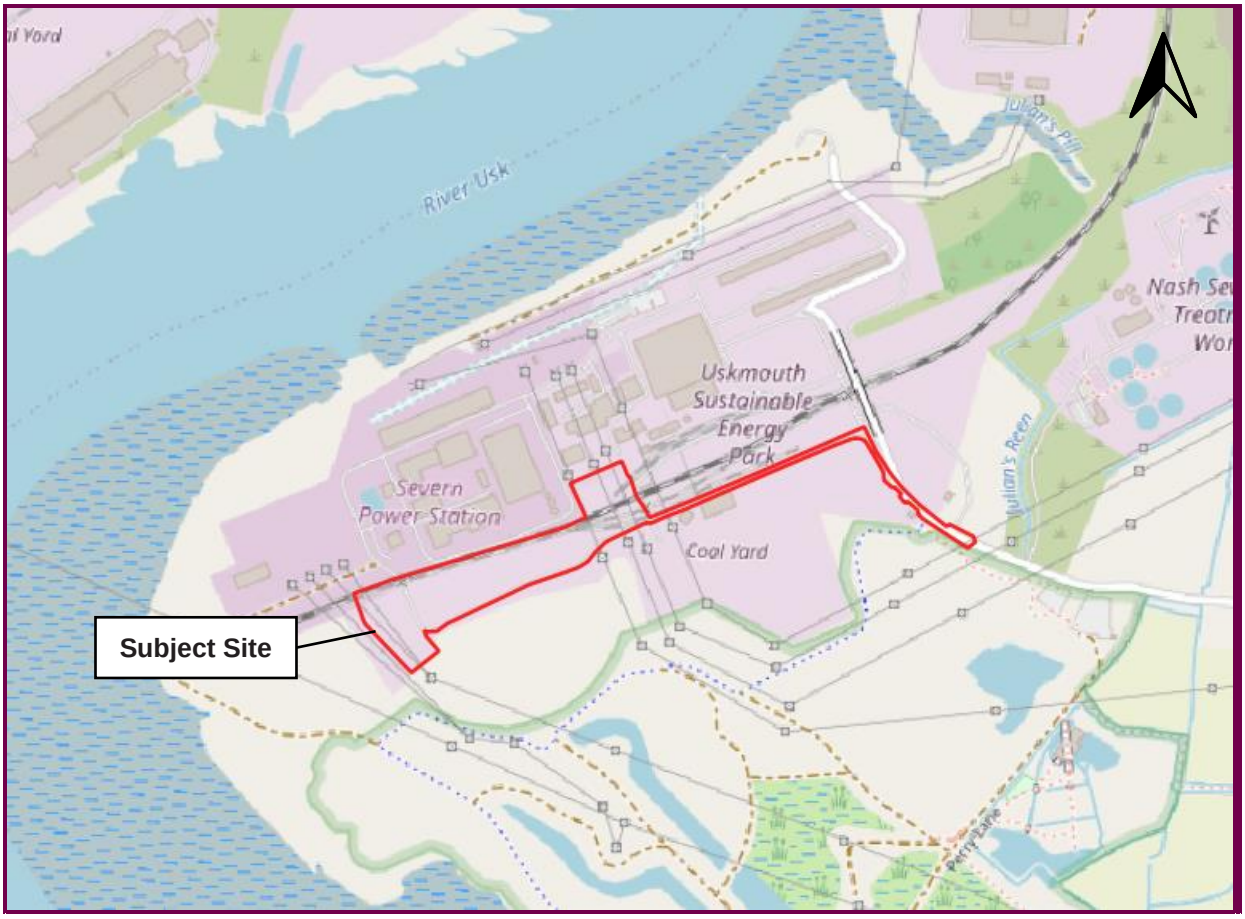

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Figure 1. Site Location

4.2 The site is currently brownfield land, that is used for the storage of pulverised fuel ash (PFA) bounded by concrete walls.

4.3 Access to the site is obtained via West Nash Road to the east.

Surrounding Land Uses

4.4 Immediately to the north, the site adjoins the Severn Power combined cycle gas turbine (CCGT) power station which was constructed in 2007 on the site of the former Uskmouth A coal-fired power station. To the north/northeast is also Uskmouth Sustainable Energy Park.

4.5 Beyond the Severn Power Station and Uskmouth Sustainable Energy Park to the north is the River Usk, an identified Special Area of Conservation (SAC), and to the east is the railway line, a mixture of land with vegetation, hardstanding and sewage treatment works. To the south, the Newport Wetlands National Nature Reserve is located, a designated Site of Special Scientific Interest (SSSI).

4.6 The wider site setting is industrialised to the north east, with the Liberty Steel works and industrial estates on the east bank of the River Usk stretching from the proposed development site to the A48 ‘Southern Distributor Road’ dual carriageway through the outskirts of Newport.

4.7 The River Usk and the Severn Estuary, a classified Special Area of Conservation (SAC), lie beyond the power station and Newport Wetlands to the west and south. On the west bank of the Usk is Newport Docks, with commercial and industrial land-uses.

4.8 To the east, the wider setting is rural, with farmland, minor roads, Julian’s reens (drainage channel which discharges into the River Usk) and a Nash Welsh Water facility. The nearest settlement is the village of Nash, a little over 1 km from the proposed development site.

Topography

4.9 A topographic survey of the proposed BESS area was completed by TetraTech in December 2024, reference 784-B070326-TTE-ZZ-ZZ-DR-G-001, and indicates levels on site are relatively flat with the exception of the storage area for pulverised ash in the centre of the site and the pond in the west of the site. Levels surrounding the storage area generally sit between 8.14m Above Ordnance Datum (AOD) and 9m AOD, with slightly higher levels being seen in the east. Raised levels in the ash storage in the centre of the site sit between 12m AOD and 15m AOD.

4.10 An additional topographic survey near the access road in the east was undertaken by Azimuth Surveys Limited in 2019 (reference: SA3611-01) and indicates levels in the access road fall steadily towards the east. Levels in the west of the unnamed access road near the proposed BESS area sit at approximately 8.97m AOD and fall to approximately 8.32m AOD where the unnamed road meets West Nash Road in the east of the site.

4.11 Both topographic surveys are included in Appendix B.

5 PROPOSED DEVELOPMENT

5.1 It is proposed to install a Battery Energy Storage System which would be connected to the National Grid. Development plans are shown in Appendix C.

5.2 The proposed development would comprise the following elements:

- 40 Power Conversion System (PCS);
- 200 MC Cube ESS;
- 2 Operation and Maintenance buildings;
- HV Substation;
- Access Roads;
- HV Cable Route; and
- Security fencing, gates and CCTV cameras;

5.3 The proposed use of the site is classified as 'Highly Vulnerable' within TAN 15.

5.4 The potential to provide surface water attenuation, including the use of Sustainable Drainage Systems (SuDS), has been considered as a separate report.

6 HYDROLOGICAL SETTING

Nearby Watercourses

6.1 The nearest surface watercourse to the site is the River Usk which is present approximately 270 m north and 320m west of the site. The River Usk flows in a south-western/southerly direction until it enters the Bristol Channel approximately 2 km south of the site.

6.2 The Caldicot and Wentlooge Levels, which comprise a series of drainage channels and reens, is located to the east of the site. The reen network is shown to discharge into Julian's Reen which discharges into the River Usk via Julian's Pill approximately 500 m north east of the site. OS mapping indicates elevation within the Caldicot and Wentlooge Levels is approximately between 6 – 7 m AOD.

6.3 Other waterbodies include sludge beds and ponds approximately 660 m east of the site. Ash Pond is located approximately 230m south of the site.

6.4 The Newport Wetlands National Nature Reserve is located approximately 230m south of the site. The Nature Reserve comprises a series of ponds/lakes.

Fluvial Flood Risk Classification

6.5 The Natural Resources Wales (NRW) Flood Maps for Planning (FMfP) indicate that the site is at negligible risk of flooding from fluvial sources. The NRW Flood Map for Fluvial Flooding is included in Figure 2.

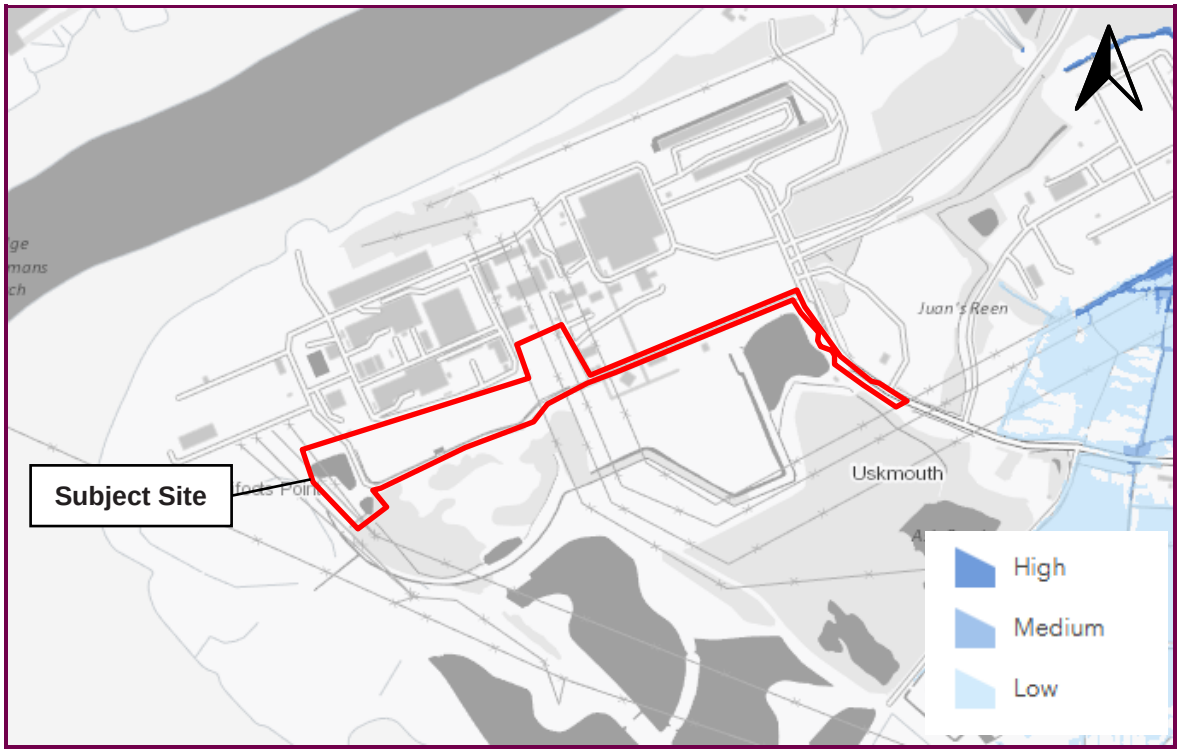

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Figure 2. NRW Flood Risk from Rivers Map

6.6 The NRW FMfP is included as Figure 3. These Flood Zone classifications are synonymous with Environment Agency Flood Zones and take account of the anticipated impacts of climate change.

6.7 The NRW's new Flood Map for Planning (for rivers) identifies that the site is classified as Flood Zone 1, whereby the annual probability of flooding is less than 1 in 1,000 year (0.1%).

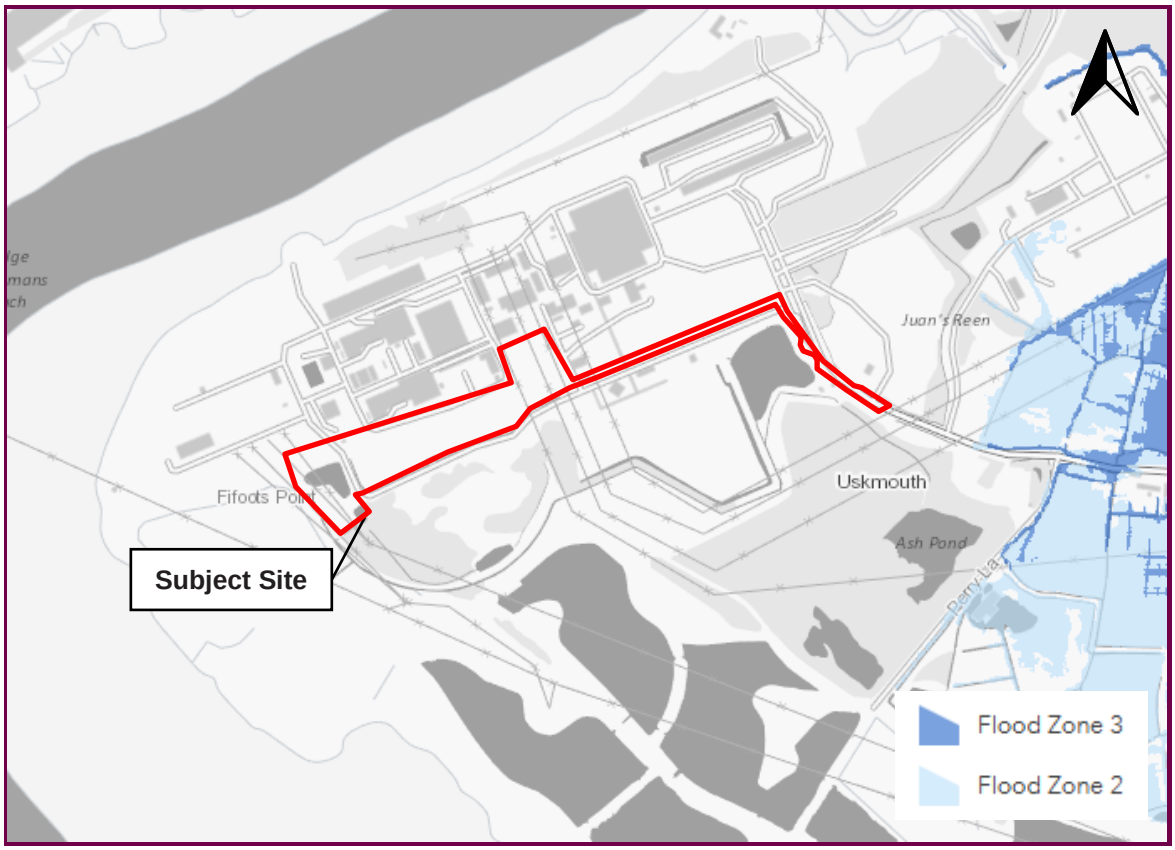

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Figure 3. NRW Flood Map for Planning (Fluvial / River Flooding)

Tidal Flood Risk Classification

6.8 The NRW Flood Risk from the Sea map is included in Figure 4 and shows that the majority of the site is at low risk of tidal flooding. This corresponds with an annual probability of flooding at is between 1 in 1000-year (0.1%) and 1 in 200-year (0.5%). The proposed access road passes through areas of 'medium' risk of tidal flooding, corresponding to a chance of flooding between 1 in 200-year (0.5%) and 1 in 30-year (3.3%).

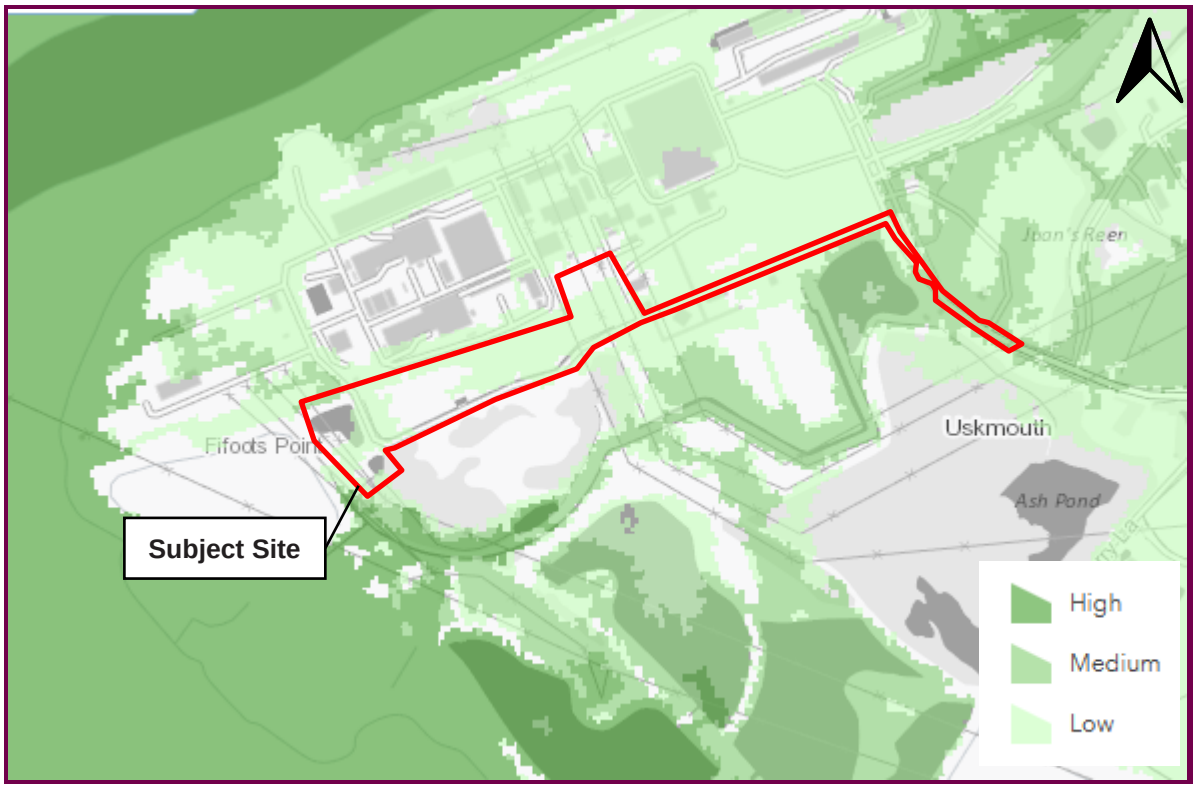


Figure 4. NRW Flood Risk from the Sea Map

6.9 The NRW Flood Map for Planning (Tidal/Sea) is included as Figure 5. These Flood Zone classifications are synonymous with Environment Agency Flood Zones and take account of the anticipated impacts of climate change.

6.10 The NRW's FMfP (for the sea) identifies that the majority of the site is classified as Flood Zone 3, whereby the annual probability of flooding is more than 1 in 200-year (0.5%). Areas of the site are also classified as FZ 2, whereby the annual chance of flooding from the sea is between 1 in 1000-year (0.1%) and 1 in 200-year (0.1%).

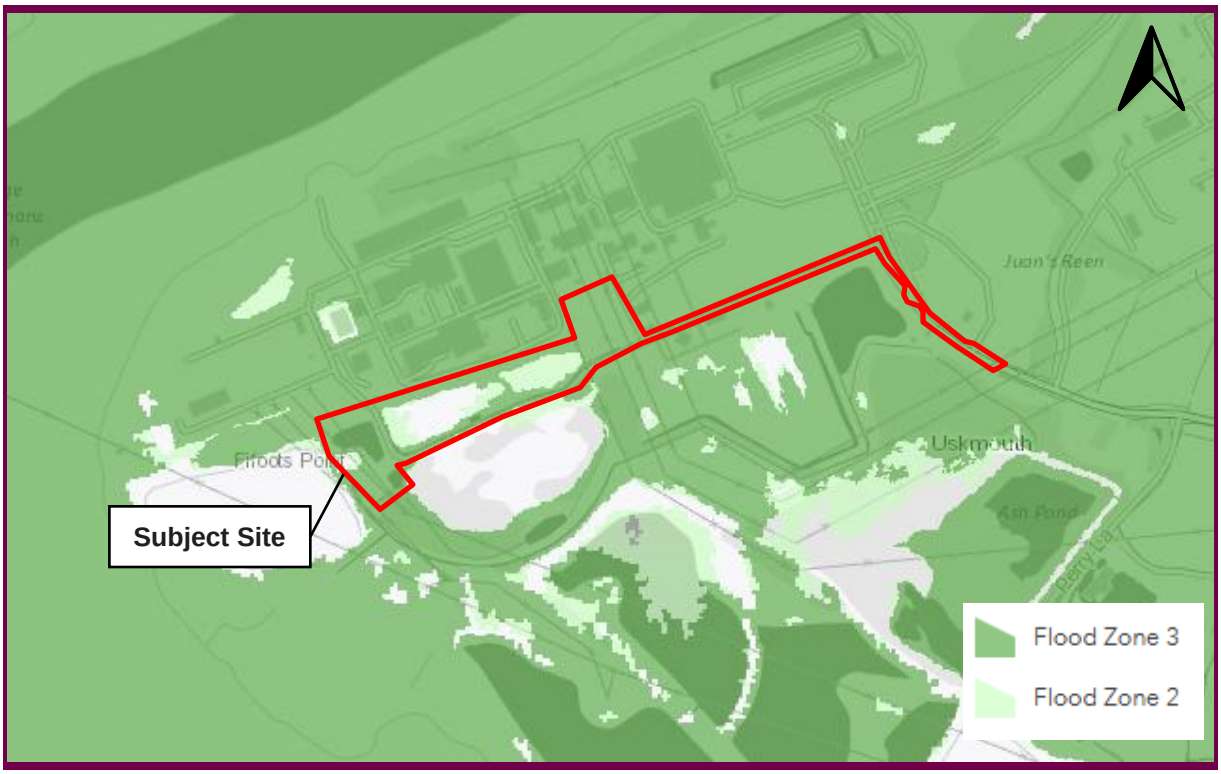


Figure 5. NRW Flood Map for Planning (Tidal / Sea Flooding)

NRW Flood Modelling

6.11 NRW has been consulted for additional information relating to the tidal flood risk to the site. They provided the Caldicot and Wentloodge (2016) model which RPS processed and produced flood level mapping. Key information of relevance to this assessment is summarised later in this section, but a formal response regarding modelled flood levels is provided in Appendix A.

- The site is not located within an area where historic flooding has been recorded.
- The coastal defences to the south, west and north of the site along the banks of the River Usk and Estuary are classified as 'high ground' and NRW confirms the current condition to be 'fair'.
- Modelled flood levels have been extracted for a series of node points within the site boundary. The model results for each scenario are presented in the following sections along with a discussion of how they have informed proposed development design and mitigation measures.

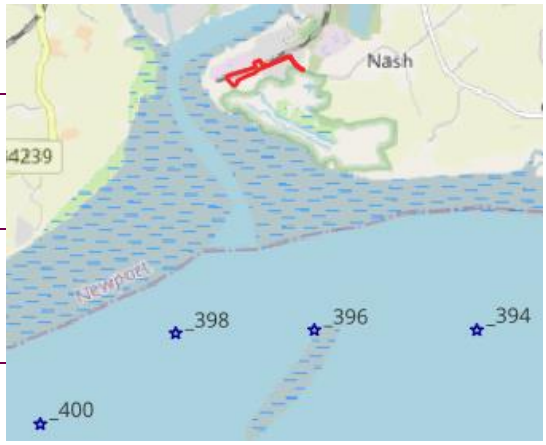
Tidal Flood Levels On Site

6.12 Tidal flooding on a site can be seen as the consequence of offshore Extreme Sea Levels (comprising underlying astronomical 'tide' and the passage of a large-scale storm 'surge') being subject to wave action and overtopping then inundating the coastal land.

6.13 Extreme Sea Levels are produced from the Coastal Flood Boundary Conditions for the UK Study. The latest study was published in 2018. The Extreme Sea Levels are available as an online dataset[3].

6.14 Table 4 below shows the 1 in 200-year and 1 in 1,000-year Extreme Sea Levels at the nearest nodes for the site.

Table 4. Extreme Sea levels near the site extracted from the 2018 Coastal Flood Boundary Conditions for the UK Study

Node Chainage	200-year Extreme Sea Level (m AOD)	1000-year Extreme Sea Level (m AOD)	Node Chainage Location Map:
394	8.41	8.76	
396	8.33	8.67	
398	8.25	8.59	
400	8.18	8.52	

6.15 An allowance must be made for the effect of future Climate Change on tidal flood risk. The way in which Climate Change should be considered within a FCA is outlined in the Welsh Government Guidance published September 2021[4]. The guidance states that an appropriate uplift should be applied to the Extreme Sea Levels. The site has a development lifetime of 75 years i.e. up to the year 2098. The Guidance provides uplift values for the year 2100 therefore this uplift value has been adopted (being 77 years from now). There are different uplift values for the higher central allowance scenario (70th percentile) and upper end allowance scenario (95th percentile). These uplifts are presented in Table 5 below.

[3] Coastal Design Sea Levels - Coastal Flood Boundary Extreme Sea Levels (2018); Published by the Environment Agency; Last updated: 22 June 2021 (available at https://www.data.gov.uk/dataset/73834283-7dc4-488a-9583-a920072d9a9d/coastal-design-sea-levels-coastal-flood-boundary-extreme-sea-levels-2018)

[4] Flood Consequences Assessments: Climate change allowances; Welsh Government; September 2021 (available at https://gov.wales/sites/default/files/publications/2021-09/climate-change-allowances-and-flood-consequence-assessments_0.pdf)

Table 5. Welsh Government Guidance Uplifts for the Year 2100 (published September 2021)

	Allowance Percentile	Mean sea level rise (metres) by 2100 (UKCP18 baseline 1981-2000)
Newport	70th	0.85
	95th	1.11

6.16 Table 6 below shows the 200 year and 1,000 year Extreme Sea Levels with the Upper End allowance scenario (95th percentile) year 2100 uplift of 1.11 m applied.

Table 6. Extreme Sea Levels Near the Site with the Upper End Allowance Scenario (95th Percentile) Year 2100 Uplift of 1.11m Applied

Node Chainage	200-year Extreme Sea Level (mAOD) for the climate change horizon year 2100 (Upper End 95th percentile scenario)	1000-year Extreme Sea Level (mAOD) for the climate change horizon year 2100 (Upper End 95th percentile scenario)
394	9.52	9.87
396	9.44	9.78
398	9.36	9.70
400	9.29	9.63

6.17 The next stage of the analysis would be to “translate” these Extreme Sea Levels into on-site flood levels by undertaking wave action and overtopping analysis and inundation assessment. As an alternative to doing this process, the opportunity to use existing hydraulic modelling data results has been investigated as described in the following sections.

6.18 The NRW has provided the 2016 Caldicot and Wentlooge Coastal Model[5]. The hydraulic modelling exercise uses a detailed approach to assess how Extreme Sea Levels manifest into tidal flood levels in-land (i.e. on the site). The modelling considers the way in which offshore waves morph into the nearshore, calculates volumes of wave overtopping, and simulates flood inundation of the land (taking into account the presence or absence of defences). In this way, the modelling can capture how offshore Extreme Sea Levels are modified by the time they reach the site.

6.19 Due to the age and purpose of the modelling, it does not contain exact equivalent scenarios to those which are required for the 2025 FCA. Since the production of the modelling (in 2016) both the Extreme Sea Levels have changed (these are derived from the Coastal Flood Boundary Conditions for the UK Study which was originally undertaken in 2011 and then updated in 2018) and the Climate Change uplift magnitudes have been subject to revision. However, there is an opportunity to use the 2016 model results as a proxy for the required 2025 FCA scenarios. A comparison of the events and scenarios in the modelling and the FCA is presented in Table 7, along with the Extreme Water Levels for each.

[5] Caldicot and Wentlooge Coastal Modelling, 2016, JBA and HT Wallingford for Natural Resources Wales.

Table 7. Extreme Water Levels Comparison Between 2016 NRW Model and 2025 FCA

	2016 Caldicot and Wentlooge Coastal Model *(values quoted have been extracted from the model reports)*	2025 Flood Consequence Assessment for BESS development
Version of the Coastal Flood Boundary Conditions for the UK Study dataset from which Extreme Water Levels are taken	2011 (note: that the modelling approach did undertake a minor revision to the EWL values)	2018
200-year Extreme Water Level at Newport (node 398)	8.61 m AOD (includes 95% confidence interval of 0.2 m)	8.25 m AOD
1000-year Extreme Water Level at Newport (node 398)	9.13 m AOD (includes 95% confidence interval of 0.4 m)	8.59 m AOD
The above rows show that the 2018 update to the Coastal Flood Boundary Conditions for the UK Study produced lower Extreme Water Levels at Newport compared to the original 2011 version of the Study		
Source of Climate Change Allowance uplift values	Latest guidance available at the time	Welsh Government Guidance published September 2021
Climate Change Horizon considered	Year 2115	Year 2100
Climate Change Confidence Level	95th percentile	95th percentile (Upper End)
Climate Change uplift value applied to the Extreme Water Level	1.06 m	1.11 m
The above rows show that the 2016 modelling applies a lower magnitude of uplift than that required for the 2025 FCA.		
200-year Extreme Water Level at Newport (node 398) with Climate Change uplift value applied	9.67 m AOD	9.36 m AOD
1000-year Extreme Water Level at Newport (node 398) with Climate Change uplift value applied	10.19 m AOD	9.70 m AOD
The above rows show that the 2016 modelling uses higher Extreme Water Levels than those required for the 2025 FCA.		

6.20 It can be seen that the 2016 modelling uses higher Extreme Water Levels than those required for the FCA assessment. As such it can be concluded that were the 2025 FCA Extreme Water Levels to be put through the model (i.e. be subjected to wave action and overtopping analysis and inundation modelling) to produce tidal flood risk data at the site, the resulting on-site flood levels would be lower than those provided within the 2016 modelling results. As such, it is appropriate to consider the provided model results in a suitable (conservative) proxy for the required data to inform the 2025 FCA.

6.21 Table 8 displays which modelled scenario results have been used as a proxy for the required 2025 FCA scenarios.

6.22

Table 8. Modelled Scenario Results Used as Proxy for the required 2025 FCA Scenarios

FCA 2025 Required Scenarios	Caldicot and Wentlooge Coastal Model (2016) Proxy Scenario
200-year present day scenario	200-year
200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level scenario	200-year Climate Change horizon year 2115 95th percentile confidence level scenario
1000-year present day scenario	1000-year
1000 year Climate Change horizon year 2100 Upper End 95th percentile confidence level scenario	1000-year Climate Change horizon year 2115 95th percentile confidence level scenario

6.23 As discussed in the section above, the model results are being used as a proxy for 2025 FCA required scenarios. The model results for each scenario are presented in the following sections along with a discussion of how they have informed proposed development design and mitigation measures.

6.24 Figure 6 displays the locations of on-site nodes that flood levels have been extracted for.

Figure 6. Site Node Locations

6.25 Table 9 and Table 10 summarise the modelled flood levels for the above nodes during the defended and undefended 1 in 200-year present day, 1 in 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level, 1 in 1000-year present day and 1 in 1000-year Climate Change horizon year 2100 Upper End 95th percentile confidence level events.

Table 9. Modelled Flood Levels (mAOD) and Flood Depths (m) for a Defended Scenario

Nodes	200-year present day defended scenario		200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level defended scenario		1000-year present day defended scenario		1000-year Climate Change horizon year 2100 Upper End 95th percentile confidence level defended scenario	
	Flood level (mAOD)	Approximate Flood Depth (m)**	Flood level (mAOD)	Approximate Flood Depth (m)**	Flood level (mAOD)	Approximate Flood Depth (m)**	Flood level (mAOD)	Approximate Flood Depth (m)**
1	null	null	9.69	1.24	null	null	10.33	1.88
2	null	null	9.59	1.45	8.28	0.14	10.26	2.12
3	null	null	9.62	1.54	null	null	10.28	1.72
4	null	null	9.59	0.76	null	null	10.26	1.43
5	null	null	9.56	1.10	8.55	0.09	10.23	1.77
6	null	null	9.58	0.9	null	null	10.24	1.56
7	null	null	9.49	1.07	8.47	0.01	10.18	1.76
8	null	null	9.25	1.01	null	null	9.95	1.71
9	null	null	8.99	0.72	null	null	9.73	1.46
10	6.89	0.24	8.61	1.96	7.28	0.63	9.69	3.04

Table 10. Modelled Flood Levels (mAOD) and Flood Depths (m) for an Undefended Scenario

Nodes	200-year present day undefended scenario		200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario		1000-year present day undefended scenario		1000-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario	
	Flood level (mAOD)	Approximate Flood Depth (m)**	Flood level (mAOD)	Approximate Flood Depth (m)**	Flood level (mAOD)	Approximate Flood Depth (m)**	Flood level (mAOD)	Approximate Flood Depth (m)**
1	null	null	9.74	1.29	null	null	10.38	1.93
2	8.29	0.15	9.74	1.60	8.77	0.63	10.41	2.27
3	null	null	9.74	1.66	null	null	10.41	2.33
4	null	null	9.74	0.91	8.67	null	10.42	1.59
5	null	null	9.74	1.28	8.67	0.21	10.43	1.97
6	null	null	9.74	1.06	null	null	10.42	1.74
7	null	null	9.75	1.33	8.75	0.33	10.44	2.02
8	8.39	0.15	9.79	1.55	8.75	0.51	10.46	2.22
9	8.39	0.12	9.81	1.54	8.75	0.48	10.48	2.21
10	8.39	1.74	9.85	3.2	8.75	2.10	10.50	3.85

"Null" = Node location can be considered outside or above the flood extent.

*** Based on topographic survey data within the vicinity of the node.*

6.26 As the risk at the site is considered tidal, the 1 in 200 year plus climate change scenario should be used to assess levels in line with TAN15 guidance. Although the site is in an area benefitting from flood defences with a 'fair' current condition, the undefended 200-year climate change scenario will be taken forward to assess levels at the site to present a conservative approach.

Velocities

6.27 The NRW Caldicot and Wentloodge (2016) model included velocity data files. RPS processed and produced flood velocity mapping using GIS. The maps are provided in Appendix A.

- For the undefended 1 in 200-year event, the proposed area for the BESS remains unaffected by flood velocities. In the eastern area of development along the proposed access, velocities of up to 1.5m/s are seen. Small areas near the pond in the west of the site see velocities between 0.3m/s and 1 m/s.
- For the undefended 1 in 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level event, the majority of the site is expected to experience flood velocities that are between 0.3 to 1.0 m/s. There are isolated areas where velocities are below 0.3 m/s in the west and between 1.0 and 1.5 m/s and 1.5 and 2 m/s in the east.
- For the undefended 1 in 1000-year event, flood velocities largely remain below 0.3 m/s in the west near the BESS development, with the centre of the site unaffected. Higher

velocities between 0.3 and 1 m/s and 1 to 1.5 m/s are seen along the access road in the east.

- For the undefended the 1 in 1,000-year Climate Change horizon year 2100 Upper End 95th percentile confidence level event, the majority of the site is expected to experience flood velocities that are between 0.3 to 1.0 m/s with isolated areas where velocities are between 1.0 and 1.5 m/s. Areas within the access road in the east and the pond in the west may experience velocities beyond 2.5 m/s.

Inundation Modelling

6.28 The NRW Caldicot and Wentloodge (2016) model included inundation raw data files for defended climate change scenarios only. RPS processed and produced flood inundation mapping using GIS and TUFLOW.

6.29 Inundation mapping shows that for the 1 in 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level event, water creeps out of the bank at the River Usk and Julians Pill at around the four-hour timestamp. At four and a half hours, water is not present within the site boundary. By five hours, the majority of the site is expected to be inundated with minor isolated areas within the centre and west near the pond remaining unaffected. Between six and six and half hours since inundation, water is expected to begin leaving the site.

6.30 For the 1 in 1000-year Climate Change horizon year 2100 Upper End 95th percentile confidence level event, at the three and a half hour timestamp, water creeps out of the bank of the River Usk and Julian's Pill. Water is anticipated to encroach the site boundary in the east and west for five hours. By five and a half hours, the majority of the site is expected to be fully inundated and water begins to leave the site at six and half hours.

Surface Water Flood Risk Classification

6.31 NRW online surface water flood mapping provides surface water flood extents for the 1 in 30, 1 in 100 and 1 in 1,000-year return periods.

6.32 The NRWs surface water flood mapping indicates that the site predominantly has a negligible risk of surface water flooding. There are small, isolated areas of 'low' risk that exist in the northwest of the site, corresponding to a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%). A small, isolated area of high risk is seen near the centre of the site, corresponding to a chance of flooding greater than 1 in 30 (3.3%).

6.33 The NRW Flood Risk from Surface Water Map is provided in Figure 7.

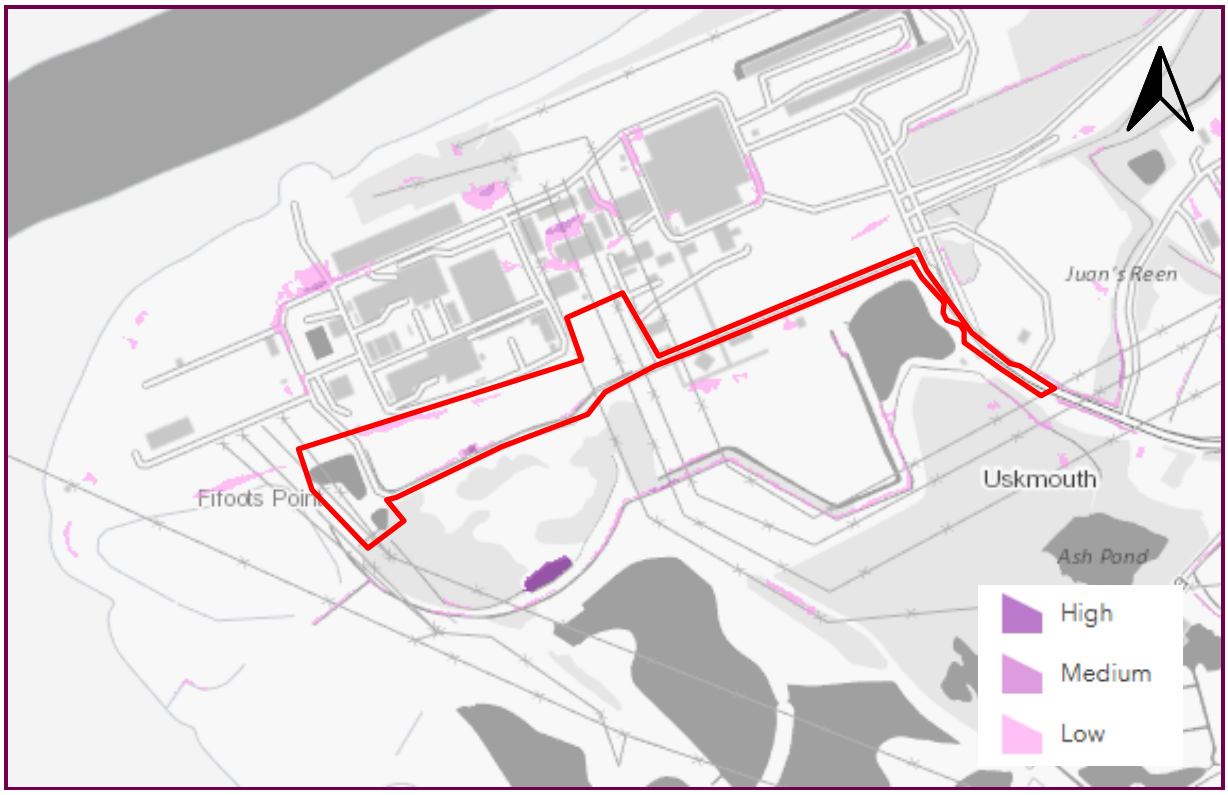


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Figure 7. NRW Surface Water Flood Risk Map

6.34 RPS notes that this surface water modelling has several limitations, most significantly that it does not accurately represent the drainage capacity in urban areas.

6.35 The NRW's Flood Map for Planning includes Flood Zones for surface water and small watercourses with consideration for climate change and how it will affect flood risk extents over the next century and is provided in Figure 8.

6.36 The NRW's Flood Map identifies that the majority site is classified as Flood Zone 1, whereby the annual probability of flooding is less than 1 in 1,000-year (0.1%). Small areas within the western extent of the site are located within Flood Zone 2 (annual probability of flooding that is between 1 in 1,000-year and 1 in 100-year (1%)) and Flood Zone 3 (annual probability of flooding that is more than 1 in 30-year (3.3%).

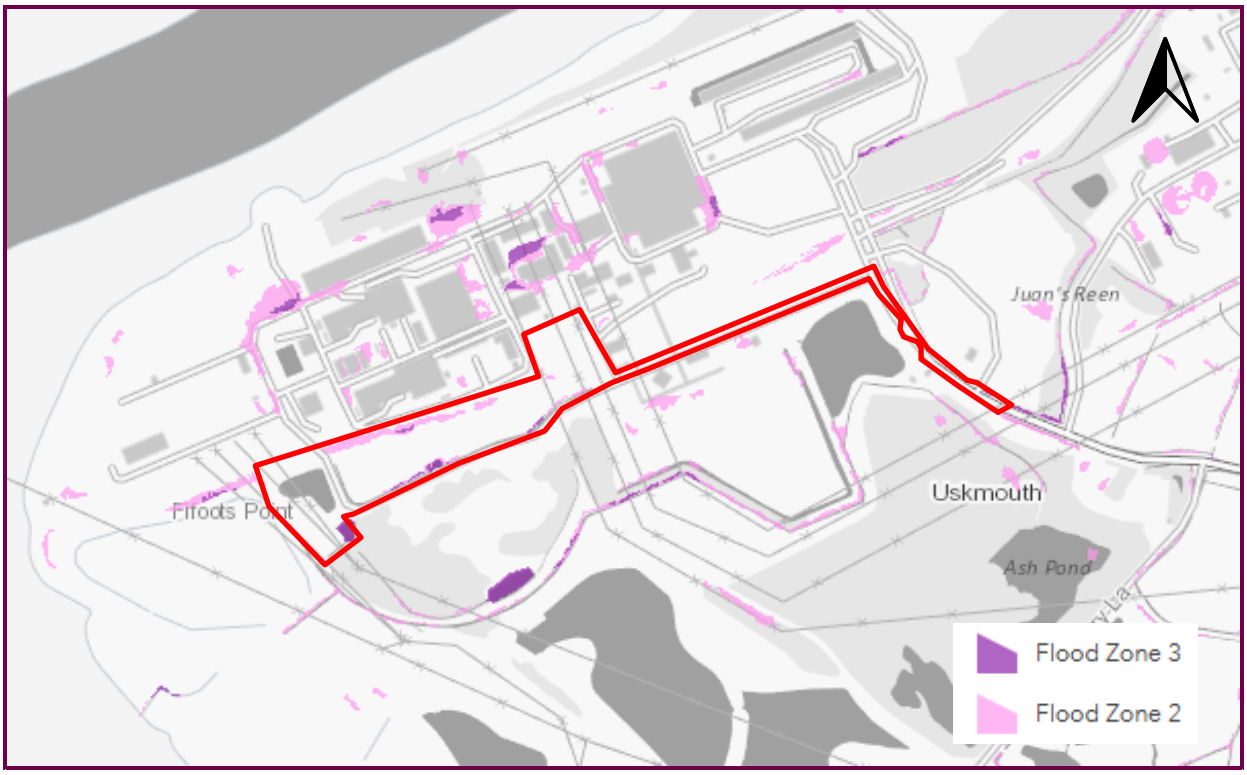

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Figure 8. NRW Flood Map for Planning (Pluvial / Surface Water Flooding)

Reservoir Flood Risk Classification

6.37 NRW mapping also indicates that the site is not located within an area potentially at risk from reservoir flooding.

Flood Warning and Flood Alert Areas

6.38 The site is in the Flood Warning Area for Usk Estuary at Uskmouth and Old Town Docks, and the Flood Alert Area for the Usk Estuary.

Local Authority Flood Risk Documents

6.39 The Newport City Council PFRA was published in April 2011 with an addendum in 2017 confirming no significant flood events or new information regarding future climate change has occurred since the first publication. It provides an overview of flood risk from various sources within the borough. Information relevant to this assessment is summarised below:

- There are no historic flood incidences from surface water or sewers recorded at the site;
- On a strategic scale in Newport, groundwater is not considered to be a significant flood risk and is considered to rise and fall relatively slowly. In addition, the local geology is not considered to yield significant volumes of groundwater;
- Newport City Council own and maintains two reservoirs within their authority boundary, however, there are no records of flooding from these water bodies.

6.40 The River Usk Strategy was produced in July 2009. It highlights the 'current' situation with the River, taking into account historical information and studies, and identifies key recommendations for issues influencing the River's future. These include a mixture of management issues as well as land use planning issues. Information relevant to this assessment is summarised below:

- Within the vicinity of Uskmouth Power Station the information available suggests that existing land levels provide sufficient protection against sea flooding.

7 HYDROGEOLOGICAL SETTING

7.1 British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is situated on Tidal Flat Deposits comprising clay and silt. This is underlain by Mercia Mudstone Group comprising mudstone.

7.2 BGS borehole data (BGS Reference: ST38SW40) approximately 300 m west of the site suggests that groundwater was struck at around 15.45 m below ground level (bgl).

7.3 The soils are described as ‘loamy and clayey soils of coastal flats with naturally high groundwater’ by the National Soils Research Institute.

7.4 According to the BGS GeoIndex Aquifer Designation Mapping, the Tidal Flat Deposits at the surface are classified as Unproductive Strata. These formations have a low permeability and have negligible significance for water supply or base flow. The bedrock deposits are classified as a Secondary B Aquifer. These formations are generally formed of lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

7.5 NRW online groundwater Source Protection Zone (SPZ) mapping indicates that the site is not located within a groundwater SPZ.

7.6 NRW online groundwater vulnerability mapping shows that the site can be considered to have both ‘Low’ and ‘Medium to Low’ vulnerability.

8 FLOOD RISK AND MITIGATION

8.1 The key sources of flooding that could potentially impact the site are discussed below:

Fluvial Flooding

8.2 Although the River Usk is approximately 270 m from the site, NRW Flood Maps indicate that the site is at negligible risk of flooding from fluvial sources.

Tidal Flooding

8.3 Tidal flooding appears to be the most dominant flood risk source to this site, and this is discussed further below.

8.4 The NRW Flood Risk from the Sea map shows that the majority of the site is at 'low' risk of tidal flooding. In addition, there is land in the south which is identified to have 'medium' risk and isolated portions in the centre of the site that can be considered to have negligible risk of coastal flooding.

8.5 No historical flood records are held at the site.

8.6 As the site is in the presence of defences in 'fair' condition, the undefended scenario flood levels and these figures have been used to inform development design and mitigation measures as a worst-case scenario.

8.7 As outlined in Section 6, the Caldicot and Wentlooge Coastal Modelling (2016) results are being used as a (conservative) proxy for the required 2022 FCA scenarios.

200-year present day undefended scenario

- Central part (main BESS development area) of the site: shown on the model results from flood extent maps are dry.
- Western part (near the existing pond) of the site: flood encroaches the boundary. Flood Level: 8.29m AOD producing a flood depth of 0.15m.
- Eastern part (Unnamed existing access road): flood level of 8.39m AOD producing a flood depth of 0.15m.
- West Nash Road: Flood Level: flood level of 8.39m AOD producing a flood depth of 1.74m.

200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario

- Central part (main BESS development area) of the site: flood Level 9.74m AOD producing a flood depth of 1.28m.
- Western part (near existing pond) of the site: flood Level of 9.74m AOD producing a flood depth of 1.60m.
- Eastern part (Unnamed existing access road): flood level of 9.79m AOD producing a flood depth of 1.55m.
- West Nash Road: Flood Level: flood level of 9.85m AOD producing a flood depth of 3.20m.

1000-year present day undefended scenario

- Central part (main BESS development area) of the site: flood level 8.67m AOD producing a flood depth of 0.21m.

- Western part (near existing pond) of the site: flood level 8.75m AOD producing a flood depth of 2.10m.
- Eastern part (Unnamed existing access road): flood level 8.75m AOD producing a flood depth of 0.51m.
- West Nash Road: flood level 9.85m AOD producing a flood depth of 3.20m.

1000-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario

- Central part (main BESS development area) of the site: flood Level 10.43m AOD producing a flood depth of 1.97m.
- Western part (near the existing pond) of the site: flood Level 10.41m AOD producing a flood depth of 2.27m.
- Eastern part (Unnamed existing access road): flood level 10.46m AOD producing a flood depth of 2.22m.
- West Nash Road: Flood Level: flood level 10.50m AOD producing a flood depth of 3.85m.

8.8 As the risk at the site is considered tidal, the 1 in 200 year plus climate change scenario should be used to assess levels in line with TAN15 guidance. Although the site is in an area benefitting from flood defences in 'fair' condition, the undefended 200-year climate change scenario will be taken forward to assess levels and inform mitigation at the site to provide conservative estimates of flood levels.

8.9 Proposed measures detailed below explain how the development will incorporate flood resilience and resistance mitigation measures to reduce the flood risk to the proposed development within the site.

Proposed mitigation

8.10 Flood resilience measures will be incorporated into the design to reduce the risk of tidal flooding.

8.11 At risk assets are to be raised to the 1 in 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario flood level.

8.12 Nodes 3, 4, 5 and 6 are within the area the BESS and associated infrastructure as such, the at risk assets will need to be raised to a minimum of 9.75m AOD to create a flat and level plateau for the BESS and substation to be situated on.

8.13 The proposed resilience/resistance level (9.75m AOD) is above the 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario and therefore meets the requirements of TAN15.

8.14 The final design will be developed cognisant of the Electrical Networks Association ETR138: Resilience to Flooding of Grid and Primary Substations.

8.15 Flood compensation would not be necessary, due to the proximity of the Bristol Channel to the site and the fact that the flooding is caused by tidal sources.

8.16 It is recommended that a Flood Management Plan is produced for site management and operational staff, with instructions on appropriate measures to take in the instance of a flood. This will ensure the safeguarding of personnel in the event of a potential inundation. This will be produced in association with the detailed drainage design.

Flooding from Sewers

8.17 Sewer flooding can occur during periods of heavy rainfall when a sewer becomes blocked or is of inadequate capacity.

8.18 There are no historic flood incidences from sewers recorded at the site.

8.19 The risk from sewer flooding can be considered low.

Surface Water Flooding (Overland Flow)

8.20 This can occur during intense rainfall events when water cannot soak into the ground or enter drainage systems.

8.21 The NRWs surface water flood mapping indicates that the site predominantly has a negligible risk of surface water flooding. There are small, isolated areas of 'low' risk that exist in the northwest of the site, corresponding to a chance of flooding between 1 in 1000-year (0.1%) and 1 in 100-year (1%). A small, isolated area of high risk is seen near the centre of the site, corresponding to a chance of flooding greater than 1 in 30-year (3.3%).

8.22 A conceptual surface water strategy to manage surface water discharge from the site has been prepared separately to this report.

8.23 Therefore, the risk of surface water flooding can be considered low.

Groundwater Flooding

8.24 This can occur in low-lying areas when groundwater levels rise above surface levels, or within underground structures.

8.25 BGS mapping indicates the site is underlain by superficial Tidal Flat Deposits which are described as comprising Clay and Silt. The site is shown to be further underlain by bedrock deposits from the Mercia Mudstone Group which is described as comprising Mudstone.

8.26 The Newport City Council Preliminary Flood Risk Assessment suggests that groundwater is not considered to be a significant risk and is considered to rise and fall relatively slowly. In addition, the PFRA notes the local geology is not considered to yield significant volumes of groundwater.

8.27 Based on the above the risk associated with groundwater flooding is assessed as low.

Other Sources

8.28 There is a limited risk of flooding occurring as a result of a break in a water main.

8.29 The risk of flooding associated with reservoirs, canals and other artificial structures is considered to be low given the absence of any such structures in the site vicinity.

Event Exceedance

8.30 The mitigation measures proposed as part of the development scheme are considered appropriate to help mitigate against event exceedance scenarios.

9 FLOOD RISK VULNERABILITY CLASSIFICATION

Vulnerability Classification

9.1 In accordance with TAN 15 (2025), the proposed development is classified as a 'Highly Vulnerable' development in flood risk terms.

9.2 The required design standard for new development is to be flood free during the 1% river flood (i.e. a flood with a 1 in 100 chance of occurring in any year) and the 0.5% flood from the sea (i.e. a flood with a 1 in 200 chance of occurring in any year), plus an allowance for climate change over the lifetime of development.

Table 11. Flood events in which a development must remain flood free

Vulnerability Classification		Flood Event Type	
		Rivers	**Sea**
Highly Vulnerable	Emergency Services	0.1% +CC	0.1% +CC
	All other types	1% +CC	0.5% +CC
Less Vulnerable Development **Water Compatible Development that may be occupied by people**		1% +CC	0.5% +CC

Key: **0.1% = 1 in 1000, 1%= 1 in 100, 0.5%= 1 in 200**

9.3 As the site is classed as 'Highly Vulnerable' (all other types) and is shown on the Flood Map for Planning to be at risk of Tidal flooding, the development will need to remain flood free during the 0.5% +CC event.

9.4 Nodes 3, 4, 5 and 6 are within the area the BESS and associated infrastructure as such, the at risk assets will need to be raised to a minimum of 9.75m AOD to create a flat and level plateau for the BESS and substation to be situated on.

9.5 The proposed resilience/resistance level (9.75m AOD) is above the 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario and therefore meets the requirements of TAN15.

10 SUMMARY AND CONCLUSIONS

10.1 The aim of the FCA is to outline the potential for the site to be impacted by flooding, the potential impacts of the development on flooding both onsite and in the vicinity, and the proposed measures which can be incorporated into the development to mitigate the identified risks and any consequences. The report has been produced in accordance with the guidance detailed in the emerging TAN15. Reference has also been made to the CIRIA SuDS manual (C753) and following consultation with NRW.

10.2 The potential flood risks to the site, and the measures proposed to mitigate the identified risks, are summarised in Table 12.

Table 12. Proposed mitigation

Source of Flooding	Identified Risk			Mitigation Proposed	Residual Risk		
	L	M	H		L	M	H
Fluvial	✓			Not considered to be at significant risk	✓		
Tidal		✓		Site regarding, raising and levelling to elevate land. Containers to be raised on blocks. Achieve a total resilience design level of 9.75m AOD. Flood Management Plan for Operational Site Users	✓		
Sewers	✓			Not considered to be at significant risk	✓		
Surface Water	✓				✓		
Groundwater	✓				✓		
Other Sources (e.g. reservoirs, water mains)	✓				✓		

10.3 The site is located in Tidal Flood Zones 2 and 3 and is shown to be defended by coastal flood defences. The proposed area for the BESS and associated infrastructure remains free from flooding during the present day undefended and defended 1 in 200 year event. The majority of the site is at risk during the 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended and defended scenarios.

10.4 The site is proposed to be regraded, levelled and raised so it would be appropriate to achieve a total resilience design level of 9.75 m AOD. This ensures that the development will be raised above the flood level associated with the 200-year Climate Change horizon year 2100 Upper End 95th percentile confidence level undefended scenario. No other significant risks were identified.

10.5 NRW flood mapping shows currently the majority of the site is at no risk of surface water flooding with the exception of small areas near the existing pond.

10.6 It has been demonstrated that the development meets the Justification Test imposed under TAN15.

10.7 Overall, it has been demonstrated that the development would be safe, without increasing flood risk elsewhere, and that a positive reduction in flood risk would be achieved through the proposed drainage system.

APPENDICES

Appendix A

NRW Detailed Flood Data

Owen Jones
Swyddog Trwyddedu Data / Data Licensing Officer
Cyswllt Cyfoeth / Customer Hub
Cwsmeriaid, Cyfathrebu a Masnach / Customer, Communications and Commercial Directorate

Cymraeg

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi.
Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.

From: Data Distribution
Sent: Monday, January 6, 2025 3:55 PM
To: Evans, Caitlin <Caitlin.Evans@rps.tetratech.com>
Subject: RE: Flood Data Request: land at West Nash Road, Nash, Newport, NP18 2BZ

Dear Ms Evans,

Thank you for your email. Please see recorded flood history at this link - Recorded Flood Extents | DataMapWales

We will be in touch concerning the remaining elements of your request, in due course.

To: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>
Subject: RE: ATI-27924a -: Flood Data Request: land at West Nash Road, Nash, Newport, NP18 2BZ

Rhybudd: Deilliodd yr e-bost hwn o'r tu allan i'r sefydliad. Peidiwch â chlicio dolenni, atodiadau agored nac sganio codau QR oni bai eich bod yn cydnabod yr anfonwr ac yn gwybod bod y cynnwys yn ddiogel.

Caution: This email originated from outside of the organisation. Do not click links, open attachments or scan QR Codes unless you recognise the sender and know the content is safe.

Hi Owen,

It is just the Model Reports and Outputs for the Caldicot and Wentlooge Model we require please.

Many thanks,
Caitlin

Evans, Caitlin
Graduate Consultant-Hydrology
RPS | Consulting UK & Ireland
T +44 20 3691 0500
E caitlin.evans@rps.tetratech.com

From: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>
Sent: Thursday, January 9, 2025 3:00 PM
To: Evans, Caitlin <Caitlin.Evans@rps.tetratech.com>
Subject: ATI-27924a -: Flood Data Request: land at West Nash Road, Nash, Newport, NP18 2BZ

⚠ **CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments. ⚠

Good afternoon,

Thank you for your data request.

The Model Reports and Outputs (Product 5 & 6) as well as the Model Build (Product 7) are available for the Caldicot and Wentlooge model. Further information on these Products, and the software needed, are included in the attached document.

The Model Reports and Outputs are free.

For a Model Build, the request is subject to a charge of £150.00 + VAT @ 20%
(VAT registration number: GB 145 1537 25)
Total charge = £180.00

Your file will be kept open for 60 working days; if we do not receive the fee or any further communications within this period we will assume that you have decided that the information is no longer required.

In order to make this payment by credit / debit card please contact me on 0300 065 3000 and ask for myself. Please note that for security reasons the cardholder will need to be present to authorise the transaction. Alternatively, if you intend making the payment via BACS please let us know by either copying us into your email or dropping us an email including the above reference number, the product you have ordered and the amount paid.

Kind Regards

From: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>
Sent: Friday, January 10, 2025 1:40 PM
To: Evans, Caitlin <Caitlin.Evans@rps.tetratech.com>
Subject: RE: ATI-27924a -: Flood Data Request: land at West Nash Road, Nash, Newport, NP18 2BZ

⚠ **CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments. ⚠

Good afternoon Caitlin,

Thanks for confirming the request for the Model Reports and Outputs.

Please see attached the DRAFT Licence and Section 3 document. Please see the details below,

Please note that as all flood model reports, (Product 5); contain flood flow estimates data, there is a licensing requirement to cover the re-use. Therefore, please find attached a draft licence for this. Once happy, please sign the Section 3 Agreement, by means of a scanned signature, and return to me, I can then finalise your licence, and send the report to you.

Kind Regards

Owen Jones
Swyddog Trwyddedu Data / Data Licensing Officer
Cyswllt Cyfoeth / Customer Hub
Cwsmeriaid, Cyfathrebu a Masnach / Customer, Communications and Commercial Directorate

Cymraeg

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi.
Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.

From: Evans, Caitlin <Caitlin.Evans@rps.tetratech.com>
Sent: Thursday, January 9, 2025 3:05 PM

Owen Jones
Swyddog Trwyddedu Data / Data Licensing Officer
Cyswllt Cyfoeth / Customer Hub
Cwsmeriaid, Cyfathrebu a Masnach / Customer, Communications and Commercial Directorate

Croesewir gohebiaeth yn Gymraeg a byddwn yn ymateb yn Gymraeg, heb i hynny arwain at oedi.
Correspondence in Welsh is welcomed, and we will respond in Welsh without it leading to a delay.

From: Evans, Caitlin <Caitlin.Evans@rps.tetratech.com>
Sent: Friday, January 10, 2025 1:51 PM
To: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>
Subject: RE: ATI-27924a -: Flood Data Request: land at West Nash Road, Nash, Newport, NP18 2BZ

Rhybudd: Deilliodd yr e-bost hwn o'r tu allan i'r sefydliad. Peidiwch â chlicio dolenni, atodiadau agored nac sganio codau QR oni bai eich bod yn cydnabod yr anfonwr ac yn gwybod bod y cynnwys yn ddiogel.

Caution: This email originated from outside of the organisation. Do not click links, open attachments or scan QR Codes unless you recognise the sender and know the content is safe.

Hi Owen,

Please see signed Section 3 Agreement attached.

Many thanks,
Caitlin

Evans, Caitlin
Graduate Consultant-Hydrology
RPS | Consulting UK & Ireland
T +44 20 3691 0500
E caitlin.evans@rps.tetratech.com

Evans, Caitlin

From: Data Distribution <datadistribution@cyfoethnaturiolcymru.gov.uk>
Sent: 13 January 2025 12:43
To: Evans, Caitlin
Subject: RE: ATI-27924a -: Flood Data Request: land at West Nash Road, Nash, Newport, NP18 2BZ
Attachments: ATI-27924a_Flood Flows Estimate Licence.pdf

⚠ **CAUTION:** This email originated from an external sender. Verify the source before opening links or attachments.
⚠

Good afternoon Caitlin,

Thanks for returning the signed Section 3 Document.

Please see attached the finalised licence and links to access the Model Reports and Outputs (Product 5 & 6) below,

Product 5,

https://naturalresourceswales.sharefile.eu/d-sf4e4d5b2284d4cbcb50d9f05b0c0d689

Product 6,

https://naturalresourceswales.sharefile.eu/d-sd090335bf4bf4bfcb3729afbf01f4c11

Please note that the model was built for specific NRW requirements and might not meet your needs. In addition, since the time of modelling, there may have been changes that can impact the suitability of the model which means the model might no longer comply with present day standards. For example, there may have been changes to:

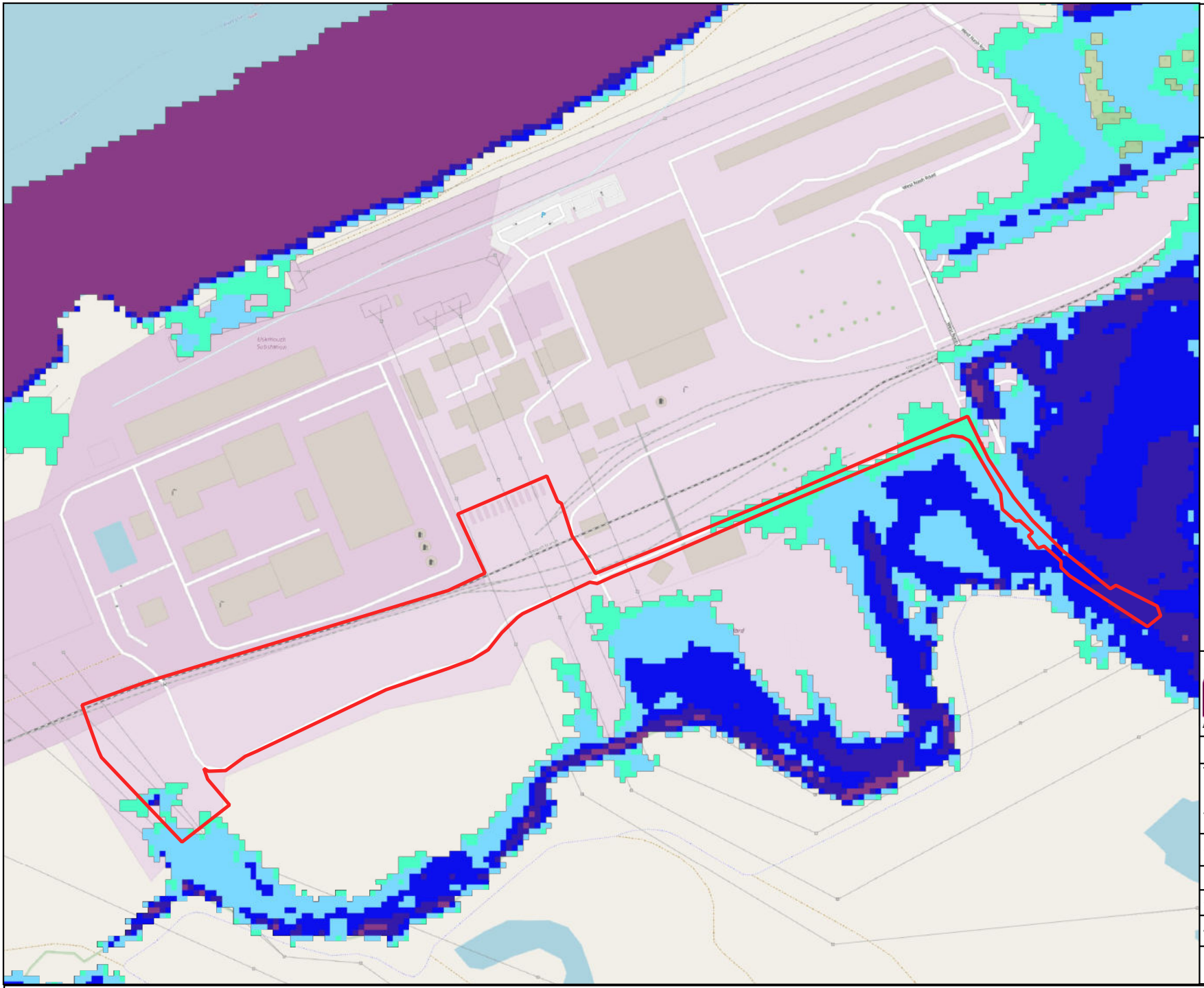
- The methodology for calculating hydrological flows,
- Hydraulic modelling software (e.g. improvements in the way that in channel structures such as bridges and weirs are represented in the hydraulic model),
- Tidal boundary,
- LIDAR,
- OS MasterMap®,
- Changes to the channel or within the floodplain,
- Climate change allowances.

This is not an exhaustive list, and it is the responsibility of the user to ensure the model is suitable for their use.

The flood model report (Product 5) for re-use with the attached licence and for the raw flood product data (Product 6), please re-use with the licence below:

Please find a link to our Open Government Licence (OGL) here - http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/
Please also include the attribution statement: “Contains Natural Resources Wales information © Natural Resources Wales and database right. All rights reserved.”

Kind Regards



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Site Boundary

Food Depth (m)

- <0.25
- 0.25 to 1.00
- 1.00 to 1.50
- 1.50 to 2.00
- > 2.50

(results taken from the 2016 NRW model 200 year event)

rps
A TETRA TECH COMPANY
20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Undefended) 1 in 200 year event

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569 | Size: A4

Job Ref: HYD-21837 | Rev: 01

Drawn	Checked	Approved
CE	TJ	TJ

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0 25 50 75 m

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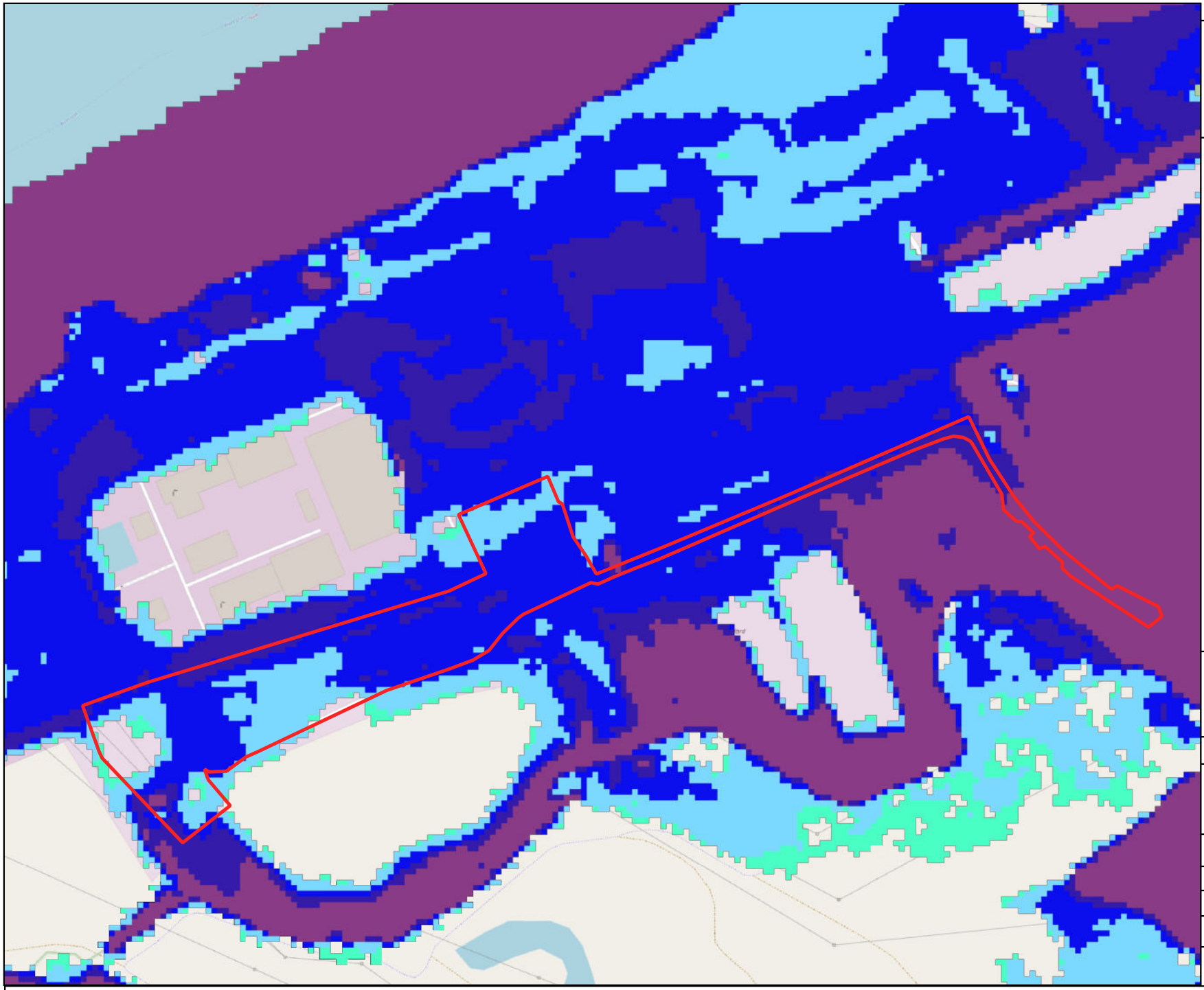

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(results from the 2016 NRW model 200-year Climate Change horizon year 2115 95th percentile confidence level scenario)

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A TETRA TECH COMPANY
20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Undefended) 1 in 200 year Climate Change horizon year 2100 Upper End 95th percentile confidence level scenario

Site: AW2 Uskmouth

Date: 04-02-2025

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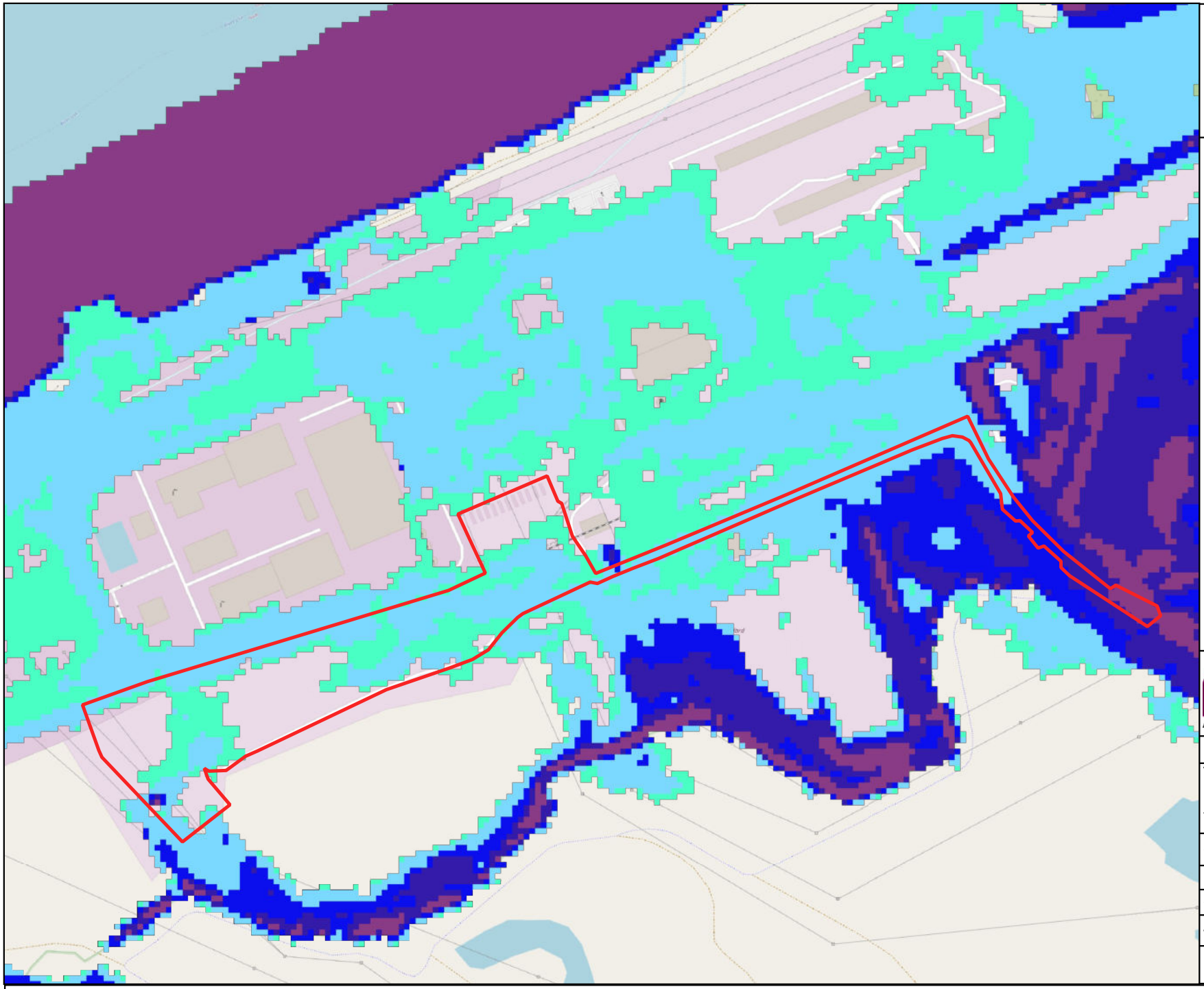

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(results taken from the 2016 NRW model 1000 year event)

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20 Farringdon Street
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E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Undefended) 1 in 1000 year event

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569 | Size: A4

Job Ref: HYD-21837 | Rev: 01

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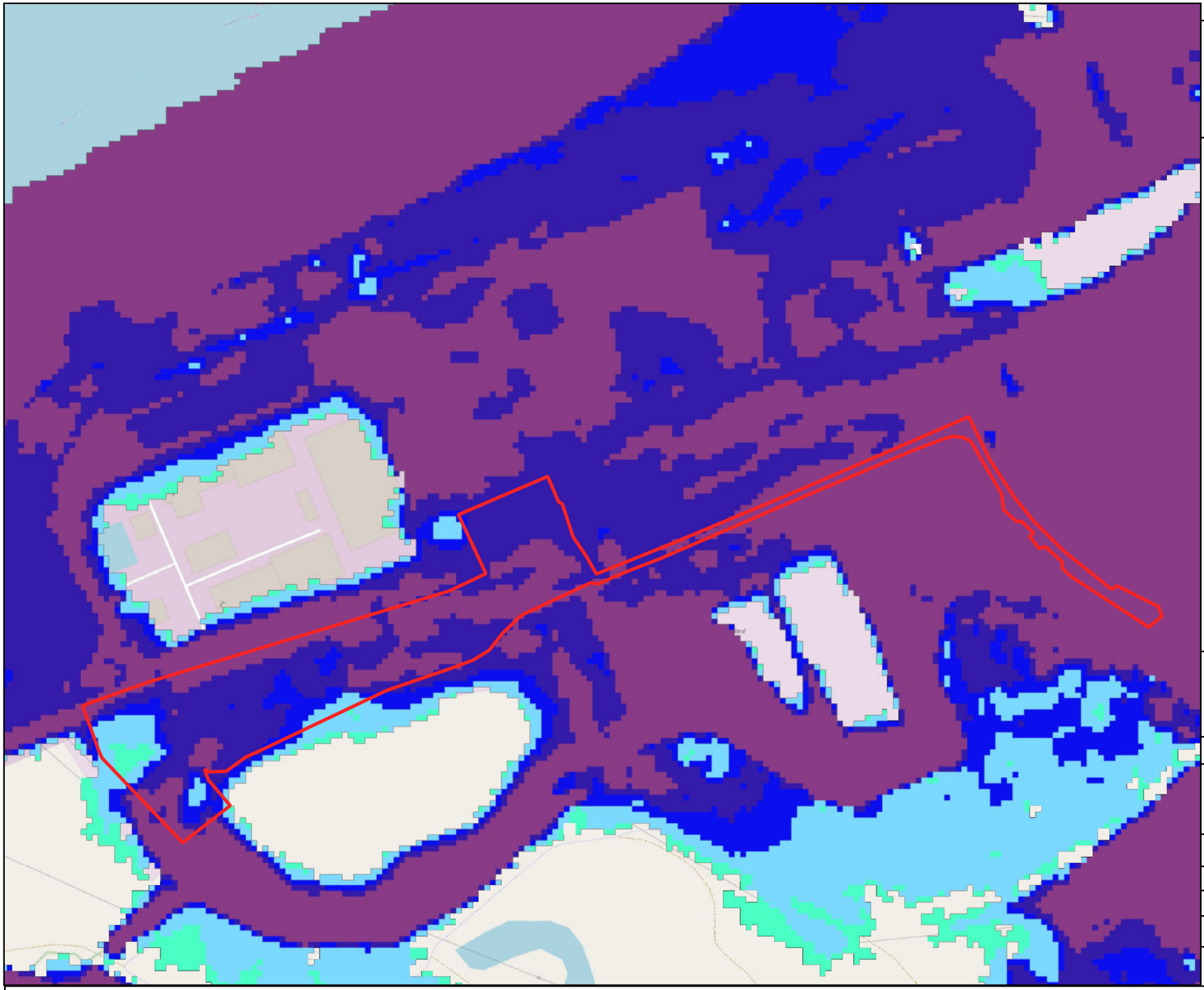

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(results from the 2016 NRW model 1000-year Climate Change horizon year 2115 95th percentile confidence level scenario)

rps
A TETRA TECH COMPANY
20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Undefended)1000 year Climate Change horizonyear 2100 Upper End 95th percentile confidence level scenario

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569	Size: A4
Job Ref: HYD-21837	Rev: 01

Drawn	Checked	Approved
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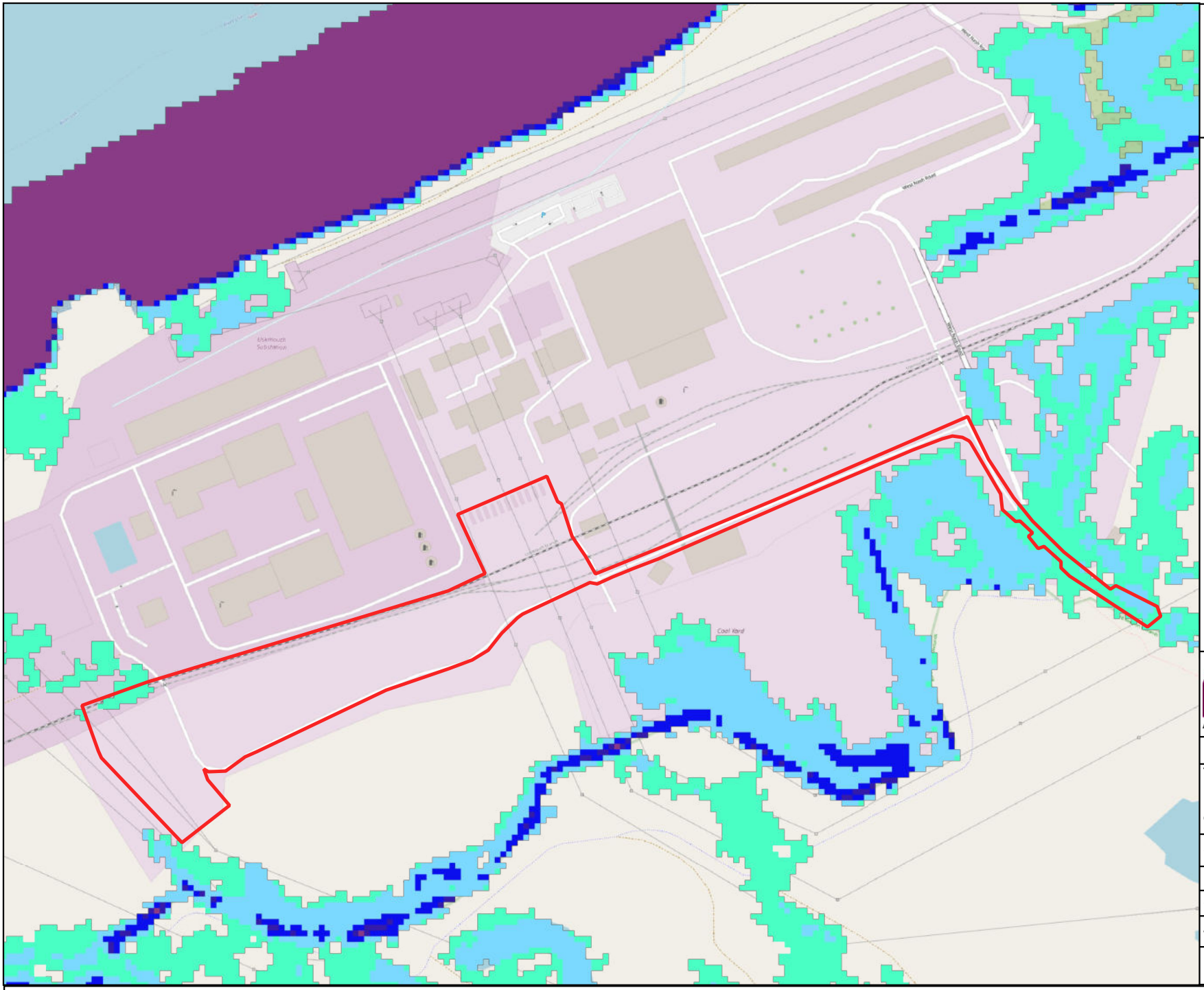

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- 1.50 to 2.00
- > 2.50

(results taken from the 2016 NRW model 200 year event)

20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Defended) 1 in 200 year event

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569 | Size: A4

Job Ref: HYD-21837 | Rev: 01

Drawn	Checked	Approved
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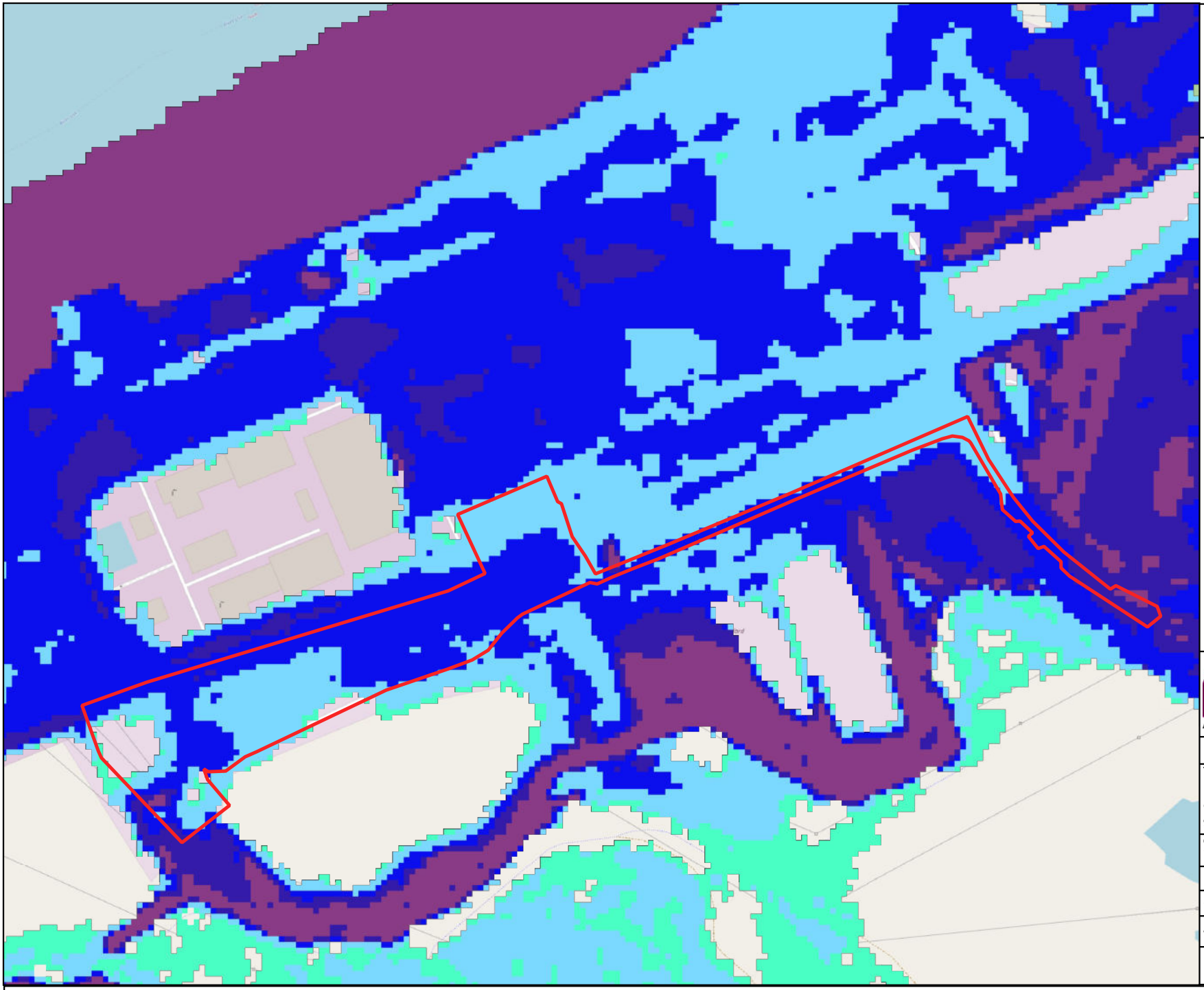

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(results from the 2016 NRW model 200-year Climate Change horizon year 2115 95th percentile confidence level scenario)

20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Defended) 1 in 200 year Climate Change horizon year 2100 Upper End 95th percentile confidence level scenario

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569 | Size: A4

Job Ref: HYD-21837 | Rev: 01

Drawn	Checked	Approved
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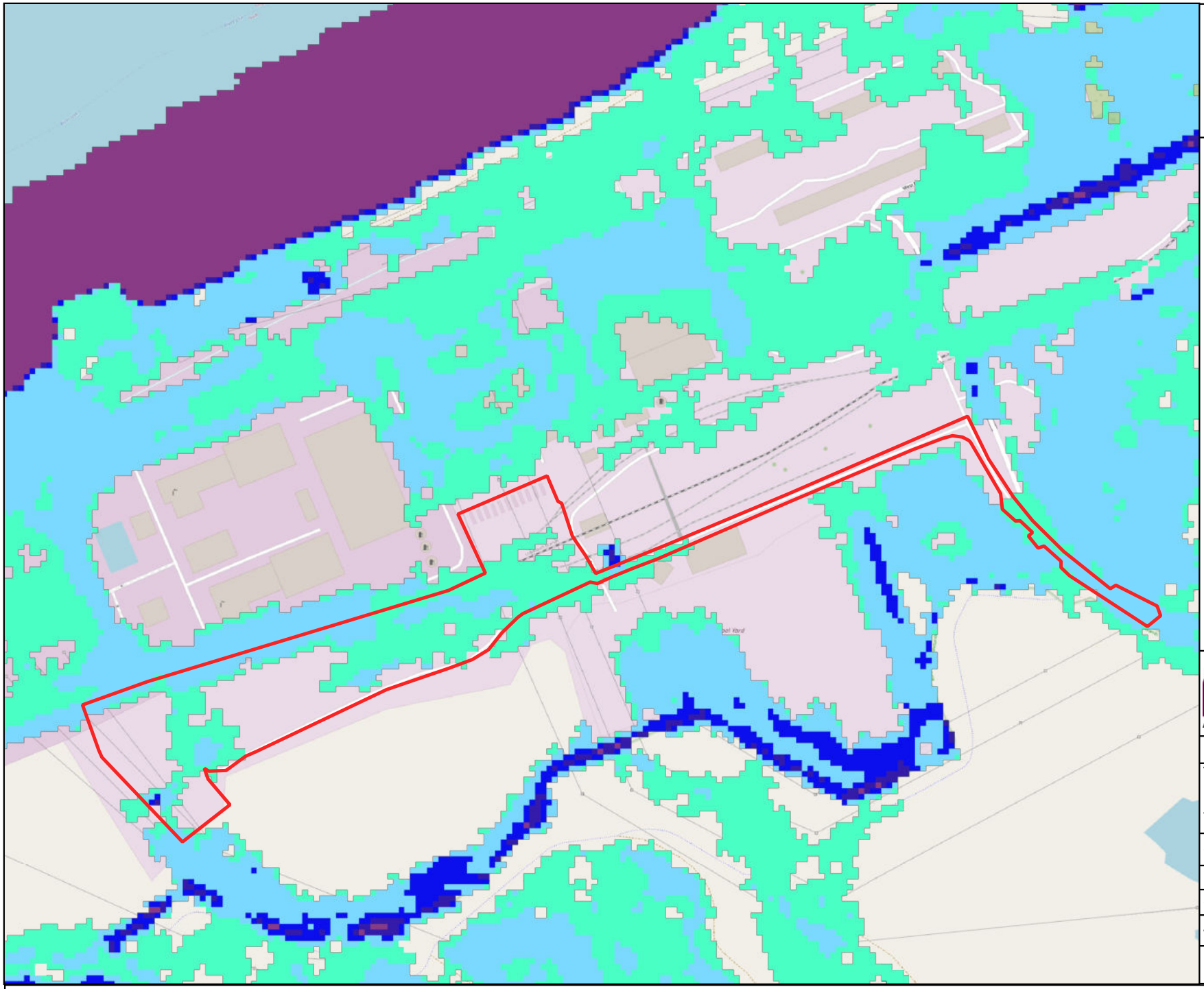

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Site Boundary

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- 1.50 to 2.00
- > 2.50

(results taken from the 2016 NRW model 1000 year event)

rps
A TETRA TECH COMPANY
20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Defefended) 1 in 1000 year event

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569 | Size: A4

Job Ref: HYD-21837 | Rev: 01

Drawn	Checked	Approved
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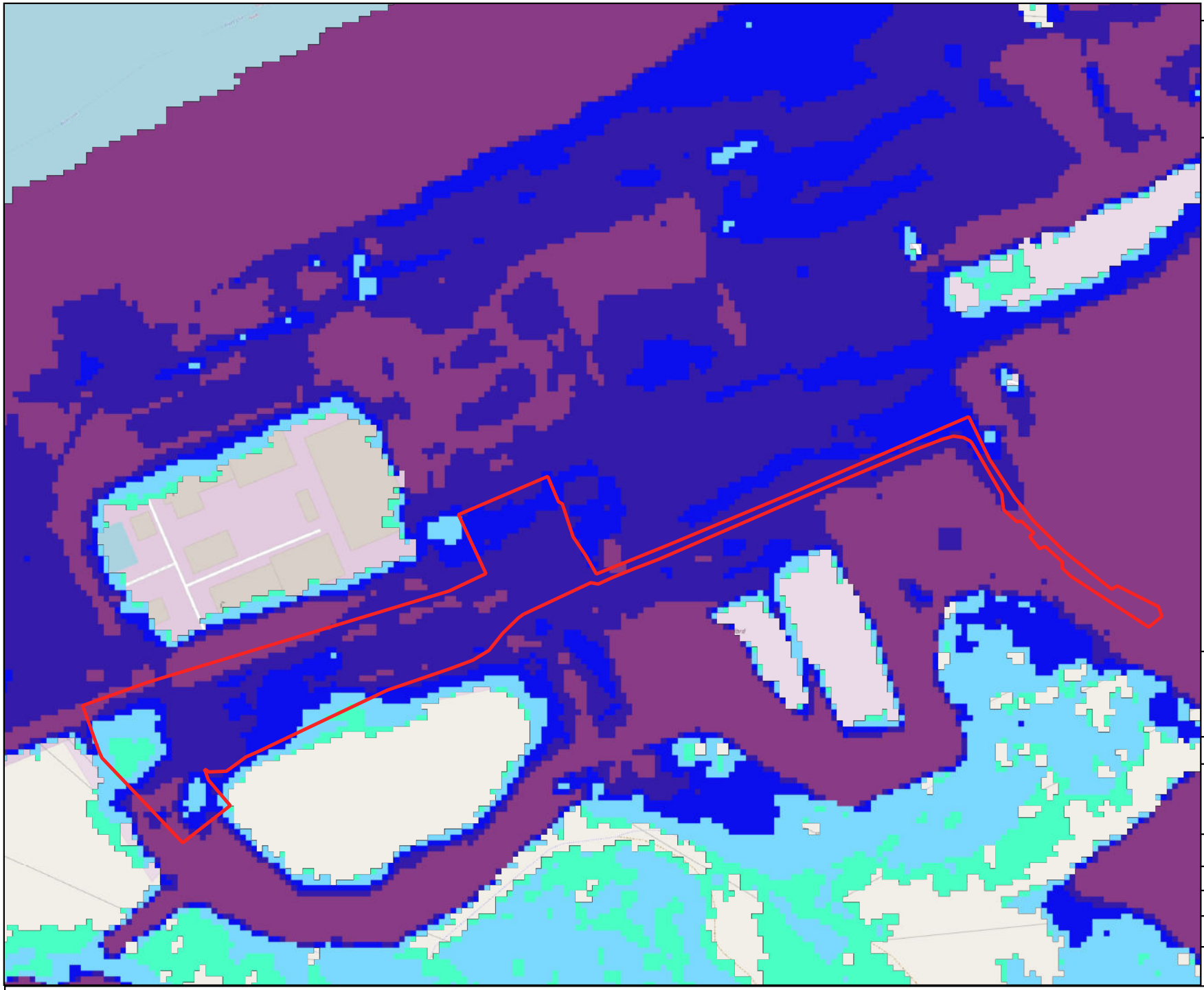

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(results from the 2016 NRW model 1000-year Climate Change horizon year 2115 95th percentile confidence level scenario)

20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Depths (Defefended) 1000 year Climate Change horizon year 2100 Upper End 95th percentile confidence level scenario

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569	Size: A4
Job Ref: HYD-21837	Rev: 01

Drawn	Checked	Approved
CE	TJ	TJ

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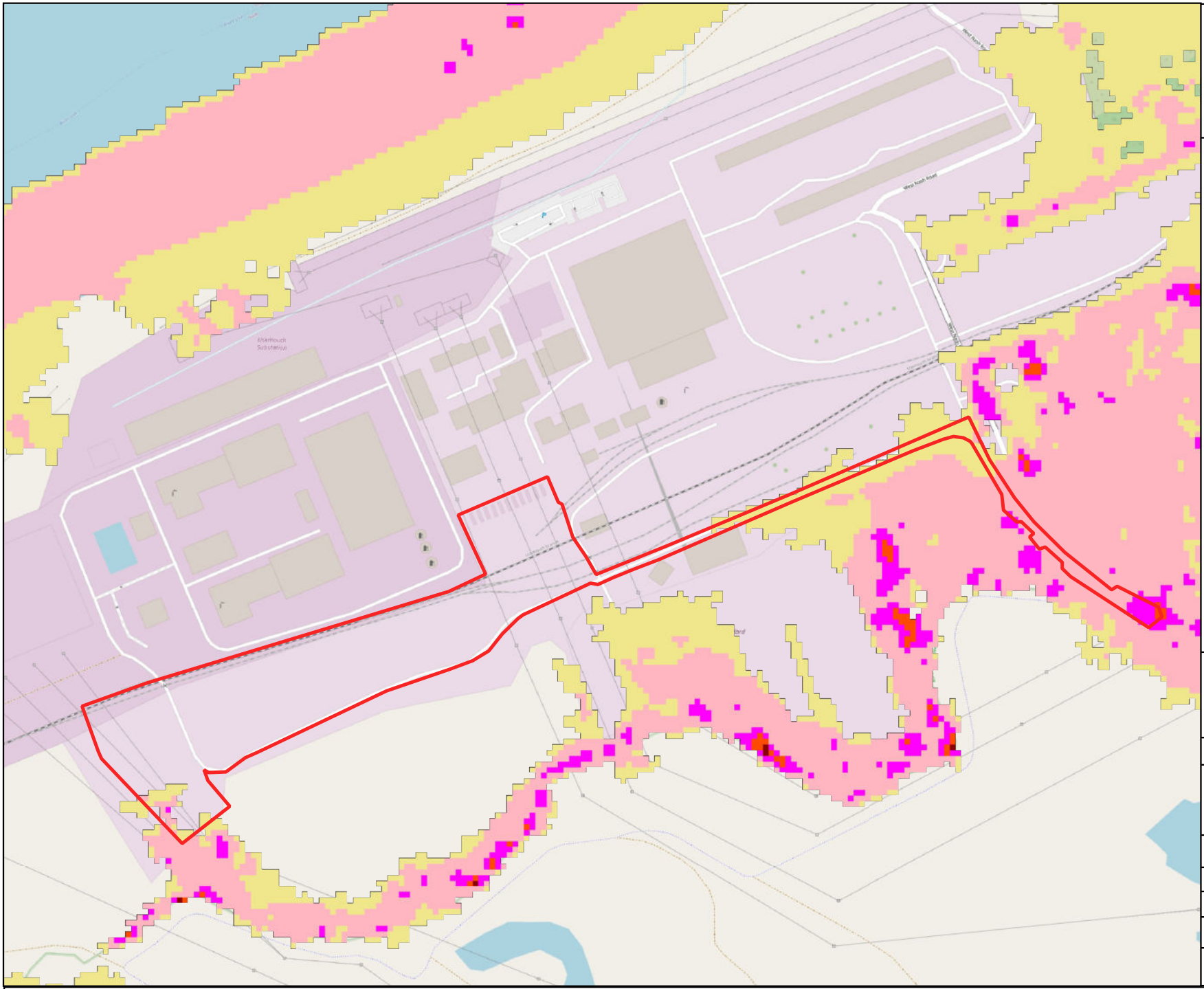

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Site Boundary

Flood Velocities (m/s)

- <0.3
- 0.3 to 1.00
- 1.00 to 1.50
- 1.50 to 2.00
- > 2.50

(results taken from the 2016 NRW model 200 year event)

rps
A TETRA TECH COMPANY
20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Velocities (Undefended) 1 in 200 year event

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569 | Size: A4

Job Ref: HYD-21837 | Rev: 01

Drawn	Checked	Approved
CE	TJ	TJ

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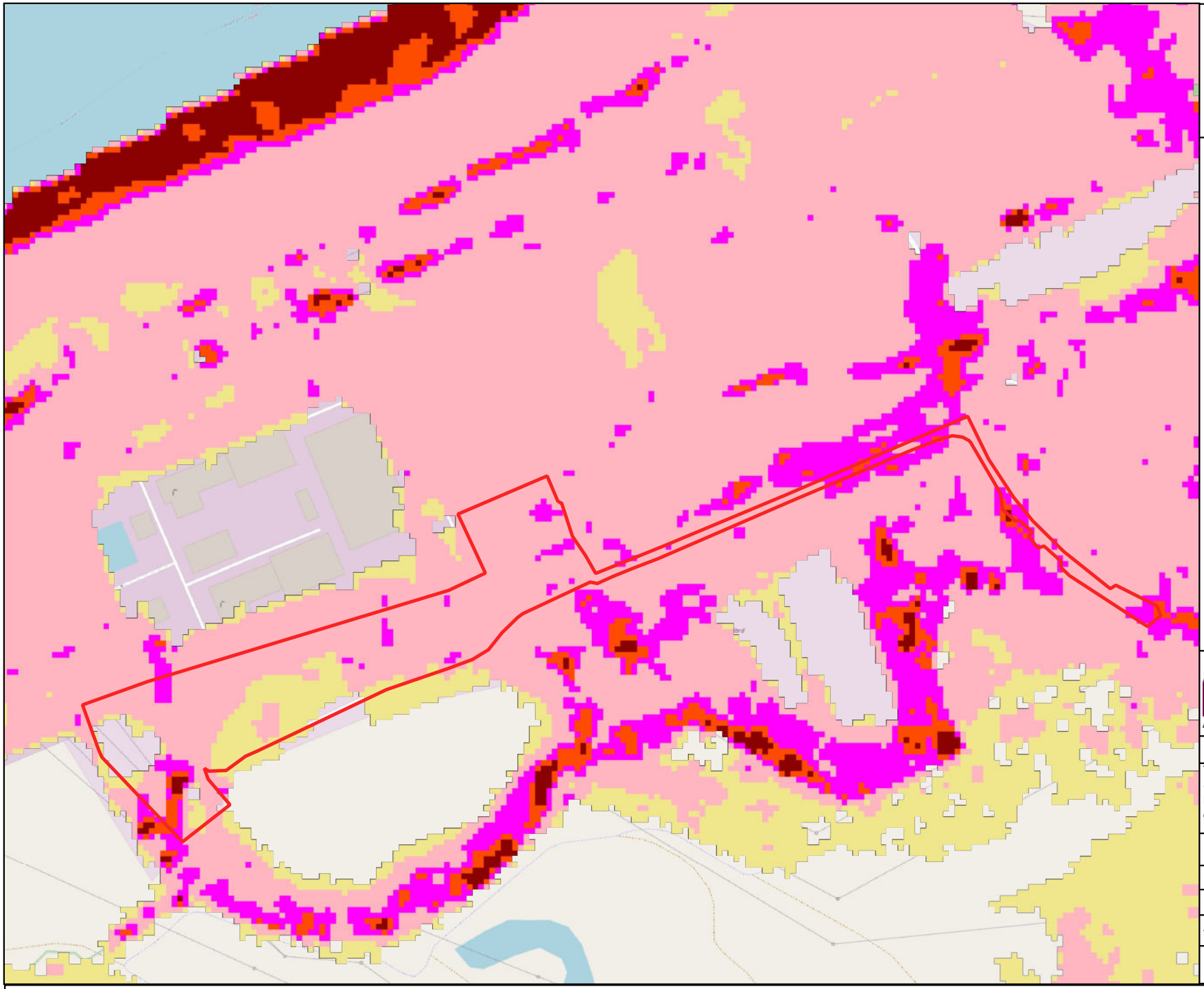

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(results from the 2016 NRW model 200-year Climate Change horizon year 2115 95th percentile confidence level scenario)

rps
A TETRA TECH COMPANY
20 Farringdon Street
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E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Title: Modelled Maximum Flood Velocities (Undefended) 1 in 200 year Climate Change horizon year 2100 Upper End 95th percentile confidence level scenario

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569	Size: A4
Job Ref: HYD-21837	Rev: 01

Drawn	Checked	Approved
CE	TJ	TJ

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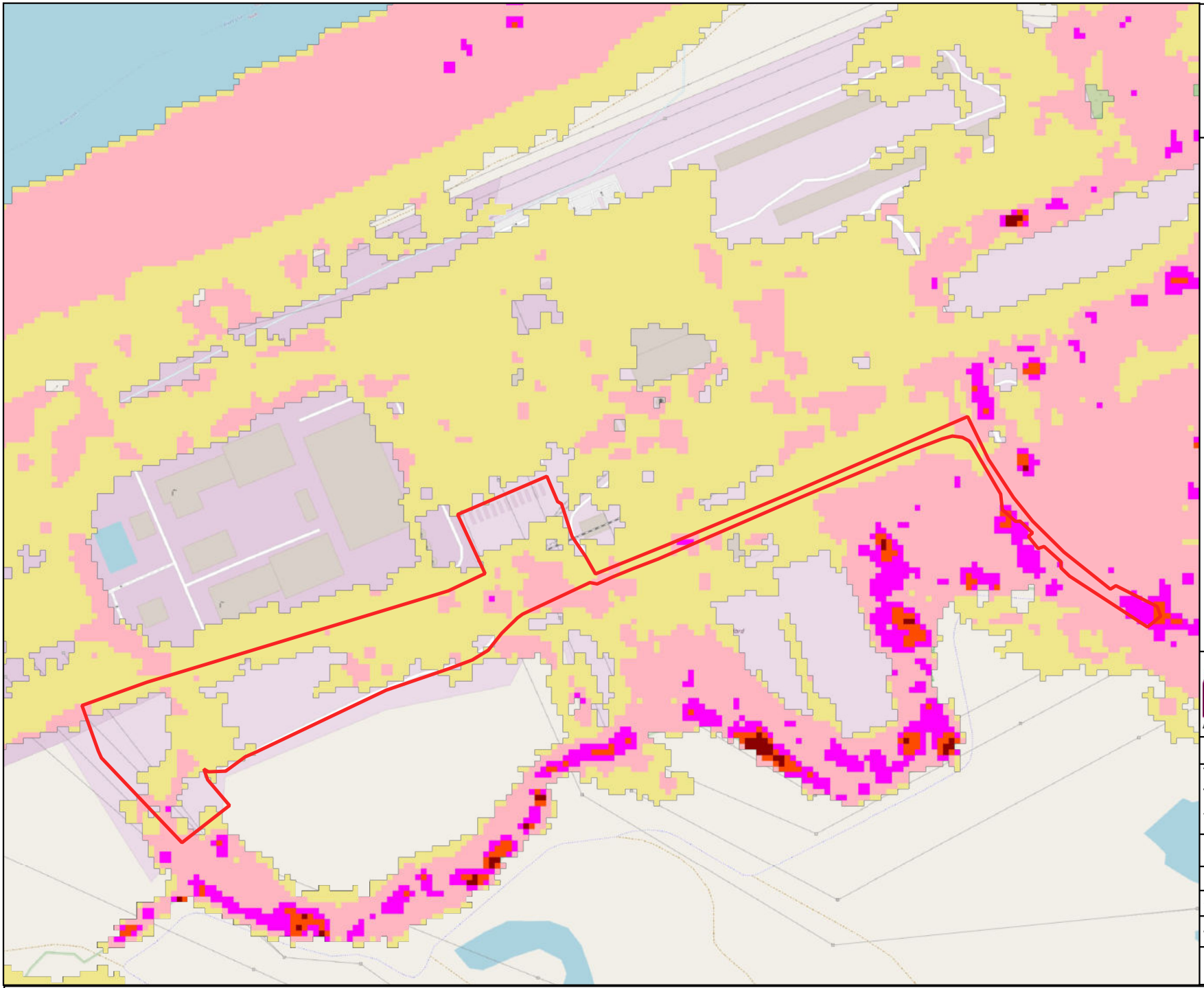

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- <0.3
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- 1.00 to 1.50
- 1.50 to 2.00
- > 2.50

(results taken from the 2016 NRW model 100 year event)

rps
A TETRA TECH COMPANY
20 Farringdon Street
London, EC4A 4AB
E:rpshydrologyservices@rpsgroup.com

Client: Carney Sweeny

Title: Modelled Maximum Flood Velocities (Undefended) 1 in 100 year event

Site: AW2 Uskmouth

Date: 04-02-2025

Scale: 1:4,569 | Size: A4

Job Ref: HYD-21837 | Rev: 01

Drawn	Checked	Approved
CE	TJ	TJ

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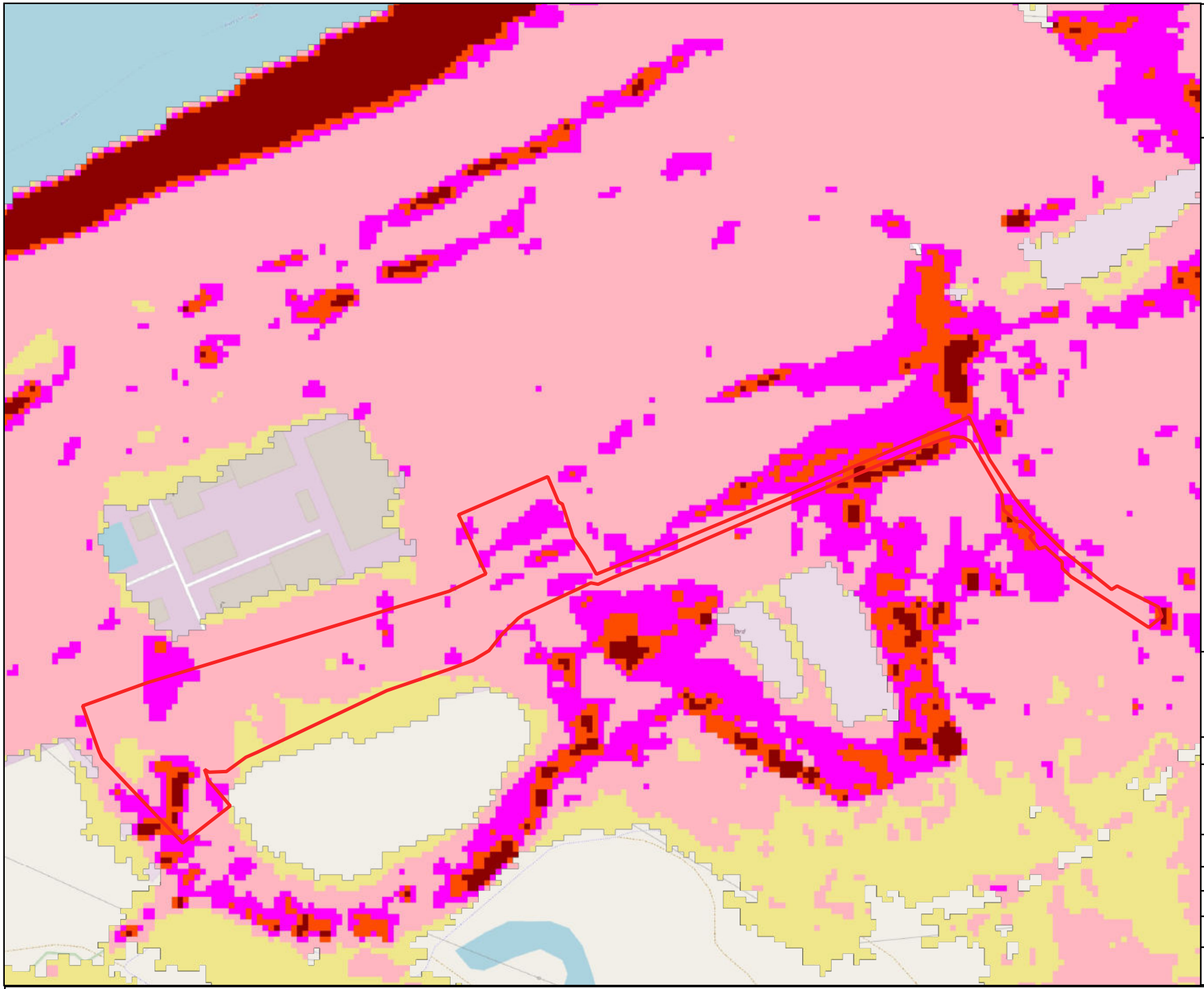

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Cyfoeth Naturiol Cymru
Natural Resources Wales

ATI-27924c - AMX ASSETS

Legend

assets_line

N

0 285 570 1,140 Meters

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AMX ID	Name	Type	Sub Type	Inspection Unit	Asset Maintainer	Current Co
EMB15000	Embankment - 1030970000201L03	Defence	Embankment	River Usk 02 - Uskmouth to Newport Bridge	Newport City Council	4 - Poor
HG GRD15	High Ground - 1030977100101L01	Defence	High Ground	Julians Reen 01 - Usk to Sea Door (Newport)	Private	3 - Fair
HG GRD15	High Ground - 103HA90040201C01	Defence	High Ground	Goldcliff To River Usk 02 (West)	Private	3 - Fair
EMB15006	Embankment - 1030970000201L01	Defence	Embankment	River Usk 02 - Uskmouth to Newport Bridge	Unknown	4 - Poor
EMB15006	Embankment - 103HA90040104C01	Defence	Embankment	Goldcliff To River Usk 01 (East)	Natural Resources Wales	3 - Fair
EMB15007	Embankment - 1030977100101R01	Defence	Embankment	Julians Reen 01 - Usk to Sea Door (Newport)	Unknown	4 - Poor
EMB15007	Embankment - 103HA90040103C01	Defence	Embankment	Goldcliff To River Usk 01 (East)	Natural Resources Wales	3 - Fair
EMB15007	Embankment - 103HA90040104C02	Defence	Embankment	Goldcliff To River Usk 01 (East)	Natural Resources Wales	3 - Fair
HG GRD15	High Ground - 1030970000201L02	Defence	High Ground	River Usk 02 - Uskmouth to Newport Bridge	Private	3 - Fair

Appendix B

Topographic Survey

Scale 1:200

2 0 2 4 6 8 10 20

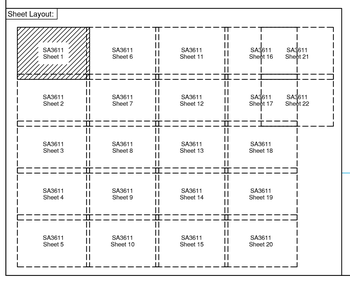
Distances in metres

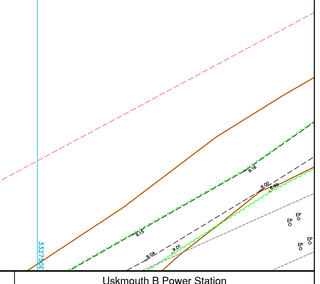
N

National Grid

3326E 3328E 3330E 3332E

184100N 184050N 184000N





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Tithing Maps - Niche Mapping - Raster Mapping

Environmental Data - Land Registry Title Plans

www.azimuthgeodata.co.uk

Abbreviations:

a/ret	brick retaining wall	FL	finished floor level	RE	rodding eye
BB	Belisha beacon	F.N	footpath	RG	rodding gully
BL	bollard (illuminated)	GP	gate post	RP	radius point
BS	bollard	GV	gas valve	RSJ	rolled steel joist
BT	telecom inspection cover	HY	hydrant	SAN	sloping apron wall
BW	brick wall	HT	fire hydrant cover (general)	SD	soffit depth
C/ret	concrete retaining wall	H	outdoor ratings	SE	edge post
CH	chamber (unidentified) cover	IC	inspection chamber cover	SG	sloping grating slabs
CI	cable (buried)	JB	junction to wood slot	SL	sloping wire
CM	corrugated metal	KO	kerb outlet	SM	survey control station
CP	cattle grid	LP	lamp post	SP	soil pipe (above)
CP/BW	concrete post & barbed wire	MH	manhole	SV	soil vent pipe
CP/CL	concrete post & chain link	MK	marker	TH	threshold hole
CP/PW	concrete post & plank	MP	mile post	TL	threshold level
CP/W	concrete post & wire mesh	MR	milk pump	TP	telephone pole
CPO	concrete pointing slabs	NB	name board	TS	cable TV
CR	concrete rockery	OB	obelisk	UP	utility pole
CS	drop kerb	OS	open boundary	WP	wood top
CT	cattle trough	P/C	pedestrian kerb ramp	WR	water meter
DP	electricity pole	P/G	post & chain fence	WP/BW	wood post & barbed wire
EB	electric box	P/R	post & rail	WP/R	wood post & rail
FB	flower box	PO	point	WP/W	wood post & wire

H	height (of feature)	
↑	arrow indicates up (unless otherwise stated)	
▲8002	survey control point	

Drainage features:

CL	cover level
D	invert depth
IL	invert level
SW	storm water sewer
SWC	storm water sewer combined water sewer
UNK	unknown sewer
UTL	unable to lift
WW	waste water sewer
WL	waste water sewer
↑	arrow indicates direction of flow

Notes:

Revisions:

ALS

- Topographical Surveys
- Engineering Surveys
- Measured Building Surveys
- Boundary Surveys
- OS Mapping and Data Centre
- Underground Utility Surveys

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 1 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid			Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

3326000E 3326500E 3327000E 3327500E

184000N 183950N 183900N 183850N

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

THE SURVEY ASSOCIATION

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Ordnance Survey, Aerial Imagery, Historical Mapping, Land Ownership and Digital Terrain Data

www.azimuthgeodata.co.uk

Abbreviations:

BW	brick retaining wall	FFL	finished floor level
BS	bus stop (numbered)	Flg	flagpost
B	bollard	GW	gable wall
BI	boundary inspection cover	GP	gas governor
CW	brick wall	GV	gas valve
CRW	concrete retaining wall	HP	handpost
CI	chamber inspection cover	HC	hedge centre
CB	close boarded	IC	inspection cover (general)
CP	corrugated panel	MR	metal railings
CPW	corrugated wall	MP	meter point slot
CC	concrete	JB	junction box
CP/CK	concrete post & brick/ wire	LP	lamp post
CP/CR	concrete post & chain link	LC	name plate
CP/CW	concrete post & panel	NB	notice board
CP/CP	concrete post & post & wire	OH	overhead
CPB	concrete post & rail	OHW	overhead wire
DC	drainage channel	OHC	overhead cables/wire
DI	drain	P/C	post & chain fence
EB	electricity box	P/W	post & wire
EP	electricity pole	PO	post
FB	flower bed		

RE	retaining eye	H	height (of feature)
RS	road sign		
RP	reflector post		arrow indicates up
SP	soil pipe		slope (unless otherwise
SV	stop valve		stated)
TW	timber retaining wall	▲5002	survey control point
TP	toilet		
VP	vent pipe		
WSP	water pump stand		
WT	water tank		
WTC	water treatment chamber		
WV	water valve		
WSV	water stop valve		
WC	wind sock		
WM	wire mesh		
WF	wire fence		
WR	wire railings		
WT	wire tank		
WP	wood post		
WP/BW	wood post & barbed wire		
WP/CW	wood post & chain link		
WP/W	wood post & wire		

Drainage features:

CL	cover level
IL	invert level
SL	sump level
FWC	foul water sewer
SWC	surface water sewer
CSW	combined water sewer
UNK	unable to determine
DIA	pipe diameter
x	pipe diameter (mm)
No.	public sewer
↓	arrow indicates direction of flow

Notes:

Revisions:

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- ❑ Topographical Surveys
- ❑ Engineering Surveys
- ❑ Measured Building Surveys
- ❑ Boundary Surveys
- ❑ OS Mapping and Data Centre
- ❑ Underground Utility Surveys

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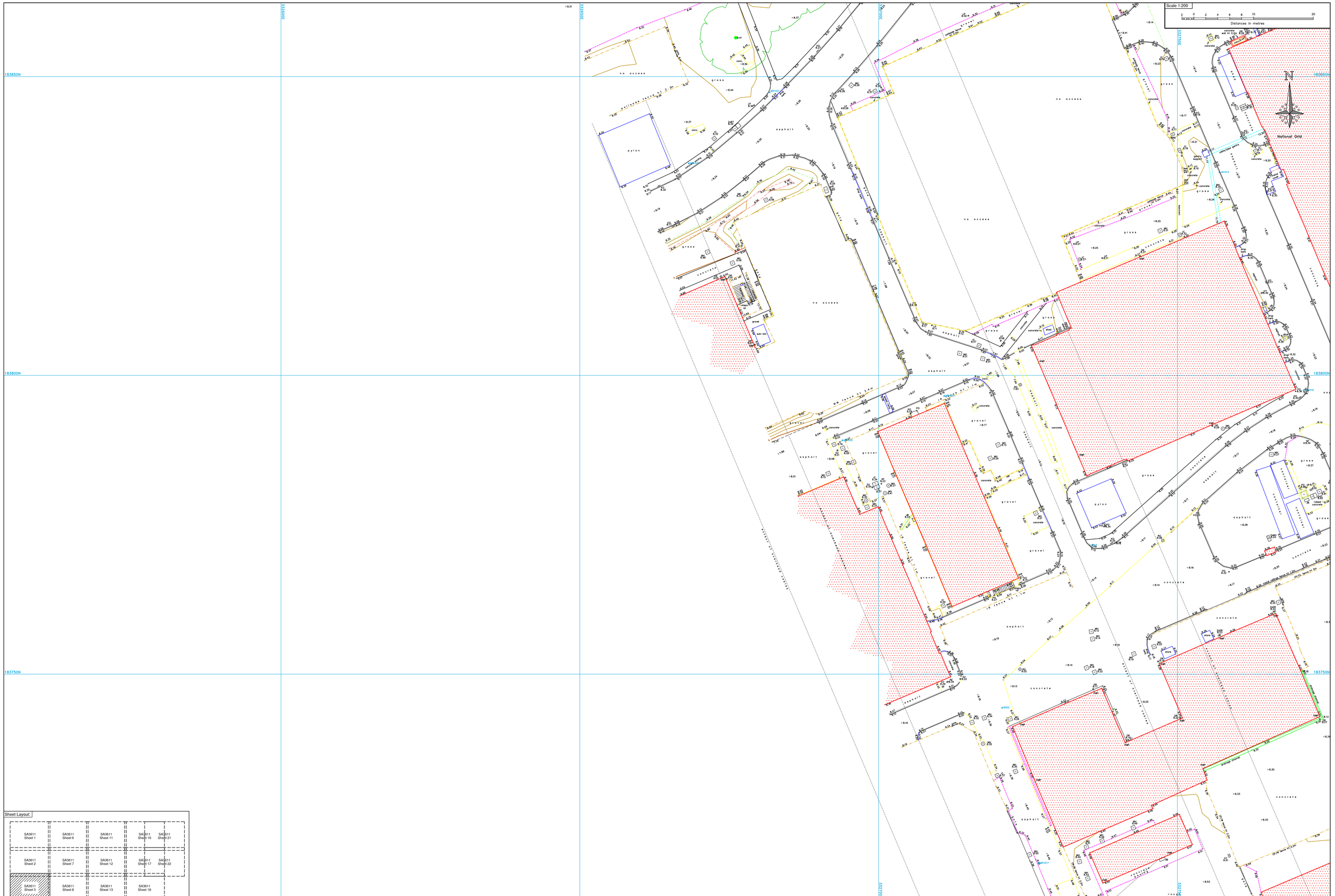
Uskmouth B Power Station
Newport

Topographical Survey - Sheet 2 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid		Level Datum	Level Datum via Active GPS Network	
Scale	1:200@A0	Date	July 2019	Status	Final
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan

Job No. SA3611
Dwg. No. SA3611-01



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Abbreviations:

a/ftw	brick retaining wall	FL	finished floor level	RE	rodding eye
BB	bakelite beacon	G	gulley	RG	rodding eye
BL	bollard (illuminated)	GP	gate post	RP	reflector post
BT	bollard	GV	gas valve	SP	sign post
CI	telecom inspection cover	HY	fire hydrant	SW	side retaining wall
CL	cable marker	IC	inspection cover (general)	TP	depth
C/ftw	concrete retaining wall	IR	invert level	TS	edge joint
CO	telecom inspection cover	MH	manhole (general)	VP	vehicle passing slabs
CV	cable boarder	MO	monitor well slot	WV	stop valve
CR	corrugated metal	PB	junction b. wood slat	WP	survey control station
CP	cattle grid	SD	kerb outlet	WM	soil vent pipe
CP/PW	concrete post & barbed wire	SI	soil vent pipe	WS	soil vent pipe
CP/CL	concrete post & chain link	SK	manhole	WT	threshold level
CP/M	concrete post & mesh	SM	marker	YL	traffic light
CP/W	concrete post & wire mesh	SP	mile post	YP	telephone pole
CP/S	concrete posting slabs	SS	name board	Z1	cable TV
CR	corrugated screen	TB	open boarded	Z2	cable TV
CP	drop kerb	TD	open boarded	Z3	wood top
DK	ditch	TP	telegraph pole	Z4	water meter
EP	electricity pole	TS	timber post & barbed wire	Z5	wood post & barbed wire
FP	fence post	TW	timber post & wire	Z6	wood post & rail
FS	fence box	WP	wood post	Z7	wood post & wire

x height (of texture)

arrow indicates up (unless otherwise stated)

▲9002 survey control point

Drainage features:

CL	cover level
ID	invert depth
IL	invert level
FW	foul water sewer
SW	storm water sewer
CWS	combined water sewer
UNK	unknown sewer
?	unable to lift
?L	unable to lift cover level
?I	unable to lift invert level
→	indicates direction of flow

Notes:

Revisions:

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 3 of 22

Client	Simec Atlantic Energy						
Coord Grid	Plane Grid based on National Grid		Level Datum	Level Datum via Active GPS Network			
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Raphohowe	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

Distances in metres

National Grid

Location 2

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

Abbreviations:

BrW	brick retaining wall	FL	finished floor level	RE	reading ave	H	height (of feature)
BS	bollard (decorative)	G	gulley	RG	road gully		
BL	bollard (functional)	GW	gabion wall	SP	reflector post		arrow indicates up
BO	boiler	GP	gate post	SF	rodding eye		arrow indicates down
CI	chamber inspection cover	GT	grit unit	RP	rolled steel post		contour interval
CrW	concrete retaining wall	HY	hayrack	RWP	rain water pipe		
CW	concrete screening screen	IC	inspection cover (general)	RWH	retaining wall height	▲8002	survey control point
CB	close boarded	IR	metal railings	RWL	rwl		
CM	corrugated metal	JB	junction box	SPG	spring	Drainage features:	
CS	cast steel	KO	kerb outlet	STA	sta	CL	cover level
CP/CW	concrete post & barbed wire wire	LT	lattice fence	SV	stop valve	IL	invert depth
CP/MW	concrete post & chain link wire	MH	manhole	SW	surface water	FWG	foul water gauge
CP/W	concrete post & panel	MW	metal mesh	TAN	tanalised post	SWG	surface water gauge
CP/WW	concrete post & timber rails	NB	notice board	TEL	telephone pole	CBS	combined kerb stone
CP/WI	concrete parking stops	OH	overhead	TP	trial pit	VCP	unable to determine
DC	drainage channel	OB	over hanging	TW	tumble weir	VP	vent pipe
DP	down pipe	OW	overhead cables/wire	UC	unknown cover	#	pipe diameter (inch)
EP	electricity pole	P/C	post & chain fence	WP/BW	wood post & barbed wire	RL	traffic flow direction
FH	fire hydrant	PO	post	WP/P	wood post & panel	WD	direction of flow
FB	flower bed	PG	post	WP/W	wood post & wire		

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Notes:

Revisions:

- Topographical Surveys
- Engineering Surveys
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Uskmouth B Power Station Newport			
Topographical Survey - Sheet 4 of 22			
Client	Simec Atlantic Energy		
Coord Grid	Plane Grid based on National Grid	Level Datum	Level Datum via Active GPS Network
Scale	1:200@A0	Date	July 2019
Surveyed	A. Jolliffe	Drawn	L. Rajnohova
		Checked	C. J. Sullivan
		Status	Final
		Job No.	SA3611
		Dwg. No.	SA3611-01

Location 2
Total area:12776.3 Sq meters
Volume:51198.3 cubic meters

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

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Abbreviations:

B/W	brick retaining wall
BB	Ballahs beacon
BH	Borehole (Numbered)
BL	bollard
BT	telecom inspection cover
C/W	concrete wall
C/RW	concrete retaining wall
CATV	cable television cover
CH	chimney
CM	corrugated metal
CP	concrete post
CP/BW	concrete post & barbed wire
CP/CW	concrete post & chain link
CP/GP	concrete post & gate
CP/W	concrete post & wire mesh
CR	cattle grid
CS	drainage channel
DK	drop kerb
DT	dish
EP	electricity pole
FB	flowerbed raised
FG	formal bed
FH	finished floor level
FP	fence post
G	gateway
GP	gate post
GR	grating
H	Kerbstone
HT	fire hydrant
IC	inspection cover (general)
M	metal railings
MH	storm/foul manhole
MW	metal wall
NT	kerb outlet
PO	post office
MK	manhole
MO	mooring
MR	metal mesh
MP	mile post
MT	metal guard
N	overhead
OB	open boarded
P/C	post & chain link fence
P/S	post & studs fence
PAL	paling
PO	post
PE	reading pot
PT	rock anchor
RE	reflector post
REL	road signal
RP	road sign post
SAP	rain water pipe
SBL	sub station kiosk
SBo	signboard
SCP	stone pitching stake
STAY	stay wire
STC	stop cock/control station
SW	water stop valve
TBM	soil vent pipe
TC	traffic control
TL	transport lane
TP	telephone pole
TV	transformer pole
UP	unknown pipe
VP	vent pipe
WAY	wood lap
WB	wood bollard
WP/BW	wood post & barbed wire
WP/R	wood post & rail
WP/W	wood post & wire

H height (of feature)

prime indicates up (unless otherwise stated)

A3002 survey control point

Drainage features:

CL	cross level
IL	invert depth
TOC	top of chamber
FW	foul water sewer
SWS	storm water sewer
UNK	unknown sewer/drain
UTL	unable to determine
U%	unable to 3%
⊕	manhole location (exc)
SL	soffit level
←→	arrow indicates direction of flow

Notes:

Revisions:

Topographical Surveys
Engineering Surveys
Measured Building Surveys
Boundary Surveys
OS Mapping and Data Centre
Underground Utility Surveys

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 5 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid		Level Datum	Level Datum via Active GPS Network			
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

3329000E 3329050E 3329100E 3329150E

184100N 184050N 184000N

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

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AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

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Abbreviations:

B/TW	brick retaining wall	FFL	finished floor level
BL	bollard (illuminated)	GAT	gate
BL	bollard (illuminated)	GV	gate valve
C	cable	HV	hydrant
CP	telecom inspection cover	HV	fire hydrant
B/W	brick wall	IC	inspection cover (general)
C/B/W	cable & duct shielding wall	IC	inspection chamber
CCTV	cable television cover	IE	interconnect wood end
CD	close boarded	JB	junction box
CD/F	close boarded fence	LP	lamp post
Conc.	concrete	LP	lamp post
CP/CS	concrete post & barbed wire	MH	manhole
CP/CW	concrete post & wire	MM	metal mesh
CP/GR	concrete post & grate	MP	metal post
CP/PR	concrete post & protective mesh	NB	name board
CPS	concrete posting slots	NB	name board
CV	control valve	OB	open boarded
DB	drop kerb	OHC	overhead cable/wire
DI	drain	OHL	overhead main fence
EP	electricity pole	PA	parking
FB	flower bed	PO	post

RE	rodding eye	H	height (of feature)
RG	road gully		
RS	road sign post		prime indicates up (or otherwise noted)
RSJ	rolled steel joist		
S/B/W	stone & brick wall	A.6001	survey control point
S/W	stone retaining wall		
SIG	signal	Drainage features:	
SP	stop valve	CL	cover level
STG	survey control station	IL	invert depth
SW	soil vent pipe	SL	sump level
TP	soil vent pipe	TBC	top water
TRAFL	tactile paving	UNK	unknown depth
TS	traffic sign	CWS	combined water sewer
TL	traffic light	FWS	foul water sewer
TP	telephone pole	UNS	unidentified sewer
VP	vent pipe	UCS	unable to lift
WM	water meter	EL	pipe diameter (mm)
WP/BW	wood post & barbed wire	⇒	flow direction
WP/W	wood post & wire	⇒	arrow indicates direction of flow
WP/WR	wood post & wire		

Notes:

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- Engineering Surveys
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- Boundary Surveys
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Uskmouth B Power Station Newport

Topographical Survey - Sheet 6 of 22

Client	Simec Atlantic Energy				
Coord Grid	Plane Grid based on National Grid		Level Datum	Level Datum via Active GPS Network	
Scale	1:200@A0	Date July 2019	Status Final	Job No. SA3611	
Surveyed	A. Jolliffe	Drawn L. Raynsford	Checked C. J. Sullivan	Dwg. No. SA3611-01	

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16 / SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17 / SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20

THE SURVEY ASSOCIATION

AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

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Ordnance Survey © Getting Maps - Aerial Mapping - Route Mapping - Business Mapping - Environmental Data - Land Registry Title Plans

www.azimuthgeodata.co.uk

Abbreviations:

BrRW	brick retaining wall	FL	finished floor level
BB	bollard beacon	G	gully
BL	bollard (illuminated)	GP	gate post
BI	bollard	GV	gas valve
CI	cable tv inspection cover	HP	hydrant post
CP	concrete post	HC	fire hydrant cover (general)
CoRW	concrete retaining wall	IR	invert ratings
CB	concrete bollard/ planter	IS	inspection chamber slot
CK	chime kerbing	JB	junction box
CM	corrugated metal	KO	kerb outlet
CO	cover	LP	lamp post
CPJW	concrete post & barbed wire	MH	manhole
CPSS	concrete post & chain link	MK	marker
CPTW	concrete post & timber	MP	marker post
CPVW	concrete post & wire mesh	MR	mile post
CS	concrete sloping stake	MS	milestone
DI	drainage channel	OH	overhead
DC	drain cover	OHL	overhead line
DP	electricity pole	OHC	overhead cables/wire
EP	electricity pole	P.C	post & chain fence
FB	flower bed	PO	pillar
FP	flower pot	PO	point

RE	rodding eye	TP	traffic pole
SP	road sign	TP	telephone pole
SP	reflector post	TP	tree
SP	soil pipe	UP	utility pole
SWMH	storm water manhole	VP	vent pipe
SWP	storm water pipe	WB	weighbridge station
SWV	storm water valve	WV	water stop valve
SW	surface water	WP	wood post
TP	tactile paving	WPR	wood post & rail
TS	threshold level	WPW	wood post & barbed wire
TL	traffic light	WPWM	wood post & wire mesh
TP	telephone pole	WPW	wood post & wire

ht	height (of feature)
↑	arrow indicates up curves (otherwise stones)
▲BM02	survey control point

Drainage features

CL	cover level
IL	invert depth
IL	invert level
150	150mm clear diameter
150	150mm outer diameter
UTR	unable to trace
UTD	unable to determine
1 in 40	gully gradient
450	pipe diameter (mm)
RL	soffit level
→	pipe flow direction
⊙	at true

Notes:

Revisions:

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- ❑ Boundary Surveys
- ❑ OS Mapping and Data Centre
- ❑ Underground Utility Surveys

Uskmouth B Power Station
Newport

Topographical Survey - Sheet 7 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid		Level Datum	Level Datum via Active GPS Network	
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Cracked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

National Grid

183850N

183800N

183750N

332950E

332900E

332850E

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

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Mining Mark - Hand Mapping - Radar Mapping

Environmental Data - Land Reports The Area

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Abbreviations:

B/Wall	brick retaining wall	FFL	finished floor level
BS	bollard (illuminated)	Hedge	hedgerow
BT	bollard (illuminated)	HP	high point
BW	boundary wall	HW	hose wall
CI	brick on inspection cover	HY	hydrant
C/Wall	concrete retaining wall	IC	fire hydrant cover (general)
CO	concrete slab cover	IL	invert level
CS	stone boundary	JB	junction box
CM	corrugated metal	LO	kerb outlet
DP	down pipe	LP	lamp post
DP/SW	concrete post & barbed wire	MH	manhole
DP/CL	concrete post & chain link	MK	marker
DP/M	concrete post & mesh	MP	marker post
DP/W	concrete post & wire mesh	MR	mile post
DS	drainage sump chute	MW	milestone
DI	drainage inspection	NP	overhead
EP	electric pole	OP	overhead telephone
EB	electricity pole	P/C	overhead cable/wire
FB	flower bed	P/F	post & chain fence
FP	flower pot	PO	point
RE	reading eye	SP	sign post
RP	road pin	TP	reflector post
SP	refuse bin	TR	refuse bin
SPIPE	refuse other pipe	VALVE	refuse other valve
SWALL	rain water pipe	WALL	retaining wall
SP	retaining wall	WP	traffic light
SIGN	sign post	WELL	sign post
SLAB	slab	WG	slabs
SPOT	spot height	WM	spot height
STEPS	steps	WV	stop valve
STOP	stop valve	WW	water meter
TAP	tap		water valve
TEL	telephone pole		weir
TP	telephone pole		wire fence
TRAF	traffic light		wood post & barbed wire
TREE	tree		wood post & chain link
WP/W	wood post & mesh		wood post & wire

tp height (of feature)

prime indicates up (unless otherwise noted)

A 9002 survey control point

Drainage features

CI	cover level
IL	invert depth
TWL	invert level
CBS	storm catch basin
SMH	storm water manhole
UTW	unable to determine
VC	vitrified clay
WL	water level
WD	water supply direction of flow

Notes:

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Uskmouth B Power Station Newport

Topographical Survey - Sheet 8 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid		Level Datum	Level Datum via Active GPS Network	
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
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Abbreviations:

B/TW	brick, retaining wall
BH	bollard (illuminated)
BL	bollard
BOX	telecom, inspection cover
B/W	brick wall
C/TW	concrete, retaining wall
CCTV	cable television cover
CB	close boarded
CH	concrete hand metal
conc	concrete
CP (PO)	concrete post & barbed wire
CP (SO)	concrete post & close board
CP (OP)	concrete post & panel
CP (WR)	concrete post & wire mesh
CPS	concrete posting slats
CW	concrete wall
DF	dog grill
DR	drain
EP	electricity pole
FB	flower bed
FFL	finished floor level
GAT	gate
GW	gabion wall
HH	hand hole
HV	site valve
IC	ice cover
IL	fire hydrant
IP	inspection cover (general)
IRC	iron railing cover
IW	interwoven wood slat
JB	junction box
LC	level cover
LP	lamp post
MH	manhole
MM	metal mesh
MP	metal post
NB	name board
OHL	overhead line
OHP	over hanging
OHC	overhead cable/wire
PAL	palisade chain fence
PC	post
PO	post
RE	retaining eye
RG	road gully
RGU	rodding eye road
RSJ	rolled steel joist
SCC	stone cobble wall
SW	stone retaining wall
SIGN	signboard
SPG	spring
STN	stone pitching slabs
SVC	service cover
SYC	survey control station
TBW	timber boarding
WF	wall earth grille
WGL	tactile posting
WP	wall plaque
WS	traffic light
TP	telephone pole
TR	tree
WT	weir
WBW	weld beam
WM	water meter
WP/BW	wood post & barbed wire
WP/C	wood post & cat
WP/W	wood post & wire

H height (of texture)

prime indicates up (or downward invert)

A4001 survey control point

Drainage features:

CL	cover level
IL	invert depth
RE	rodding eye
TBC	foul water sewer
TBC	surface water sewer
TBC	combined water sewer
TBC	unknown service
pipe	pipe, diameter (mm)
FL	flow direction
arrow	indicates direction of flow

Notes:

Revisions:

Topographical Surveys
Engineering Surveys
Measured Building Surveys
Boundary Surveys
OS Mapping and Data Centre
Underground Utility Surveys

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 9 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid			Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

Distances in metres

2 0 2 4 6 8 10 20

N

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

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Abbreviations:

B.W.	brick retaining wall	FFL	finished floor level	RE	reading eye
BB	Battery beacon	FH	flagpole	RG	rain gauge
BL	bollard (illuminated)	GP	gate post	RP	reflector post
BO	bollard	GV	gate valve	RS	road sign
BT	telecom inspection cover	HY	fire hydrant	SP	soil pipe/ gas joint
C	cable marker	LP	lighting column (general)	TMP	rain water pipe
C/CW	concrete retaining wall	M	metal railings	TP	stake/ rail/ marker
CATV	cable television cover	MH	telephone/ wood stall	UTILITY	stone retaining wall
CC	concrete cover	PC	traffic control station	WM	water stop valve
CI	corrugated metal	PO	earth outlet	WV	water valve
CP	cap	PP	mains post	WW	soil vent pipe
CP/BW	concrete post & barbed wire	RA	radio antenna	WW	weep hole/ pipe
CP/CL	concrete post & chain link	RM	marker	YB	threshold level
CP/CW	concrete post & cable mesh	RP	mine post	YL	traffic light
CP/W	concrete post & wire mesh	SP	service pedestal	YT	traffic light
CR	crossing drainage	TC	overhead line	YU	cable TV
DP	drop kerb	UB	open boarded	Mag	wood fence
DR	drain	UC	open mesh/ chain fence	MP/BW	wood post & barbed wire
EG	electricity guide	UP	post & chain fence	MP/W	wood post & rail
EL	earthing rail	FA	palling	MP/W	wood post & wire
FB	flower bed	PO	post		

H	height (of feature)
	arrow indicates up (unless otherwise stated)
A9002	survey control point

Drainage features:

SL	slope break
SW	small weir
TW	trash screen
WMH	storm water sewer
WSW	storm water sewer
LTD	unable to determine
UTL	unable to lift
	surface water (arrow)
	earth bank
	arrow indicates direction of flow

Notes:

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 10 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid	Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

dense foliage inaccessible

pylon

extent of overhead cables

184100N

184050N

535050E

535100E

535150E

535200E

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
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Mining Risk - Non-Reporting - Radon Mapping

Environmental Data - Land Reports This Area

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Abbreviations:

BRW	brick retaining wall	FL	finished floor level	RE	roadlog.pve	ht	height (of texture)
BS	battery beacon	FP	flagpole	SP	reflector post		
BT	bollard (illuminated)	GP	gate post	SP	sign post		
BL	bollard	GV	gas valve	SPW	retaining wall		
CI	boss on inspection cover	HR	hip right	SW	width		
CRW	concrete retaining wall	IC	inspection cover (general)	TP	sign post		
CB	concrete slab/kerb/ channel	IR	metal railings	TRL	threshold level		
CS	close boarded	IS	inspection cover slot	TS	traffic sign		
CR	corrugated metal	JB	junction box	TT	tree		
CW	cut water	KO	kerb outlet	UV	utility pole		
CP/CW	concrete post & barbed wire	LP	lamp post	VP	vehicle barrier		
CP/CB	concrete post & chain link	MH	manhole	WB	marker		
CP/CW	concrete post & close board	MP	metal mesh	WP	mile post		
CP/CW	concrete post & post mesh	MR	mile post	WT	mile post		
CP/CW	concrete post & railing stake	NP	natural ground	WV	overhead		
DI	drainage channel	OL	overhead		overhead cables/wire		
DR	drain	OW	overhead cables/wire		post & chain fence		
EP	electricity pole	P/C	post & chain fence		post & wire		
FE	fence	PO	post				
FB	flower bed						

Drainage features

CL	cover level
IL	invert depth
INV	invert level
MH	manhole number
SW	storm water sewer
UNK	unable to determine
UNP	unpassable
UNS	size dimension
WL	width level
⇒	indicates direction of flow

Notes:

Revisions:

ALS

- Topographical Surveys
- Engineering Surveys
- Measured Building Surveys
- Boundary Surveys
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Uskmouth B Power Station
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Topographical Survey - Sheet 11 of 22

Client	Simec Atlantic Energy				
Coord Grid	Plane Grid based on National Grid	Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan
Job No.	SA3611				
Dwg. No.	SA3611-01				

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
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Abbreviations:

B/W	brick retaining wall
BS	Ballans beacon
BH	Borehole (Numbered)
bollard	
BT	telecom inspection cover
C/W	concrete wall
C/RW	concrete retaining wall
CI/CV	cable tele/elect cover
CL	centre line
Cm	corrugated metal
CP	concrete post
CP/BW	concrete post & barbed wire
CP/CW	concrete post & chain link
CP/GP	concrete post & gate
CP/W	concrete post & wire mesh
D/W	dwarf wall
DP	drainage point
DR	drop kerb
EP	electricity pole
FG	footway grid
FH	flood hut
FL	finished floor level
G	gully
G/W	gabion wall
GP	gate post
GV	gate valve
H	Hydrant
HT	fire hydrant
I/C/W	interlocking cover (general)
M/W	metal railings
MH	manhole cover
MP	marker post
OS	kerb outlet
P	pedestal
MH	manhole
MP	marker post
MW	metal mesh
NP	mile post
OB	overhead
OS	outstation
OP	open hoarded
P/BW	post & barbed wire
P/C	post & chain fence
P/R	palisade
PO	post
RE	reading eye
RG	road gully
RP	reflector post
RS	road sign
SBJ	sleeved joint
SP	sign post/ pole
SPG	spigot
SW	soakaway
SWG	stone pitching slabs
STG	stay wire
TP	telegraph/ telephone
TW	water stop valve
UP	soil vent pipe
VP	vent pipe
WP	broadcast tree
WT	water tap
WV	water valve
TC	telephone pole
TR	tree
Wbay	wood bay
WF	wood fence
WP/B	wood post & barbed wire
WP/R	wood post & rail
WP/W	wood post & wire

H height (of feature)

prime indicates up (unless otherwise stated)

A3022 survey control point

Drainage features:

Ch	cross head
IL	invert depth
SL	slot drain
TSD	foul water sewer
SWD	storm water sewer
UNK	unknown sewer type
UTL	unable to determine
UTL	unable to ID
?	uncertain feature (exc)
?L	uncertain
?D	uncertain direction
?	estimated

Notes:

Revisions:

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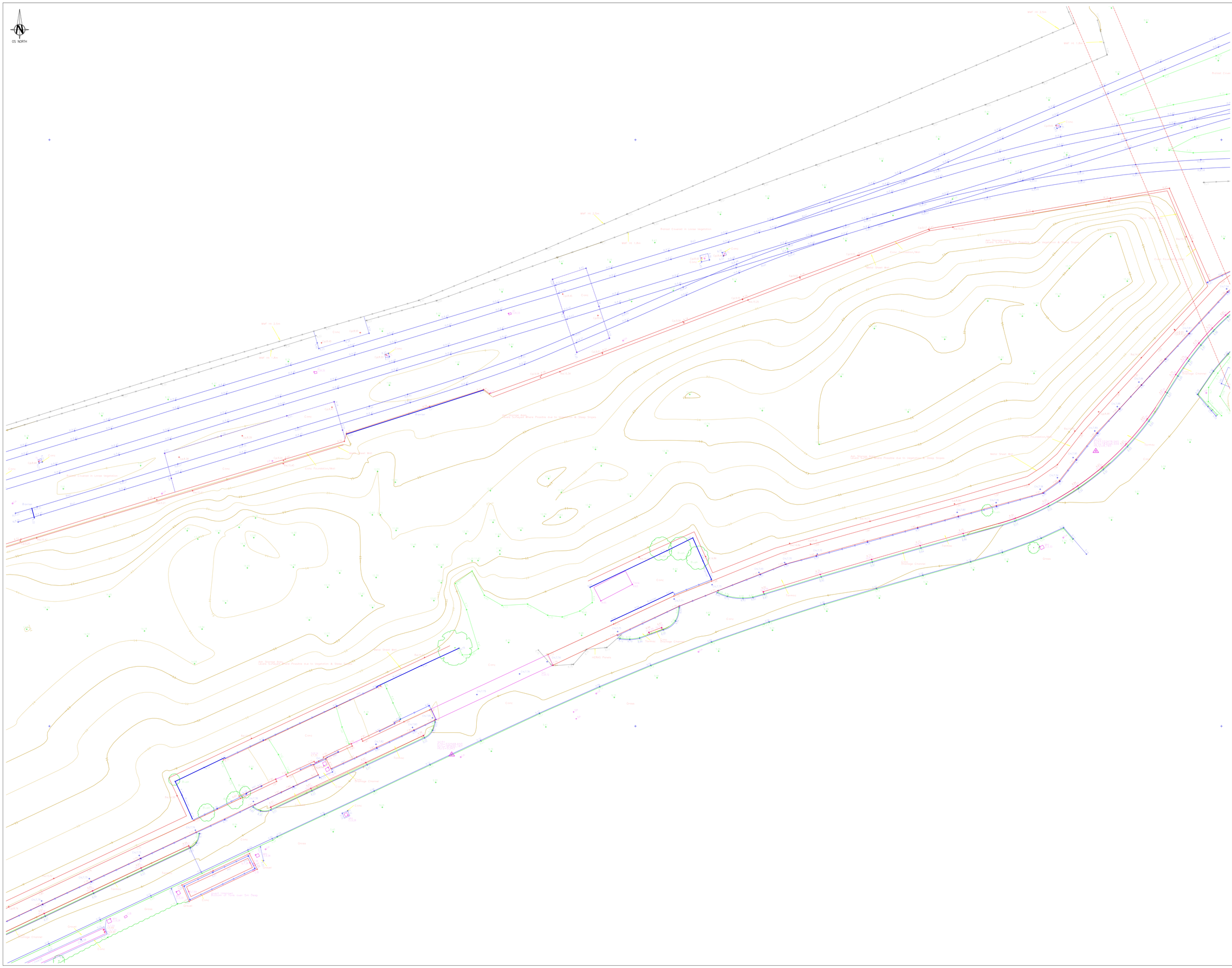
Topographical Survey - Sheet 12 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid			Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01


OS NORTH
Bollard
Bollard
Bollard

OS NORTH

NOTES

1. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ON THIS DRAWING ARE IN METRES.
2. ALL LEVELS ARE IN METRES AND RELATED TO GNSS ORDNANCE SURVEY NEWLYN DATUM
3. COORDINATES ARE ON A LOCAL PLANE METRIC GRID RELATED TO ORDNANCE SURVEY GRID ABOUT THE CONTROL POINT SC01

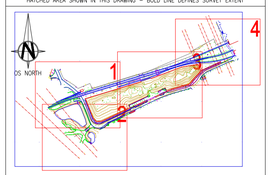
TOPO LEGEND

AB	AIR BRICK	LFB	LIFEBUOY
AV	AIR VALVE	LP	LAMP POST
BB	BELISHA BEACON	MB	MOORING BOLLARD
BHL	BUILDING HEIGH	MF	MISCELLANEOUS FENCING
TBH	BOREHOLE	MH	MANHOLE
BL	BUILDING EAVES LEVEL	MKR	MARKER
BM	BENCH MARK	MP	MOORING PILE
BOL	BOLLARD	MRF	METAL RAILING FENCE
BRK	BRICKWORK	MS	MILE STONE
BS	BUS STOP	NB	NOTICE BOARD
BW	BRICK WALL	NP	STREET NAME PLATE
BWF	BARBED WIRE FENCE	NRA	NATIONAL RIVERS AUTHORITY
CB	CONTROL BOX	OGC	OVERGROUND CONDUIT
CIF	CORRUGATED IRON FENCE	OHG	OVERHEAD GANTRY
CL	COVER LEVEL	OSR	OPEN STEEL RAILINGS
CLF	CHAIN LINK FENCE	P	POST
CP	SECURITY CAMERA POST	PB	PILLAR BOX
CPL	COPING LEVEL	PM	PARKING METER
CPT	CABLE PIT COVER	PRF	CONC POST & RAIL FENCE
CR	CYCLE RACK	PTM	PARKING TICKET MACHINE
CTV	CABLE T.V. MANHOLE	PV	VERTICAL PIPE
CUL	CULVERT	RE	RODDING EYE COVER
DK	DROP KERB	RP	REFLECTIVE POST
DL	DECK LEVEL	RS	ROAD SIGN
DP	DOWNPIPE	RTW	RETAINING WALL
DPC	DAMP PROOF COURSE	RWP	RAINWATER PIPE
DR	DRAIN	SC	STOP COCK
DWB	DOG WASTE BIN	SDP	STAND PIPE
EA	ENVIRONMENT AGENCY	SK	SOAKAWAY
EB	ELECTRICITY BOX	SL	SOFFIT LEVEL
ECF	ELECTRIC CABLE FENCE	SMH	SURFACE WATER MANHOLE
ECP	ELECTRICITY CABLE PIT	SMP	SHEET METAL PILING
EMH	ELECTRICITY MANHOLE	SP	SIGN POST
EP	ELECTRICITY POLE	STU	TREE STUMP
ER	EARTHING ROD	SV	SLUICE VALVE
ETL	ELEC. TRANSMISSION LINE	SVP	SOIL VENT PIPE
FB	FOOTBRIDGE	SWF	SHEEP WIRE FENCE
FH	FIRE HYDRANT	TBM	TEMPORARY BENCH MARK
FHM	FIRE HYDRANT MARKER	TC	TELECOM CABINET
FL	FLOOR LEVEL	TCB	TELEPHONE CALL BOX
FP	FENCE POST	TCP	TELEPHONE CALL POST
FWM	FOUL WATER MANHOLE	TCL	TELECOM MANHOLE
G	GULLY	THL	THRESHOLD LEVEL
GL	GROUND LIGHT	TL	TRAFFIC LIGHT
GM	GAS MARKER	TLB	TRAFFIC LIGHT BOX
GP	GATE POST	TP	TELEGRAPH POLE
GV	GAS VALVE	TRS	TIMBER RUBBING STRIP
HRL	HANDRAIL	TSR	TUBULAR STEEL RAILINGS
IC	INSPECTION CHAMBER	WB	WASTE BIN
IL	INVERT LEVEL	WL	WATER LEVEL/WATER LINE
IRF	IRON RAILING FENCE	WM	WATER METER
WF	INTERWOVEN FENCE	WMF	WIRE MESH FENCE
JO	JUNCTION BOX	WP	WOODEN POST
KO	KERB OUTLET	WPR	WOODEN POST & RAIL FENCE
LDR	LADDER	WV	WATER VALVE

FINAL ISSUE

LOCATION PLAN

HATCHED AREA SHOWN IN THIS DRAWING – BOLD LINE DEFINES SURVEY EXTENT



Rev	Description	Date	Drn	Chk	App
-	-		-	-	-
A	FIRST APPROVED ISSUE	13/12/2024	JBS	CM	GP

Document Control

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Client

SAE

Project Name

Uskmouth Power Station AW2

Sheet Title

Uskmouth Power Station AW2
2D Topographical Survey
Sheet 4 of 4

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A0	Suitability
784-B070326	JBS	13/12/24	C.M.	13/12/24	G.P.	13/12/24	1:200	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
784-B070326	- TTE	- ZZ	- ZZ	- DR	- G	- 004	A

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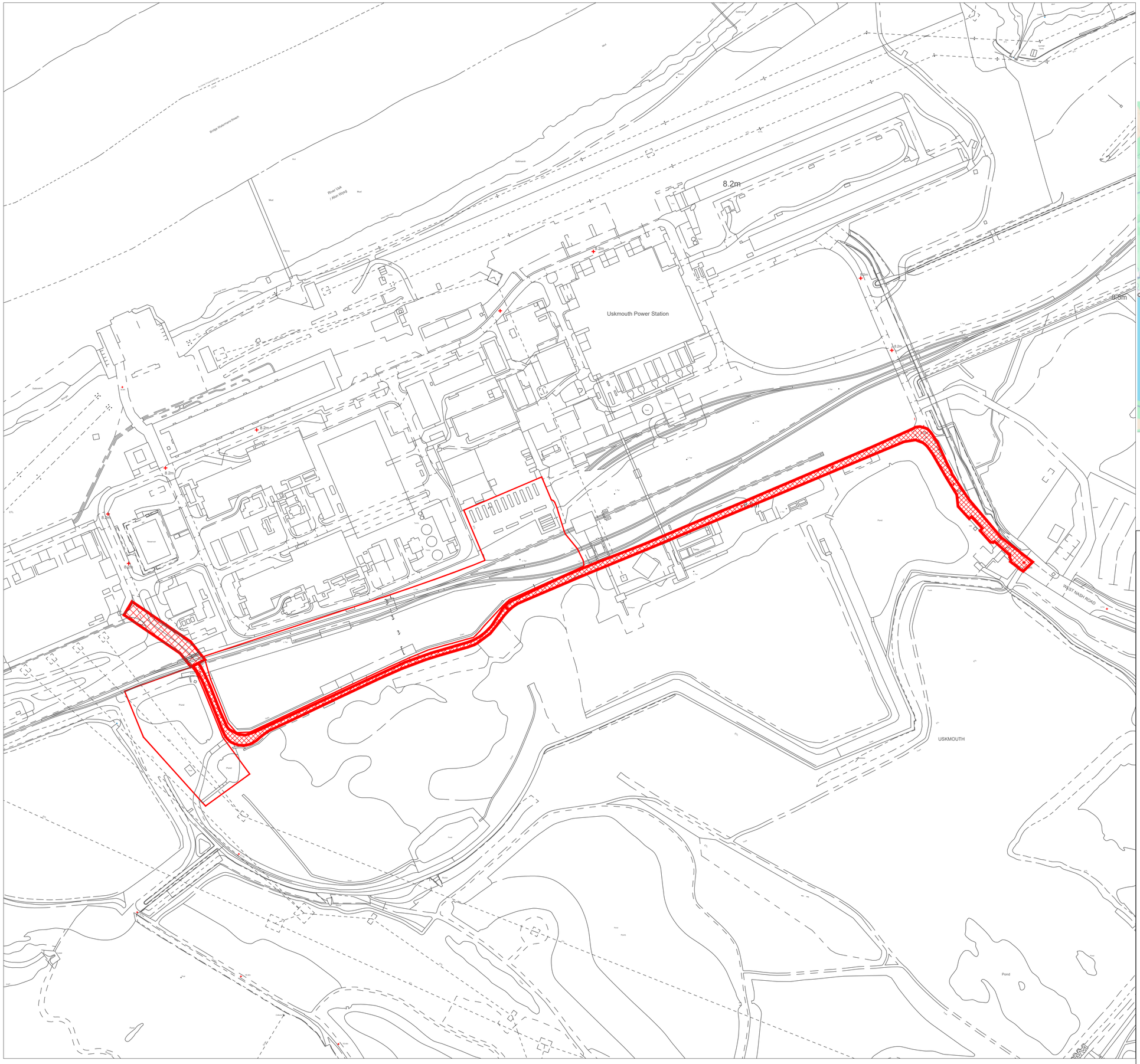
TTE_G_v1.1

Appendix C

Development Plans



PROJECT NAME:

Uskmouth

Company logo

econergy
Powering renewables.

	SECTION	DRAWING CODE
	GENERAL	
DRAWING	**DRAWING TITLE**	SCALE 1:1750
	SITE LOCATION PLAN	FILE NAME

REV	DATA	MODIFIED	DRAWN	CHECKED	APPROVED
00	09-01-2025		E.N.		
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02					
03					
04					
05					

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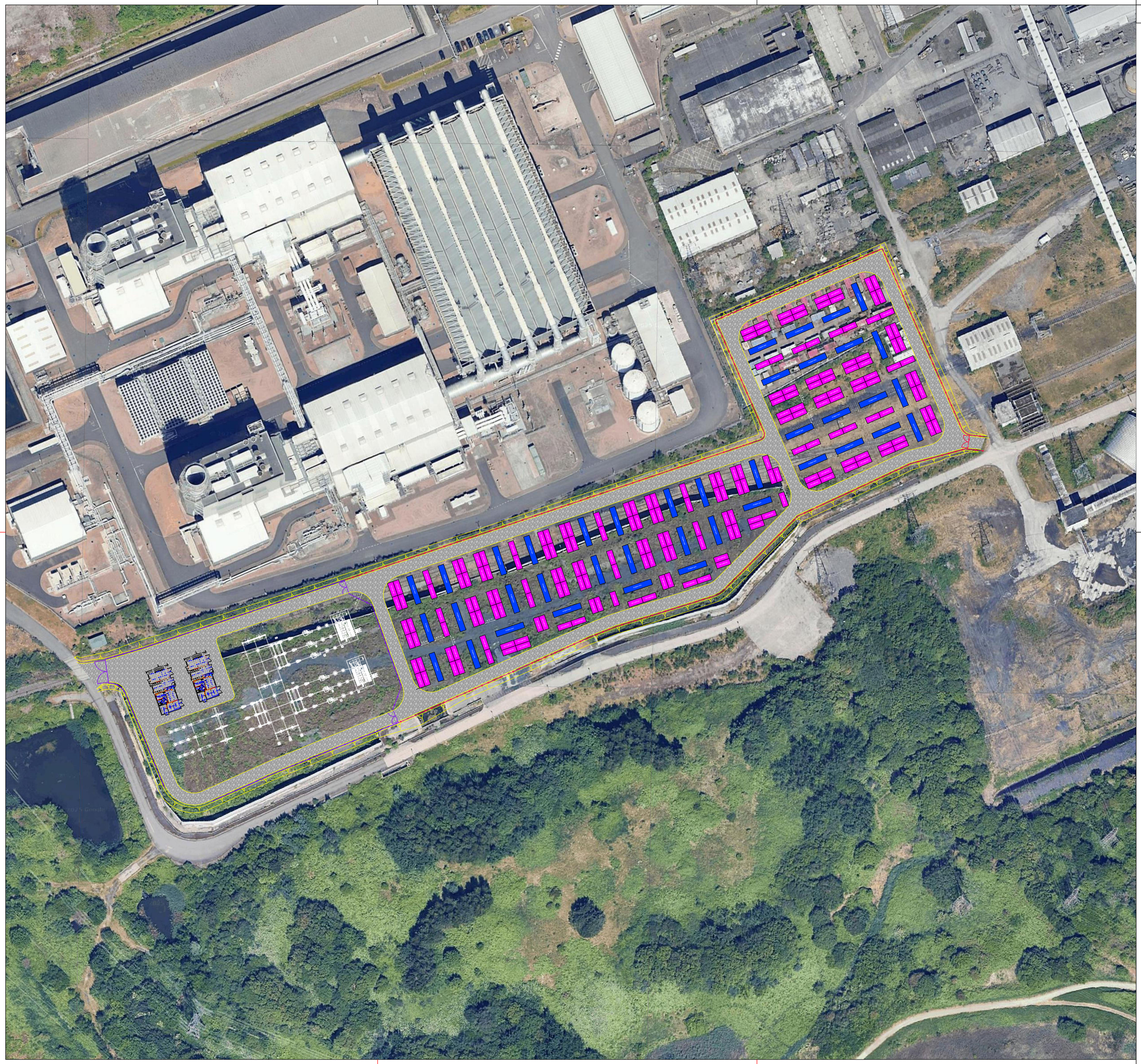

LEGEND

- 40 x PCS
- 200 x MC Cube ESS
- Switchgear and control room
- BESS fence
- HV palise fence
- Access road
- O&M building
- HV substation gate
- BESS gate

PROJECT NAME:

Uskmouth

Company logo

econergy
Powering renewables.

This document is to be used for indicative purposes only.

	SECTION	DRAWING CODE	
	GENERAL		
DRAWING	**DRAWING TITLE**	SCALE	1:750
	GENERAL LAYOUT	FILE NAME	

REV	DATA	MODIFIED	DRAWN	CHECKED	APPROVED
00	01-04-2025		E.N.		
01					
02					
03					
04					
05					

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Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

THE SURVEY ASSOCIATION

AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

Ordnance Survey Licensed Partner

Mining Geo Data Reports, Mine Searches, Environmental Site - Land Reports The Pyke

www.azimuthgeodata.co.uk

Abbreviations:

B/WW brick retaining wall
BW block retaining wall
BT bollard (Illuminated)
BT bollard
BI telecom inspection cover
CL cable
C/RW concrete retaining wall
CATV cable television cover
CH chimney
CM corrugated metal
concrete
CP/CL concrete post & barbed wire
CP/CL concrete post & chain link
CP/W concrete post & wire mesh
CP/W concrete post & wire
CP/WW concrete post & timber
DP drop kerb
DI drain
DG dustbin/dog gate
EW earthing rod
FB flower bed
FFL finished floor level
FL flagstone
GW gabion wall
GI gas governor
GV gas valve
HY hydrant
IC inspection cover (general)
IR metal railings
IW interwoven wood slat
KS kerb stone
KO kerb outlet
LP lamp post
LS lamp
M marker
MH manhole cover
MW mesh wire
MF metal fence
OB overhead beacon
OB over bonded
PP/WW post & interwoven fence
PP/RW post & chain fence
PP/RW post & rail
PP/W post & wire
RE rodding eye
RP reflector post
RP reflector plant
RW road sign
SP/L street light post
SV scv valve
S/RW stone retaining wall
SP sign post
SP/L sign post
SP/TL/RW stone paving slabs
TL traffic light
TP/L survey control station
TP/L traffic light control box
TP/L tall cast pipe
TP/L traffic light pole
TP/L threshold level
TL traffic light
TP/L telephone pole
TP/L cable tv
TP/L weld plate
TP/L weld valve
TP/L wood post & barbed wire
WP/W wood post & rail
WP/R wood post & wire

H height (of feature)

A 9002 survey control point

Drainage features:

SC cover level
IL invert level
SL/C cover level
CMH chamber manhole
CMH/C chamber manhole cover
CP/C catchpit cover
CP/IL catchpit invert level
UNKN unable to ID
UNKN/C unable to ID (cover)
WO/C waste water (cover)
WO/IL waste indicates direction of flow

Notes:

Revisions:

ALS

Topographical Surveys
Engineering Surveys
Measured Building Surveys
Boundary Surveys
OS Mapping and Data Centre
Underground Utility Surveys

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Uskmouth B Power Station Newport							
Topographical Survey - Sheet 13 of 22							
Client	Simec Atlantic Energy						
Coord Grid	Plane Grid based on National Grid			Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

183700N

183650N

183600N

533500E

533550E

533600E

533650E

533700E

533750E

533800E

533850E

533900E

533950E

534000E

534050E

534100E

534150E

534200E

534250E

534300E

534350E

534400E

534450E

534500E

534550E

534600E

534650E

534700E

534750E

534800E

534850E

534900E

534950E

535000E

535050E

535100E

535150E

535200E

535250E

535300E

535350E

535400E

535450E

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

335000E 335050E 335100E 335150E 335200E

183550N 183500N 183450N

overgrown foliage with some mature trees

overgrown

corrugated metal

concrete culvert
100 dia invert
dual service

water level
6.79

ditch

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
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Abbreviations:

B.W.	brick retaining wall	FFL	finished floor level	RE	reading ear
BS	Battery Saver	FH	flathead	RF	refractor flat
BT	British Telecom(UK)	GP	gate post	RP	refractor point
C	cabinet	GV	gate valve	SL	road light
CB	telecom inspection cover	HH	hydrant	SP	road sign post
CC	concrete	HT	high tension cover (general)	SV	rain water pipe
C/PW	concrete retaining wall	IR	metal railings	TM	stone indicating wall
CATV	cable television cover	IW	interwoven wood slat	TP	traffic light
CI	cast iron	KO	kerb outlet	TW	telephone junction
CM	corrugated metal	KS	kerb outlet	VO	water stop valve
CP	concrete	LP	lamp post	WA	soil vent pipe
CP/PW	concrete post & barbed wire	MH	manhole	WC	waste pipe to drain
CP/WI	concrete post & chain link	MK	marker	WD	threaded bolt
CP/WM	concrete post & metal mesh	MP	mile post	WL	traffic light
CP/WW	concrete post & wire mesh	NP	notice board	WM	water meter
CR	corrugated sheeting	OH	overhead	WP	cable tv
DI	drop kerb	OS	open boarded	WR	water tap
DK	ditch	PA	post & 3 barbed wire	WW	wood top
EG	electricity gate	P/C	post & chain fence	WP/B	wood post & barbed wire
EP	earthing rod	PA	paling	WP/W	wood post & rail
FB	flower bed	PO	post	WP/X	wood post & wire

H	height (of feature)	
	arrow indicates up (unless otherwise stated)	
A9002	survey control point	

Drainage features:

SL	road light
SV	rain water pipe
TM	stone indicating wall
WO	storm water sewer
UTL	unable to determine
UTL	unable to lift
FW	foul water sewer (soc)
SL	soffit level
--->	arrow indicates direction of flow

Notes:

Revisions:

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- ❑ Topographical Surveys
- ❑ Engineering Surveys
- ❑ Measured Building Surveys
- ❑ Boundary Surveys
- ❑ OS Mapping and Data Centre
- ❑ Underground Utility Surveys

Uskmouth B Power Station
Newport

Topographical Survey - Sheet 15 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid	Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

Location 5
Total area:3284.8 Sq. meters
Volume:3693.2 cubic meters

National Grid

dense foliage inaccessible

extent of overhead cables

overgrown foliage with some mature trees

multi-bole 8.47

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Scale 1:200

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Distances in metres

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

THE SURVEY ASSOCIATION

AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

Ordnance Survey Licensed Partner

Mining Data - Mining Property Search Reports, Mine Insight, Historical Mapping & Environmental Data - Land Insight, Title Plans

www.azimuthgeodata.co.uk

Abbreviations:

B/RW	brick retaining wall
BB	Ballistic beacon
BM	Benchmark (Numismatic)
BT	bollard
BTI	telecom inspection cover
C	centre line
C/RW	concrete retaining wall
CI	cast iron inspection cover
CS	stone boundary
CT	concrete traffic control
conc	concrete
CP (Fb)	concrete post & barbed wire
CP (Ft)	concrete post & timber rail
CP (W)	concrete post & panel
CP (W)	concrete post & wire mesh
D	drainage inspection
DI	drainage chamber
DR	drop kerb
EB	electricity pole
FB	flower bed
FFL	finished floor level
GP	gate post
GPO	gatepost
HT	hedge trimmed
HTV	hedge trimmed over (general)
HTV	hedge trimmed over
JB	junction box
JB	junction box
LP	lamp post
MH	manhole
MH	manhole
MM	metal mesh
MP	mile post
OHL	overhead
OHL	overhead
OS	open fronted
PB	pedestrian push box
PP	post & chain fence
PP	post
PO	pole

RE	retaining eye
RS	retaining sign
RSJ	rolled steel joist
RSJ	rolled steel joist
RW	retaining wall
RW	retaining wall
SBox	signal box
SP	sign post
SPG	stone pitching slabs
stay	stay wire
SV	scour valve/air station
SW	water stop valve
TBM	temporary bench mark
TBM	temporary bench mark
TP	telephone pole
TP	telephone pole
TR	trough
WM	water meter
WM	water meter
WP	wood lap
WP	wood post
WPB	wood post & barbed wire
WPW	wood post & rail
WPW	wood post & wire

H	height (of feature)
↑	arrow indicates up (unless otherwise stated)
A1002	survey control point

Drainage features:

CL	cover level
IL	invert depth
MH	manhole
SW	foul water sewer
SWD	storm water sewer
UNK	unknown sewer
UTL	unable to determine
0.0	shape of cover
0.0	diameter (mm)
0.0	width between arrows
0.0	arrow indicates direction of flow

Notes:

Revisions:

AZIMUTH LAND SURVEYS LIMITED
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- ❑ Topographical Surveys
- ❑ Engineering Surveys
- ❑ Measured Building Surveys
- ❑ Boundary Surveys
- ❑ OS Mapping and Data Centre
- ❑ Underground Utility Surveys

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 17 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid		Level Datum	Level Datum via Active GPS Network			
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Location 4
Total area:9501 Sq meters
Volume:21971.8 cubic meters

Scale 1:200

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Distances in metres

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
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SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

THE SURVEY ASSOCIATION

AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

Ordnance Survey Licensed Partner

www.azimuthgeodata.co.uk

Abbreviations:

BTW	brick retaining wall	FFL	finished floor level
BW	brick wall (facework)	FP	flagpost
BL	bollard (illuminated)	GP	gatepier
Bo	bollard	GW	gatepier wall
CI	concrete inspection cover	HP	hydrant
CW	brick wall	IC	inspection cover (general)
CRW	concrete retaining wall	MR	metal railings
CSW	concrete screen wall	MW	metal railings on wall
CB	close boarded	JB	junction box
CF	concrete footpath	LP	lamp post
concrete	concrete	LP	lamp post
CP/CB	concrete post & barbed wire	LP	lighting
CP/CL	concrete post & chain link	M	monitor
CP/CP	concrete post & panel	MP	metal mesh
CP/CW	concrete post & wire	MW	metal railings
CPW	concrete posts& slates	NB	name board
DC	drainage channel	OH	overhead
DI	drain	OP	overhead cables/wire
EF	existing fence	PF	palisade chain fence
EW	existing wall	PFA	path
FB	flower bed	PO	post

RE	rodding eye	ht	height (of feature)
RP	road sign		arrow indicates up
RS	road sign (otherwise stated)		slope (otherwise stated)
SBW	sleeper retaining wall	A3052	survey control point
SP	soil pipe		
SPG	stone paving slabs	Drainage features:	
SW	screen wall		
TCV	survey control station	CL	cover level
TP	water stop valve	IL	invert level
TP	telephone pole	IL	invert level
TPO	tennis posts	FWL	final water level
TS	traffic light	MWL	maximum water level
TS	traffic signs	USC	combined water cover
TV	cable TV	UTW	unable to determine
WM	water meter	VP	vent pipe
WP	wall plate	x	pipe diameter (mm)
WP/BW	wood post & barbed wire		arrow indicates direction of flow
WP/PW	wood post & panel	No.	
WP/WW	wood post & wire		

Notes:

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Scale 1:200

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Distances in metres

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National Grid

Sheet Layout:

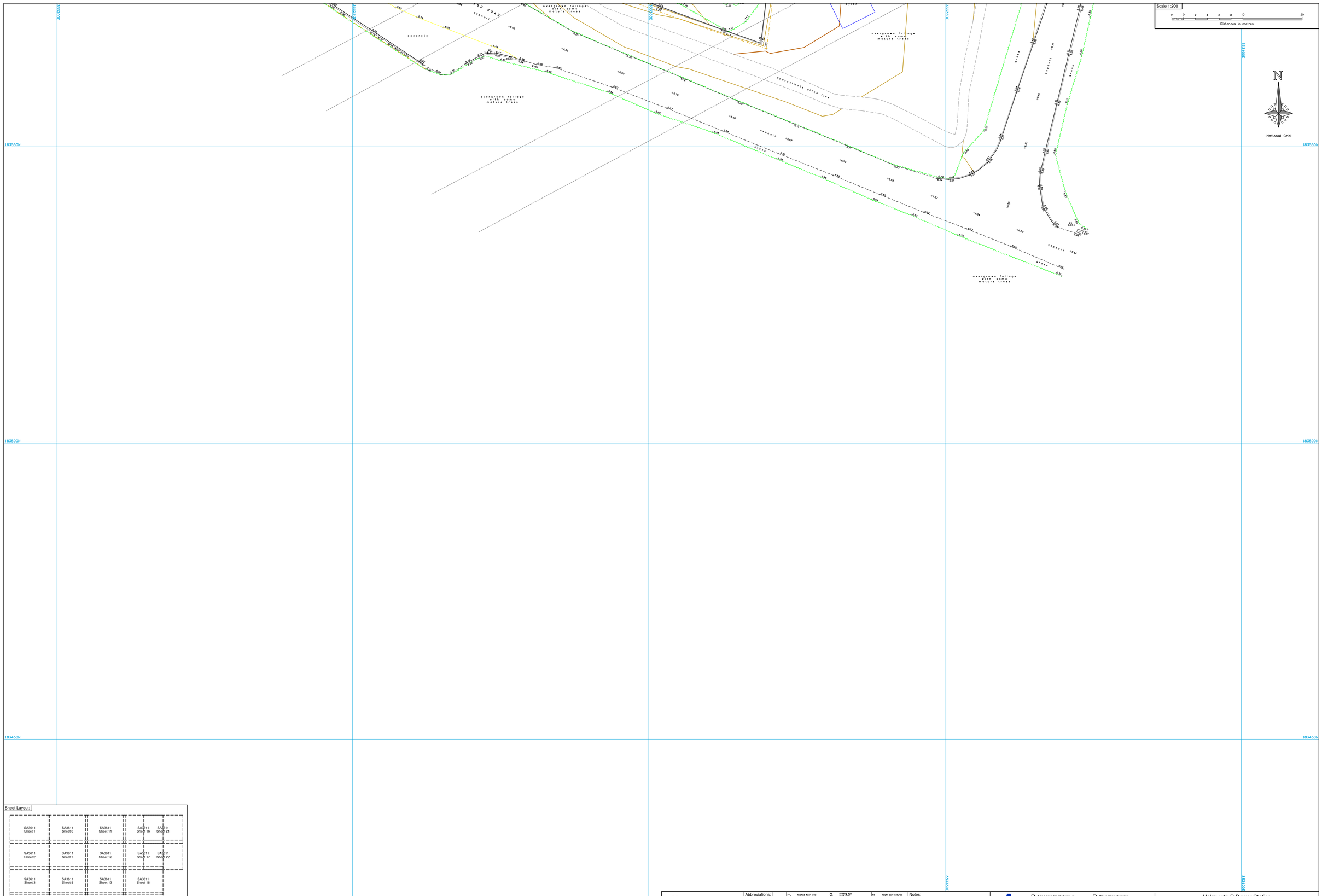
SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

THE SURVEY ASSOCIATION

AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

Ordnance Survey Licensed Partner

Terrain 5 | Terrain 50 | Landform PROFILE | Land-Line | VectorMap District | OS MasterMap | Strategi | Boundary-Line | Address-Point | Open Roads | Open Rivers | Open Greenspace | Open Names | Open Boundaries | Code-Point Open | Open Map - Local | Open Map - Small | Open Map - Miniature | Terrain 5 DTM | Terrain 50 DTM | Panorama | Land-Form PANORAMA | Meridian 2 | Mastermap Topography | Mastermap Address | Mastermap Integrated Transport Network | Mastermap Green Infrastructure | Mastermap Imagery Layer | Mastermap Hydrology | Mastermap Sites | Mastermap Road Network | Mastermap Buildings | Land-Form PROFILE TERRAIN 5 | Land-Form PROFILE TERRAIN 50 | Land-Form PROFILE TERRAIN 5 DTM | Land-Form PROFILE TERRAIN 50 DTM



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Distances in metres

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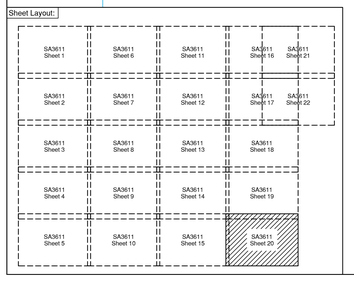
National Grid

Sheet Layout:



THE SURVEY ASSOCIATION

AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

Ordnance Survey

Ordnance Mapping Licensed Partner

Mining base - Aerial Photography - Land Images - Thermal Mapping - Environmental Data - Land Registry Title Plans

www.azimuthgeodata.co.uk

Abbreviations:

B/W	brick retaining wall	FFL	finished floor level	RE	reading eye	H	height (of feature)
BB	Ballens beacon	GP	gate post	RG	rain gauge		
BH	borehole (Numbered)	GV	gas valve	RP	reflector post	T	arrow indicates up (unless otherwise stated)
BL	bollard	HR	Hydrant	RSJ	road signal		
BT	telecom inspection cover	HT	fire hydrant	S/W	soil vent pipe	A3002	survey control point
C/W	concrete wall	I	inspection cover (general)	SP	sign post		
C/RW	concrete retaining wall	IR	metal railings	SPG	stone pitching stake	Drainage features:	
CATV	cable television cover	IS	interseven wood slat	STAY	stay wire		
CH	chimney	LP	lamp post	SV	stop valve (control station	CL	cross head
CI	corrugated metal	MH	manhole	SW	water stop valve	IC	invert depth
CL	cleaning eye	MP	marker post	TBM	soil vent pipe	SC	soil vent pipe
CP/BW	concrete post & barbed wire	MR	manhole	TCB	temporary bench mark	TBC	threshold level
CP/CW	concrete post & chain link	MW	metal mesh	TEL	telephone	TBM	temporary bench mark
CP/F	concrete post & panel	NP	mile post	TP	transformer pole	TBC	threshold level
CP/W	concrete post & wire mesh	OP	oil storage tank	TS	traffic sign	TBM	temporary bench mark
CS	concrete setting	OT	overhead telephone	UP	utility pole	TBC	threshold level
DC	drainage channel	P	overhead	VP	vent pipe	TBM	temporary bench mark
DR	drop kerb	PB	open boarded	WBP	weld bollard	TBC	threshold level
DT	dip tank	PC	pedestrian guard rails	WP	weld post	TBM	temporary bench mark
EP	electricity pole	P/C	post & chain fence	WP/BW	weld post & barbed wire	TBC	threshold level
FB	flower bed	PG	paling	WP/R	weld post & rail	TBM	temporary bench mark
FH	flower bed	PO	post	WP/W	weld post & wire	TBC	threshold level

Notes:

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 20 of 22

Client: Simec Atlantic Energy

Coord Grid	Plane Grid based on National Grid			Level Datum	Level Datum via Active GPS Network		
Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

Location 5
Total area:3284.8 Sq meters
Volume:3693.2 cubic meters

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
SA3611 Sheet 2	SA3611 Sheet 7	SA3611 Sheet 12	SA3611 Sheet 17	SA3611 Sheet 22
SA3611 Sheet 3	SA3611 Sheet 8	SA3611 Sheet 13	SA3611 Sheet 18	
SA3611 Sheet 4	SA3611 Sheet 9	SA3611 Sheet 14	SA3611 Sheet 19	
SA3611 Sheet 5	SA3611 Sheet 10	SA3611 Sheet 15	SA3611 Sheet 20	

THE SURVEY ASSOCIATION

AZIMUTH GEO DATA-AZIMUTH LAND SURVEYS

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Abbreviations:

B/W	brick retaining wall	FL	finished floor level	HE	moulding eye
B	bollard	GV	gate valve	GS	road gully
B	bollard (illuminated)	GV	gully grate	GV	road gully grate
BC	bollard	GV	gas valve	HT	road light
BC	chamber, inspection cover	HT	hydrant	HTW	road light column
B/W	brick wall	IC	inspection cover (general)	HTW	road sign
C/W	concrete retaining wall	IC	inspection chamber	HTW	road sign post
CCTV	cable television cover	IW	interwoven wood wall	KTW	safety wire
CB	close boarded	JB	junction box	STW	survey control station
CH	chain link metal	LP	lamp post	TP	traffic light post
CONC	concrete	LP	lamp post	HTW	soft vent pipe
CP/CL	concrete post & barbed wire	M	manhole	TW/L	tactile paving
CP/CL	concrete post & chain link	MK	marker	TL	traffic light
CP/W	concrete post & wire	MP	mile post	TL	traffic light
CP/W	concrete post & wire mesh	MP	mile post	TW	telephone pole
CPT	concrete paving slats	NB	name board	UB	telephone box
CR	concrete rail	OB	open boarded	UB	open boarded
DP	drop kerb	OHC	overhead cable/wire	WP/W	overhead cable/wire
DR	drain	P/W	post & chain fence	WP/W	post & chain fence
EP	electricity pole	PC	post & rail	WP/W	post & rail
ER	earthing rod	PO	post & wire	WP/W	post & wire
FG	flower bed				

ht	height (of feature)
▲BM	bench mark (surveyed to stated)
▲BM2	survey control point

Drainage features:

CL	cover level
FL	flow direction
IL	invert level
SW	storm water sewer
CSW	combined water sewer
UNK	unknown service
UTL	public foul sewer
IL	pipe diameter (mm)
FL	flow direction
⇒	arrow indicates direction of flow

Notes:

Revisions:

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- ☐ Topographical Surveys
- ☐ Engineering Surveys
- ☐ Measured Building Surveys
- ☐ Boundary Surveys
- ☐ OS Mapping and Data Centre
- ☐ Underground Utility Surveys

Uskmouth B Power Station
Newport

Topographical Survey - Sheet 21 of 22

Client: Simec Atlantic Energy

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Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

National Grid

Sheet Layout:

SA3611 Sheet 1	SA3611 Sheet 6	SA3611 Sheet 11	SA3611 Sheet 16	SA3611 Sheet 21
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Having Made Good Reports, Make Good Environmental Site - Land Registry Title Plans

www.azimuthgeodata.co.uk

Abbreviations:

B/WW	brick retaining wall	FFL	finished floor level	RE	rodding eye	H	height (of feature)
BT	bollard (illuminated)	FP	flagpost	RG	rainwater gully	↑	arrow indicates up
BL	bollard (illuminated)	G/W	gallow wall	RI	road signal		(unless otherwise
BT	bollard	GP	gas governor	RWP	rainwater pipe		stated)
BT	telecom inspection cover	HY	gas valve	S/WW	rain water shoe	▲9002	survey control point
C/WW	concrete wall	IL	fire hydrant	SP	stone retaining wall		
C/RW	concrete retaining wall	IP	invert level	SP	signpost		
CATV	cable television cover	IR	inspection chamber (general)	SP	sign post		
CH	chimney	IRC	metal railings	SPG	stop post		
CI	corrugated metal	KO	interseven wood slat	STN	stone pitching slabs		
CO	concrete	LP	kerb outlet	SV	survey control station		
CP/Dog	concrete post & barbed wire	LP	lamp post	SVP	survey control point		
CP/DL	concrete post & chain link	MH	light post	TBM	soil vent pipe		
CP/M	concrete post & mesh	MH	manhole	TP	temporary bench mark		
CP/W	concrete post & wire mesh	MP	marker	TRL	threshold level		
CR	concrete post & wire mesh	MP	mile post	TS	traffic light		
CVL	concrete ridging	NB	name board	TV	transformer pole		
D	culvert	OB	name board	TW	cable tv		
DI	drop kerb	OB	open bonded	VP	weir		
DP	drain	P/B	parapet/safety barrier	Wag	weir stop		
EP	electricity pole	P/C	post & chain fence	WF	wood rail		
EW	earthing rod	PA	pitting	WF/B	wood post & barbed wire		
FB	flower bed	PO	plinth	WF/C	wood post & rail		
				WF/S	wood post & wire		

Drainage features:

CL	cover level
FL	floor level
IL	invert level
CMH	combined manhole
SWMH	storm water manhole
FWMH	foul water manhole
CB	catchpit
GTR	gratings (size)
SL	soffit level
--->	arrow indicates direction of flow

Notes:

Revisions:

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Uskmouth B Power Station
Newport

Topographical Survey - Sheet 22 of 22

Client: Simec Atlantic Energy

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Scale	1:200@A0	Date	July 2019	Status	Final	Job No.	SA3611
Surveyed	A. Jolliffe	Drawn	L. Rajnohova	Checked	C. J. Sullivan	Dwg. No.	SA3611-01

OS NORTH

NOTES

1. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ON THIS DRAWING ARE IN METRES.
2. ALL LEVELS ARE IN METRES AND RELATED TO GNSS ORDNANCE SURVEY NEWLYN DATUM
3. COORDINATES ARE ON A LOCAL PLANE METRIC GRID RELATED TO ORDNANCE SURVEY GRID ABOUT THE CONTROL POINT SC01

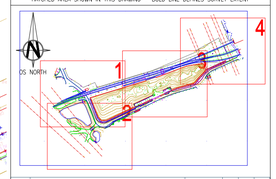
TOPO LEGEND

AB	AIR BRICK	LFB	LIFEBUOY
AV	AIR VALVE	LP	LAMP POST
BB	BELISHA BEACON	MB	MOORING BOLLARD
BHL	BUILDING HEIGH	MF	MISCELLANEOUS FENCING
TBH	BOREHOLE	MH	MANHOLE
BL	BUILDING EAVES LEVEL	MKR	MARKER
BM	BENCH MARK	MP	MOORING PILE
BOL	BOLLARD	MRF	METAL RAILING FENCE
BRK	BRICKWORK	MS	MILE STONE
BS	BUS STOP	NB	NOTICE BOARD
BW	BRICK WALL	NP	STREET NAME PLATE
BWF	BARBED WIRE FENCE	NRA	NATIONAL RIVERS AUTHORITY
CB	CONTROL BOX	OGC	OVERGROUND CONDUIT
CIF	CORRUGATED IRON FENCE	OHG	OVERHEAD GANTRY
CL	COVER LEVEL	OSR	OPEN STEEL RAILINGS
CLF	CHAIN LINK FENCE	P	POST
CP	SECURITY CAMERA POST	PB	PILLAR BOX
CPL	COPING LEVEL	PM	PARKING METER
CPT	CABLE PIT COVER	PRF	CONC POST & RAIL FENCE
CR	CYCLE RACK	PTM	PARKING TICKET MACHINE
CTV	CABLE T.V. MANHOLE	PV	VERTICAL PIPE
CUL	CULVERT	RE	RODDING EYE COVER
DK	DROP KERB	RP	REFLECTIVE POST
DL	DECK LEVEL	RS	ROAD SIGN
DP	DOWNPIPE	RTW	RETAINING WALL
DPC	DAMP PROOF COURSE	RWP	RAINWATER PIPE
DR	DRAIN	SC	STOP COCK
DWB	DOG WASTE BIN	SDP	STAND PIPE
EA	ENVIRONMENT AGENCY	SK	SOAKAWAY
EB	ELECTRICITY BOX	SL	SOFFIT LEVEL
ECF	ELECTRIC CABLE FENCE	SMH	SURFACE WATER MANHOLE
ECP	ELECTRICITY CABLE PIT	SMP	SHEET METAL PILING
EMH	ELECTRICITY MANHOLE	SP	SIGN POST
EP	ELECTRICITY POLE	STU	TREE STUMP
ER	EARTHING ROD	SV	SLUICE VALVE
ETL	ELEC. TRANSMISSION LINE	SVP	SOIL VENT PIPE
FB	FOOTBRIDGE	SWF	SHEEP WIRE FENCE
FH	FIRE HYDRANT	TBM	TEMPORARY BENCH MARK
FHM	FIRE HYDRANT MARKER	TC	TELECOM CABINET
FL	FLOOR LEVEL	TCB	TELEPHONE CALL BOX
FP	FENCE POST	TCP	TELEPHONE CALL POST
FWM	FOUL WATER MANHOLE	TCL	TELECOM MANHOLE
G	GULLY	THL	THRESHOLD LEVEL
GL	GROUND LIGHT	TL	TRAFFIC LIGHT
GM	GAS MARKER	TLB	TRAFFIC LIGHT BOX
GP	GATE POST	TP	TELEGRAPH POLE
GV	GAS VALVE	TRS	TIMBER RUBBING STRIP
HRL	HANDRAIL	TSR	TUBULAR STEEL RAILINGS
IC	INSPECTION CHAMBER	WB	WASTE BIN
IL	INVERT LEVEL	WL	WATER LEVEL/WATER LINE
IRF	IRON RAILING FENCE	WM	WATER METER
IWF	INTERWOVEN FENCE	WMF	WIRE MESH FENCE
JO	JUNCTION BOX	WP	WOODEN POST
KO	KERB OUTLET	WPR	WOODEN POST & RAIL FENCE
LDR	LADDER	WV	WATER VALVE

FINAL ISSUE

LOCATION PLAN

HATCHED AREA SHOWN IN THIS DRAWING – BOLD LINE DEFINES SURVEY EXTENT



Rev	Description	Date	Drn / Chk / App
-	-	-	- - -
A	FIRST APPROVED ISSUE	13/12/2024	JBS CM GP

Document Control

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TETRA TECH

Client

SAE

Project Name

Uskmouth Power Station AW2

Sheet Title

Uskmouth Power Station AW2
2D Topographical Survey
Sheet 1 of 4

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A0	Suitability
784-B070326	JBS	13/12/24	C.M.	13/12/24	G.P.	13/12/24	1:200	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
784-B070326	- TTE	- ZZ	- ZZ	- DR	- G	- 001	A

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OS NORTH

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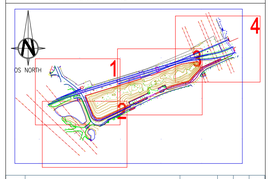

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Client

SAE

Project Name

Uskmouth Power Station AW2

Sheet Title

Uskmouth Power Station AW2
2D Topographical Survey
Sheet 2 of 4

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A0	Suitability
784-B070326	JBS	13/12/24	C.M.	13/12/24	G.P.	13/12/24	1:200	S3

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
784-B070326	- TTE	- ZZ	- ZZ	- DR	- G	- 002	A

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