

Celtic Way Flood Consequence Assessment

Version 4

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Contract

This report describes work commissioned by Jawsy Jabbar of Pinnacle Consulting Engineers on the 8th July 2022. Clare Burnell, Hannah Bard and Polly Stradling of JBA Consulting carried out this work.

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Purpose

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1 Introduction

JBA Consulting were commissioned by Pinnacle Consulting Engineers to prepare a Flood Consequence Assessment (FCA) to support a planning application to redevelop the former Quinn radiator factory in Imperial Park, Newport, into a data centre. This FCA demonstrates the suitability of the proposed development and describes the flood mitigation measures recommended to manage flooding at the site.

This FCA has been prepared to support an S.73 application at the site which secures some design changes; the key changes in relation to flood risk relate to changes to TAN15; and those changes do not alter the conclusions of the original FCA.

1.1 FCA requirements

This FCA follows the Welsh Government guidance on development and flood risk set out in the Technical Advice Note 15: Development, Flood Risk and Coastal Erosion (TAN-15). TAN-15 states that:

'The prime objective of a Flood Consequences Assessment is to develop a full appreciation of:

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

To achieve this, the FCA should establish if suitable avoidance and mitigation measures can be incorporated, in a manner compatible with the placemaking aims of Planning Policy Wales, within the site design to ensure that development is safe and there is:

- Minimal risk to life;
- Minimal disruption to people living and working in the area;
- Minimal potential damage to property; and
- Minimal disruption to the sustainable management of natural resources.

2 Site Description

2.1 Site summary

The proposed development site is the former Quinn Radiator Factory, situated in Imperial Park in Coedkernew, Newport, as shown in Figure 2-1. The site is bounded by Celtic Way to the east, Dyffryn Lane to the south, Church Lane to the west and industrial units to the north. The site sits within a much larger and wider strategic employment area that includes Airbus, R&D centres, and Gocompare.com.

The site is situated approximately 3.2km north of the Severn Estuary.

Table 2-1 Site summary

Site name	Celtic Way
Site area	16.49ha
Existing land use	Disused Factory
Purpose of development	Data Centre
OS NGR	ST 27809 84105
Local Planning Authority	Newport City Council
Lead Local Flood Authority	Newport City Council

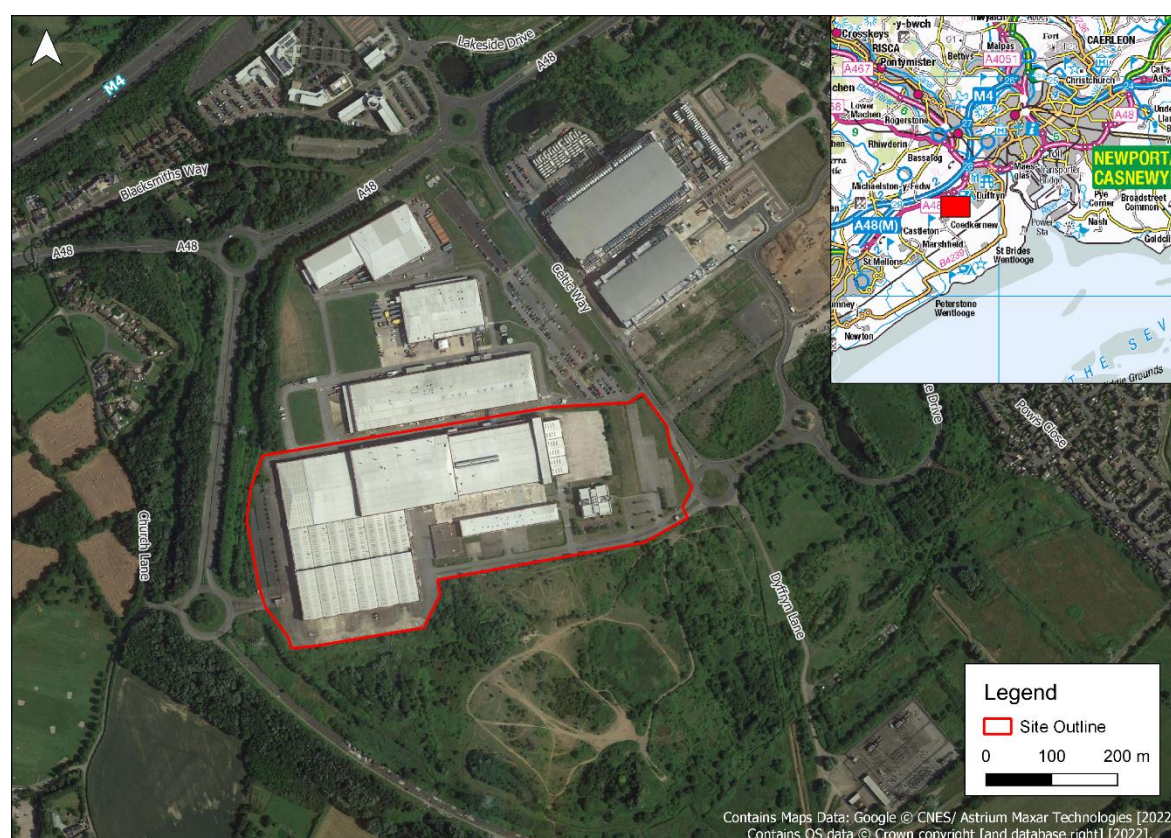


Figure 2-1 Site location

2.2 Site topography

A detailed topographic survey was undertaken by Laser Surveys in May 2021 and contained in Appendix A.

For ease of reference the Natural Resources Wales (NRW) Open Source 1m Light Detection and Ranging (LiDAR) data¹ has been used to illustrate the site topography as shown in Figure 2-2. The LiDAR data shows the site is relatively flat between 10.1mAOD and 10.9mAOD. The east of the site, currently occupied by parking spaces, is raised significantly higher than the rest of the site to approximately 13mAOD. The topographic survey also shows the finished floor level of the existing building is 11.0mAOD.

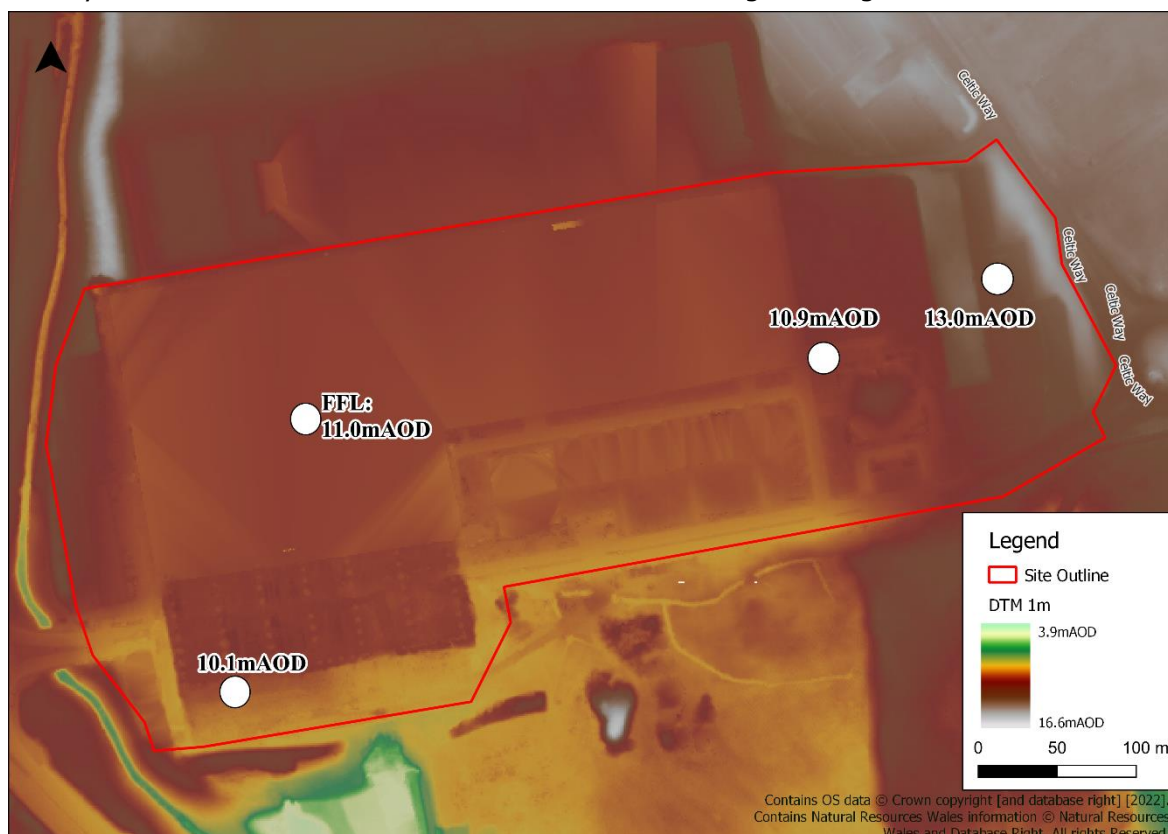


Figure 2-2 LiDAR Topographic data from NRW (1m resolution)

2.3 Soils and geology

The geology of the site has been assessed using the BGS Geology of Britain Viewer². The bedrock geology is shown to be St Maughans Formation comprised of Argillaceous rocks and sandstone. Superficial deposits are comprised of sand and gravel forming river terrace deposits.

The soils on the site have been assessed using the Cranfield University Soilscales Viewer³ and are shown to be freely draining, slightly acid loamy soils.

¹ LLE Geoportal for Wales: <http://lle.gov.wales/catalogue/item/LidarCompositeDataset/?lang=en>

² Geology of Britain Viewer. https://geologyviewer.bgs.ac.uk/?_ga=2.75172241.266172825.1657115636-2037829421.1650550580

³ Cranfield Soilscales Viewer. <https://landis.org.uk/soilscales/>

2.4 Proposed development

The proposed development plans are to redevelop the former Quinn radiator factory into a datacentre, including a substation, water treatment works, and associated roads as shown in Figure 2-3.



Figure 2-3 Extract from proposed site layout

3 Planning Policy and flood risk

3.1 Planning context

Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which, together with PPW, provide the national planning policy framework for Wales. These policies aim to make all development in Wales sustainable, and improve the social, economic, environmental, and cultural wellbeing of Wales as set out in the Wellbeing of Future Generations Act 2015.

Technical Advice Note 15 (TAN-15), originally introduced by the Welsh Government in 2004 and most recently updated in March 2025, provides technical guidance relating to development planning and flood risk in Wales. TAN-15 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. The approach set out in the most recent update to TAN-15 ensures flooding and coastal erosion are accorded appropriate consideration in plan making and development management decisions.

3.2 Form of Development

TAN-15 recognises two key forms of development: New development and Redevelopment. The definition of both terms is provided in Table 3-1.

Table 3-1 Form of Development

Form of Development	
New Development	Any Development on greenfield land
Redevelopment	Any Development on previously developed land as defined in Planning Policy Wales

As detailed in Section 2.4, development proposals are for the development of the former Quinn Radiator Factory to a data centre. As such, the proposed development is classified as **Redevelopment**.

3.3 Vulnerability classification

TAN-15 assigns one of three flood risk vulnerability classifications to developments, as shown in Table 3-2. The proposed development is consequently classed as **Less Vulnerable Development**, in accordance with general industrial site.

Table 3-2 TAN-15 Vulnerability Classification

Development category	
Highly Vulnerable Development	All residential premises (including hotels, Gypsy and Traveller sites, caravan parks and camping sites). Schools and childcare establishments, colleges and universities. Hospitals and GP surgeries. Especially vulnerable industrial development (e.g. power generating and distribution elements of power stations, transformers, chemical plants, incinerators), and waste disposal sites. Emergency services, including: ambulance stations, fire

	stations, police stations, command centres, emergency depots. Buildings used to provide emergency shelter in time of flood.
Less Vulnerable Development	General industrial, employment, commercial and retail development. Transport and utilities infrastructure. Car parks. Mineral extraction sites and associated processing facilities (excluding waste disposal sites). Public buildings including libraries, community centres and leisure centres (excluding those identified as in Highly Vulnerable category and emergency shelters). Places of worship. Cemeteries. Equipped play areas. Renewable energy generation facilities (excluding hydro generation).
Water Compatible Development	Boatyards, marinas and essential works required at mooring basins. Development associated with canals. Flood defences and management infrastructure. Open spaces (excluding equipped play areas). Hydro renewable energy generation.

3.4 Lifetime of Development

TAN-15 identifies that a proposed development must provide a safe and secure living and/or working environment throughout its lifetime. Section 10.28 of TAN-15 advises that:

"Generally, it is appropriate to think of new dwellings as having a lifetime of 100 years. Lifetimes for other types of development will vary, but 75 years is considered a reasonable rule of thumb."

As the proposals are for a general industrial development a 75-year lifetime of development has been considered in this assessment.

3.5 Flood Map for Planning

The Flood Map for Planning (FMfP) 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. The main zones are Zone 1, Zone 2, Zone 3 and the Defended Zone. The FMfP displays predicted future flood risk with an allowance made for climate change.

3.5.1 Flood Map for Planning – Flood Risk from Rivers

As shown in Figure 3-1, the site is located in Flood Zone 1 of the Flood Map for Planning for Rivers. This means that there is less than a 0.1% Annual Exceedance Probability (AEP) chance of fluvial flooding in any given year, including climate change.

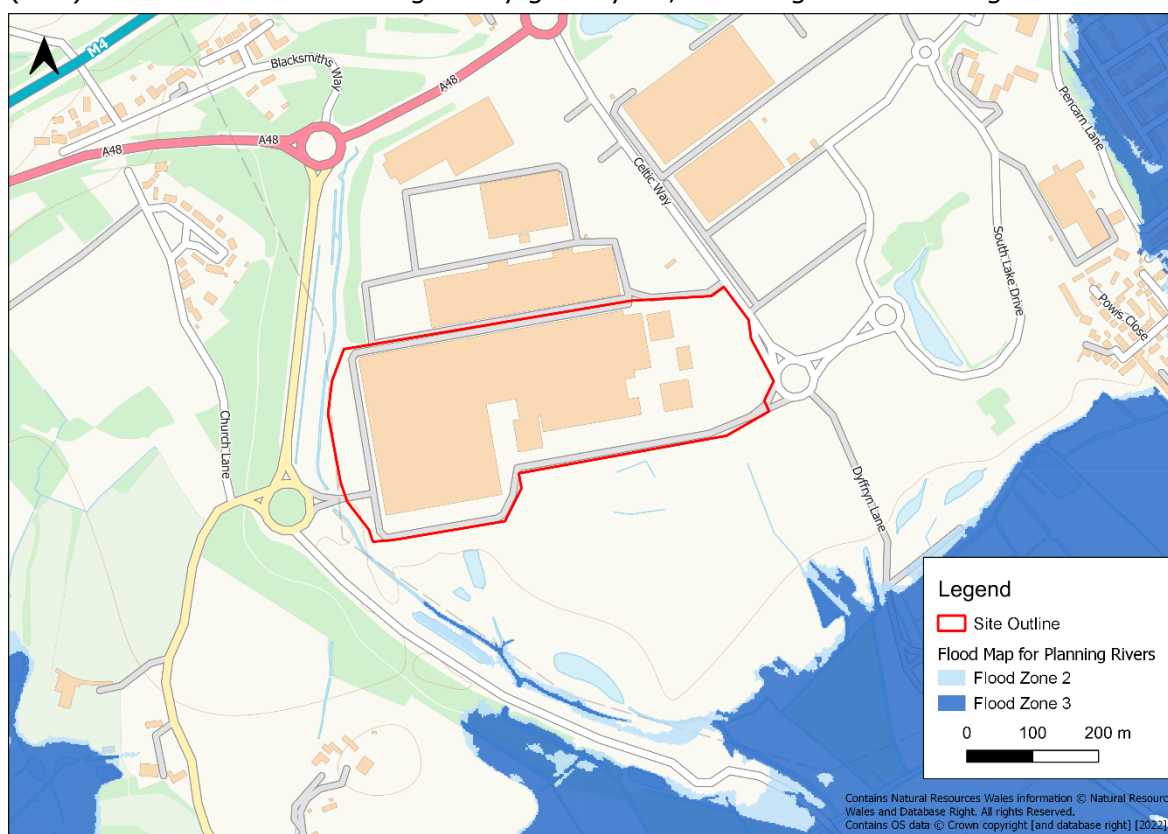


Figure 3-1 Flood Map for Planning Rivers

3.5.2 Flood Map for Planning – Flood Risk from the Sea

As shown in Figure 3-2, the proposed development site is mostly located in Flood Zone 1 of the Flood Map for Planning for the Sea. This means there is less than a 0.1% Annual Exceedance Probability (AEP) chance of fluvial flooding in any given year, including climate change. A small area along the southern and western boundary of the site is located in Flood Zone 2 (between a 0.5% and 0.1% AEP chance of flooding from the sea in any given year).

This same extent is also located within the TAN-15 Defended Zone, protected by the Wentlooge tidal defences. This means flood risk management infrastructure provides a minimum standard of protection against flooding from the sea in the 0.5% AEP event. The development site located within a TAN-15 defended zone has triggered the requirement for this FCA.

It should be noted that the FMfP is based on a lifetime of development of 100 years, whereas the proposed development has a lifetime of 75 years. The FMfP also does not use the most up to date climate change guidance and is based on generalised flood modelling of the whole of Wales. These factors mean that the FMfP is not as reliable as

detailed modelling for the area and may show that the site is at flood risk when this is not the case.

Detailed modelling for the area uses the latest climate change guidance, tailored hydrology for the area and information of the flood defences and structures along the coast. Therefore, the results from the detailed model covering this location (contained in Section 5) are considered more accurate than the FMfP.

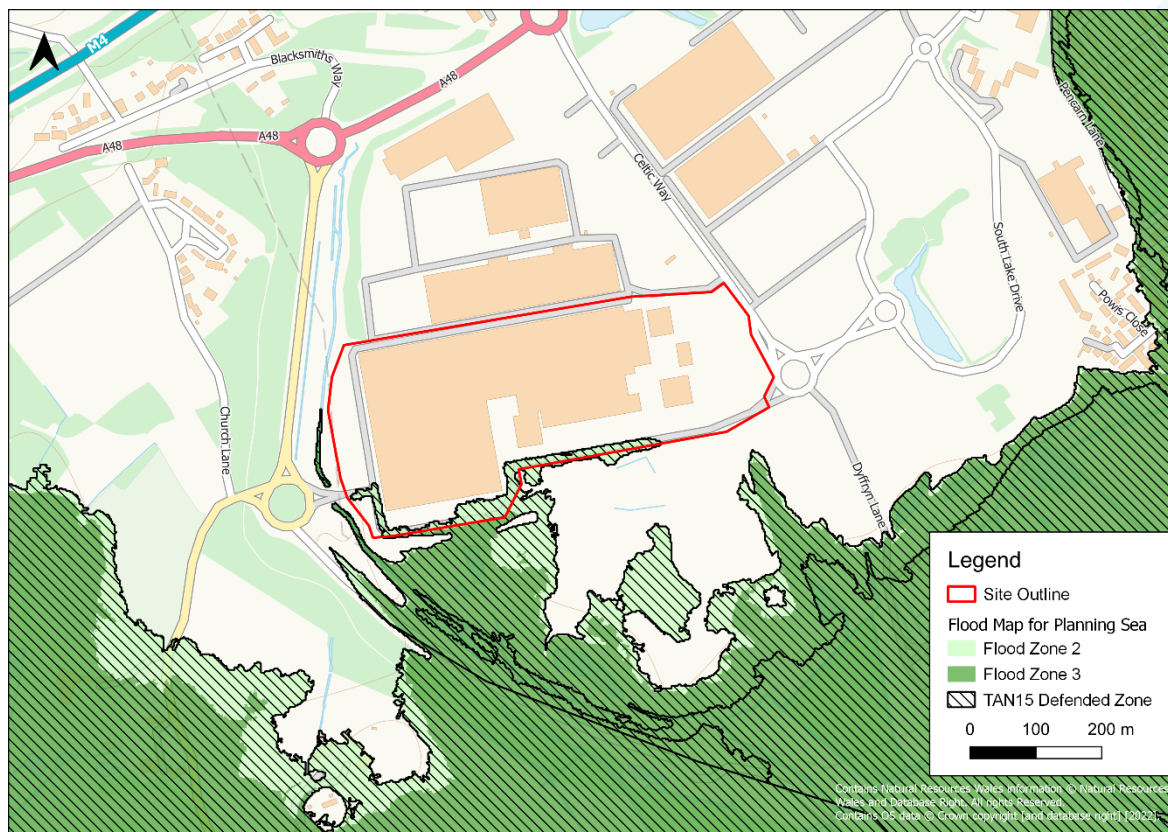


Figure 3-2 Flood Map for Planning Sea

3.5.3 Flood Map for Planning – Flood Risk from Surface Water and Small Watercourses

The site is located largely in Flood Zone 1 of the Flood Map for Planning for Surface Water and Small Watercourses, as shown in Figure 3-3. This means that there is less than a 0.1% AEP chance of flooding from these sources in a given year. There are however some localised areas of surface water ponding within the site which are located in Flood Zone 2 (between a 0.1% and 1% chance of flooding in any given year). Furthermore, Dyffryn Lane to the south of the development and the access road to the west is shown to be a surface water flow path and situated in Flood Zone 3. This means there is a greater than 1% chance of flooding in any given year.

A detailed review of surface water flood risk on site is undertaken in Section 4.5.

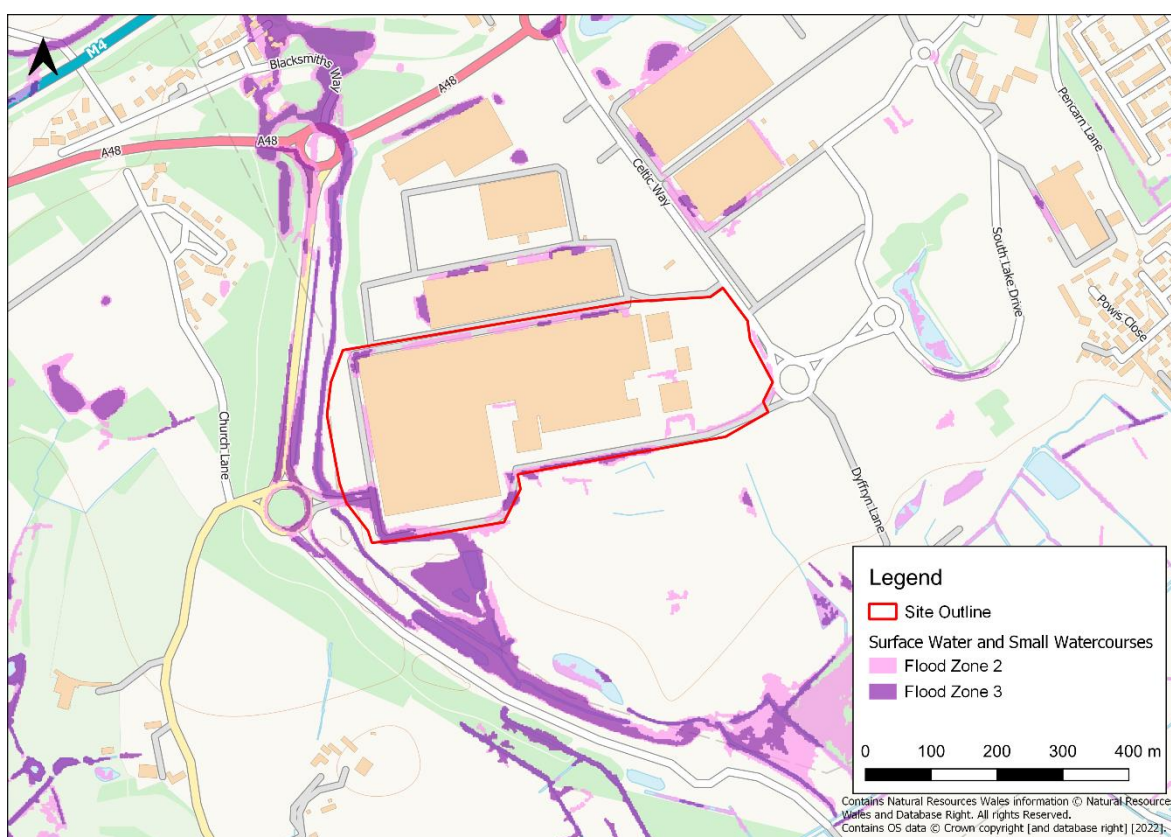


Figure 3-3 Flood Map for Planning- Surface Water and Small Watercourses

3.6 Local Development Plan

The Newport Local Development Plan (LDP)⁴, adopted in 2015, provides land use policies and proposals to encourage sustainable growth within the Newport City Council area until 2026.

Strategic Policy 17 (SP17) aims to provide 172 ha of employment land to provide an additional 7,400 jobs over the LDP period. The proposed development will re develop the former factory into a data centre, helping to meet this employment need.

3.7 Shoreline Management Plan and Severn Estuary Flood Risk Management Strategy

The proposed site and all the Caldicot and Wentlooge Levels are protected by significant and extensive coastal flood defences that protect large areas of existing development (inc. Newport, Magor, Undy, Caldicot) and national infrastructure (rail mainline, Severn Tunnel, national grid power infrastructure, M4 motorway).

The Severn Estuary Shoreline Management Plan⁴ recognised this and set a policy to 'Hold the Line', maintaining the flood defences for the long term.

The importance of defending the area from flood risk is further established in the Severn Estuary Flood Risk Management Strategy. The Strategy concluded that "*There is a strong economic case to maintain and improve the existing defences due to the large number of properties and infrastructure that is protected.*" It also states "*We will continue maintaining the line and level of defences over the next 100 years. After 2060 there will be improvements to keep pace with climate change. This is likely to involve*

⁴ Newport Local Development Plan, 2015, <https://www.newport.gov.uk/documents/Planning-Documents/LDP-2011-2026/LDP-Adopted-Plan-January-2015.pdf>

rock armour or concrete protection where not already present and raising to ensure the risk of tidal flooding remains a 1 in 200 chance or less."

The significance and importance of the coastal defences and the need to maintain and upgrade them over time was also firmly established by the Welsh Government at the 'M4 corridor around Newport' enquiry.

4 Flood risk assessment

4.1 Review of existing flood risk data

This section has been completed using the NRW Flood Risk Assessment Wales (FRAW) dataset. It should be noted that the FRAW data set does not include an allowance for climate change. Datasets or modelling with an allowance added for climate change will need to be considered where required, as is the case for tidal risk in this assessment.

The latest available information on flood risk at the site is summarised in Table 4-1 below.

Table 4-1 Summary of flood risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	*	The site is at very low to low risk of flooding from rivers (Section 4.3).
Flood Risk from the Sea	*	The site is at very low risk of tidal flooding (Section 4.4). Further assessment is required to assess the potential implications of climate change on tidal flooding (Section 5).
Flood Risk from Surface Water and Small Watercourses	*	The site is at low risk of surface water flooding (Section 4.5).
Flood Risk from Groundwater	*	The site has a low risk of flooding from groundwater (Section 4.6).
Flood Risk from Reservoirs	*	The site is at very low risk of flooding from reservoirs (Section 4.7).
Flood Risk from Sewers	*	The site has a low risk of sewer flooding (Section 4.8).

4.2 Historical flooding

NRW's map of recorded flood extents does not show any evidence of historic flooding on the site. No other historic flooding records were identified at the site in the Newport City Council Preliminary Flood Risk Assessment (PFRA)⁵.

4.3 Flood risk from rivers

As shown in Figure 4-1, the site is at **very low risk** of flooding from rivers, according to NRW's Flood Risk Assessment Wales (FRAW) Flood Risk from Rivers map. This means there is less than a 1 in 1000 (0.1% AEP) chance of fluvial flooding in any given year.

⁵ Newport City Council Preliminary Flood Risk Assessment (2011) <https://www.newport.gov.uk/documents/Planning-Documents/Flood-risk/Preliminary-Flood-Risk-Assessment-Report-April-2011.pdf>

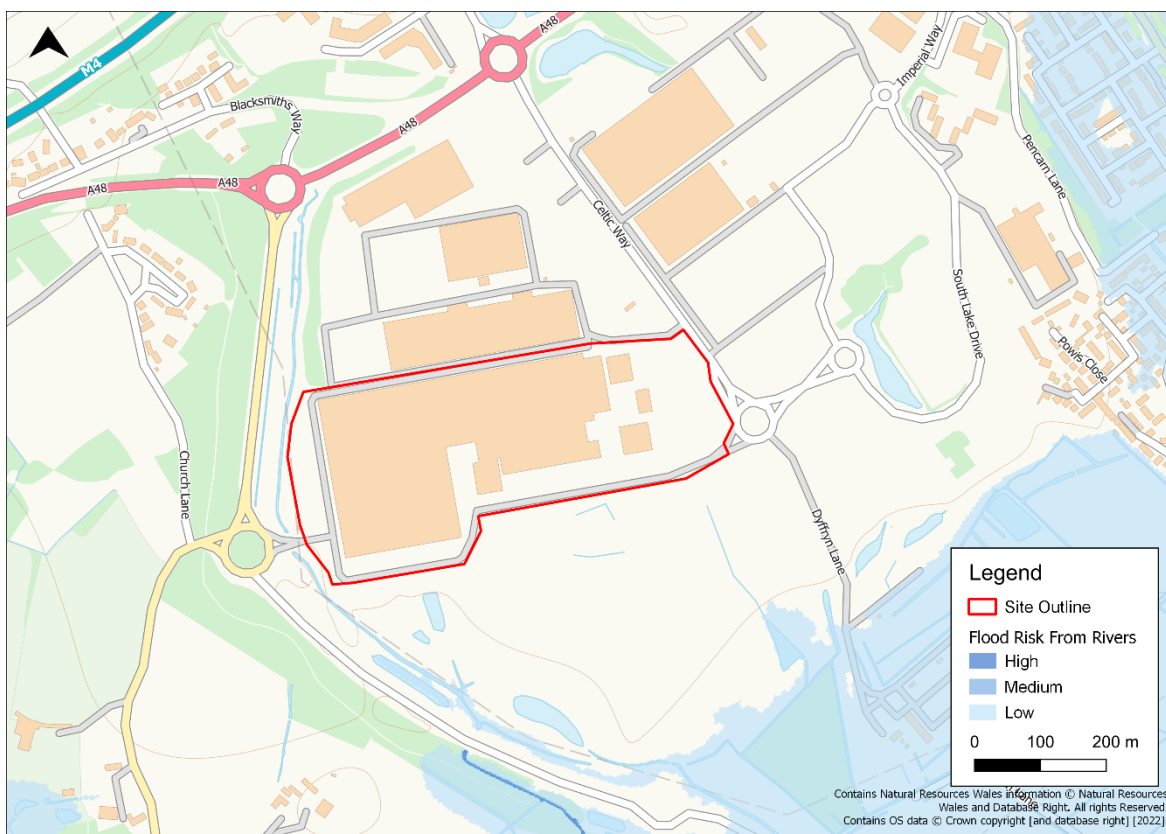


Figure 4-1 Risk of flooding from rivers

4.4 Flood risk from the sea

As shown in Figure 4-2, the site has a **very low risk** of flooding from the sea according to NRW's FRAW Flood Risk from the Sea map. This means that there is less than a 1 in 1000 (0.1% AEP) chance of tidal flooding in any given year.

However, the FMfP for the Sea (Figure 3-2) indicates that the site is at risk of flooding when climate change is taken into consideration. Therefore, to better understand the potential implications of climate change on the risk of tidal flooding, further assessment using detailed modelling data has been undertaken and is discussed in Section 5.

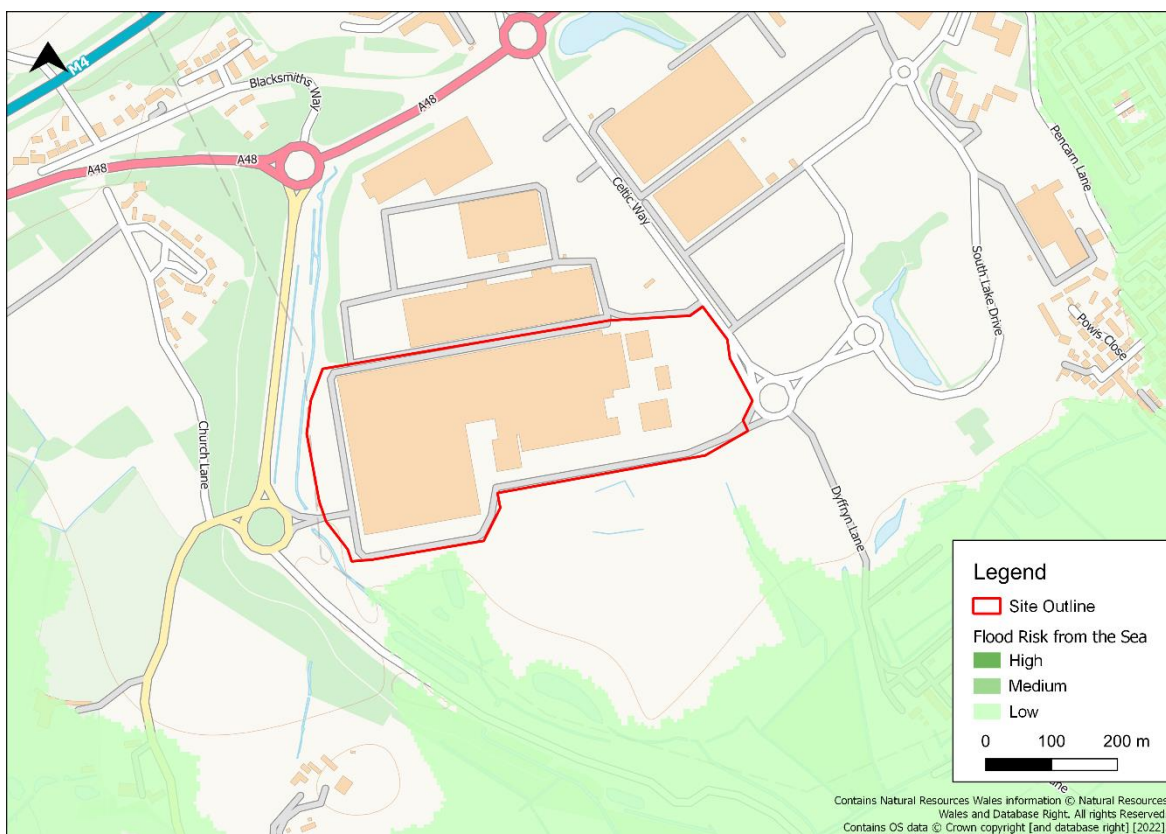


Figure 4-2 Risk of flooding from the sea

4.5 Flood risk from surface water and small watercourses

The site largely has a **very low risk** of flooding from surface water and small watercourses according to NRW's FRAW Flood Risk from the Surface Water and Small Watercourses map shown in Figure 4-3. This means there is less than a 0.1% AEP chance of flooding from these sources in any given year.

However, the FRAW dataset does not include an allowance for climate change. Consequently, the FMfP constitutes the best source of information for surface water flood risk to the site.

Given the nature of the site and the generalised modelling approaches to modelling surface water and small watercourse flood risk, it is not surprising that there are localised areas of flooding indicated. This does not indicate a significant flood risk issue, and largely reflects the limitations of the generalised modelling to account for existing site drainage and culverts in the local reën network. Following careful review of the Surface Water and Small Watercourses dataset, a product produced by JBA for NRW, we are satisfied that the risk from this flood source is low.

It is also noted that the site shall be served by a comprehensive surface water drainage strategy, utilising SuDS techniques. This system (designed by others) shall manage surface water on site in line with the Statutory Standards for SuDS in Wales, further mitigating the risk of surface water flooding to the proposed redevelopment site.

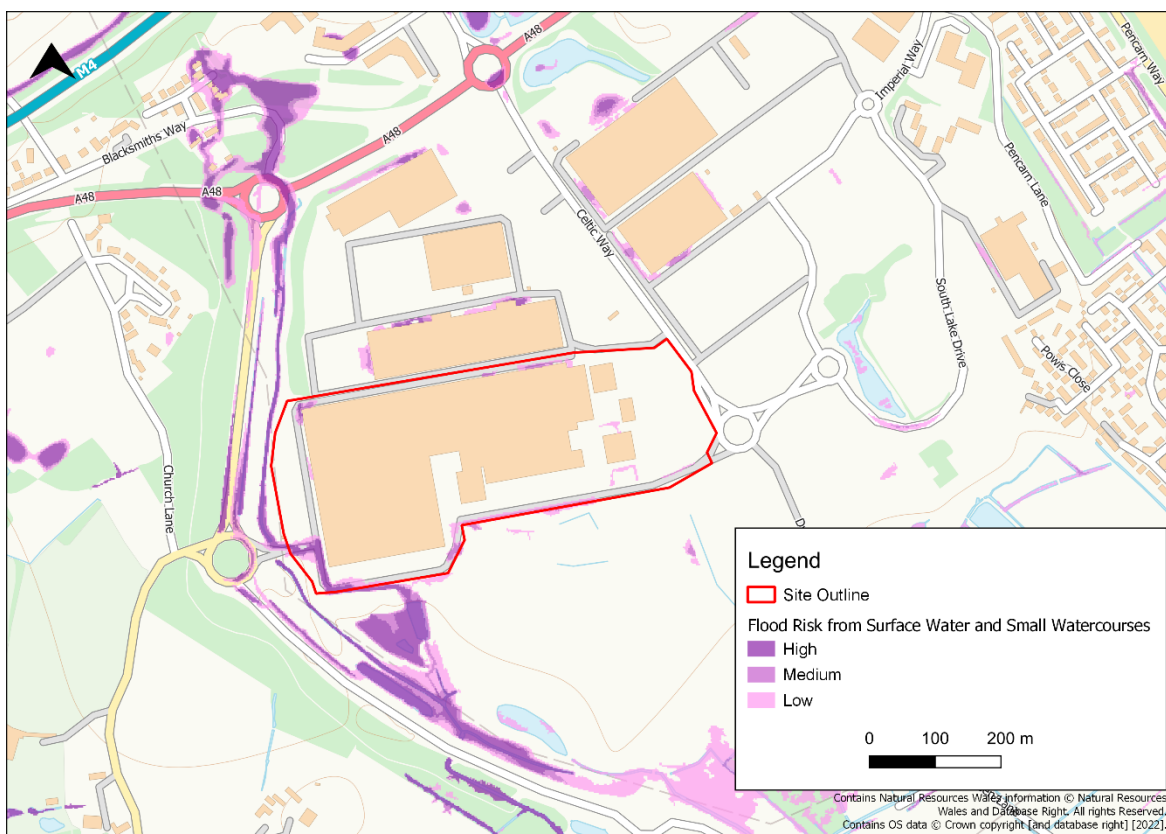


Figure 4-3 Risk of flooding from surface water and small watercourses

4.6 Flood risk from groundwater

Groundwater flooding is caused by unusually high groundwater levels, and it occurs as excess water emerges at the ground surface or within manmade structures such as basements. Groundwater flooding tends to be more persistent than surface water flooding, sometimes lasting for weeks or months, and can damage property. This risk of groundwater flooding depends on the nature of the site's geological strata and the local topography.

Newport City Council PFRA⁵ states that '*groundwater is not considered to be a significant flood risk and is considered to rise and fall relatively slowly. The local geology is not considered to yield considerable volumes of groundwater.*' The site is therefore considered to be at **low risk** of groundwater flooding.

4.7 Flood risk from reservoirs

Given the absence of any nearby reservoirs, the NRW's reservoir flood map shows the site, and its surrounding area is not at risk of reservoir flooding. This is shown by a transparent layer on the NRW mapping and as such a map has not been provided in this assessment.

4.8 Flood risk from sewers

The Newport City Council PFRA⁵ identifies that there had been a total of 78 sewer flooding events within the county, the locations of which had not been specified. However, the PFRA states "*none of the data suggests flooding from sewer sources has significant consequences at this strategic scale*". The risk of flooding from sewers is therefore considered to be **low**.

5 Detailed tidal flood risk assessment

As the site is partially located in Flood Zone 2 in the Flood Map for Planning for the Sea, a better understanding of the potential implications of climate change on the risk of tidal flooding is required. The following section, therefore, assesses these sources of flood risk in more detail.

5.1 JBA Wentlooge model

The NRW Wentlooge model was developed in 2016 and extends from the River Rhymney estuary in Cardiff to the River Usk estuary in Newport.

This model has recently been updated by JBA, applying the new Coastal Flood Boundary (CFB) dataset⁶, released in 2019. For this study, extreme sea level estimates were taken from Node 396 (River Usk) and 408 (River Rhymney) and applied across the tidal boundary of the model. Wave overtopping values have not been recalculated from the 2016 version, and therefore remain precautionary as they assume the 100 years of climate change.

For all coastal locations, future sea level rise is a major consideration and should be applied to the extreme sea level estimates. The UKCP18 User Interface⁷ has therefore been used in accordance with Welsh Government Guidance on Climate Change Allowances for Planning Purposes (September 2021)⁸ to provide climate change uplifts for the study area. The predicted tidal flood levels, including the impacts of climate change, which were applied to the updated Wentlooge model are shown in Table 5-1.

Welsh Government guidance suggests that the lifetime of non-residential development is 75 years. The Wentlooge model results for the present day (2022) and for 75 years (2097) have therefore been used to assess the flood risk at the site.

Table 5-1 Predicted tidal flood levels

	Modelled Tide Levels (mAOD)			
Year	2022		2097	
AEP	0.5%	0.1%	0.5%	0.1%
CFB_396	8.36	8.7	9.06	9.4
CFB_4080	7.94	8.3	8.64	9.0

The extreme 0.1% AEP plus climate change (2097) sea level is well below the existing minimum ground levels of the site.

5.2 2022 - Present day model results

The proposed development site is predicted to be flood free in both the 0.5% AEP and 0.1% AEP present day (2022) events. Figure 5-1 shows the flood extent for the 0.1% AEP 2022 event in the vicinity of the proposed redevelopment site.

⁶ UK Government (2019) Coastal flood boundary conditions for the mainland UK coasts and islands <https://www.gov.uk/flood-and-coastal-erosion-risk-management-research-reports/coastal-flood-boundary-conditions-for-the-mainland-uk-coasts-and-island>

⁷ UK Climate Projections User Interface. <https://ukclimateprojections-ui.metoffice.gov.uk/ui/home>

⁸ Welsh Government. Flood Consequences Assessment: Climate Change Allowances (Sept 2021) https://gov.wales/sites/default/files/publications/2021-09/climate-change-allowances-and-flood-consequenceassessments_0.pdf.

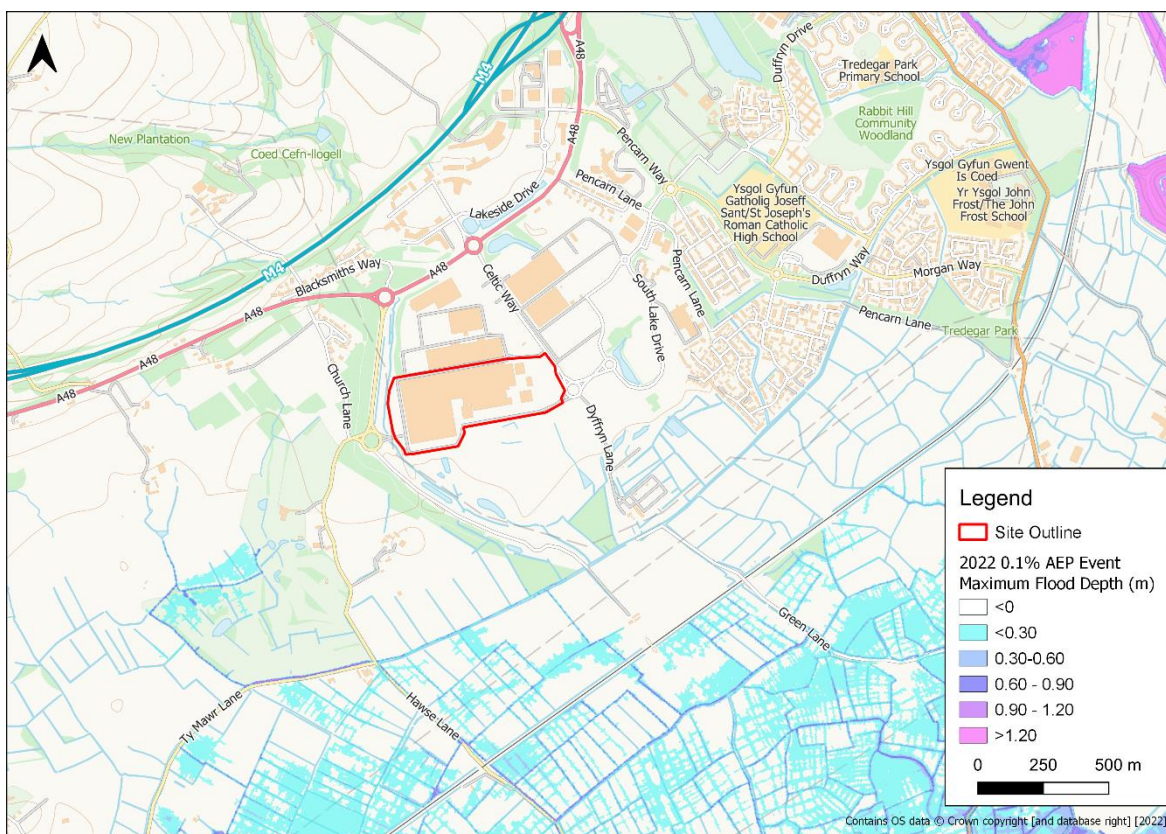


Figure 5-1 2022 0.1% AEP maximum flood depth

5.3 2097 – 75 year design life model results

The proposed development site is predicted to be flood free in both 0.5% AEP and 0.1% AEP 2097 events. Figure 5-2 shows the flood extent for the 0.1% AEP 2097 event in the vicinity of the proposed development site.

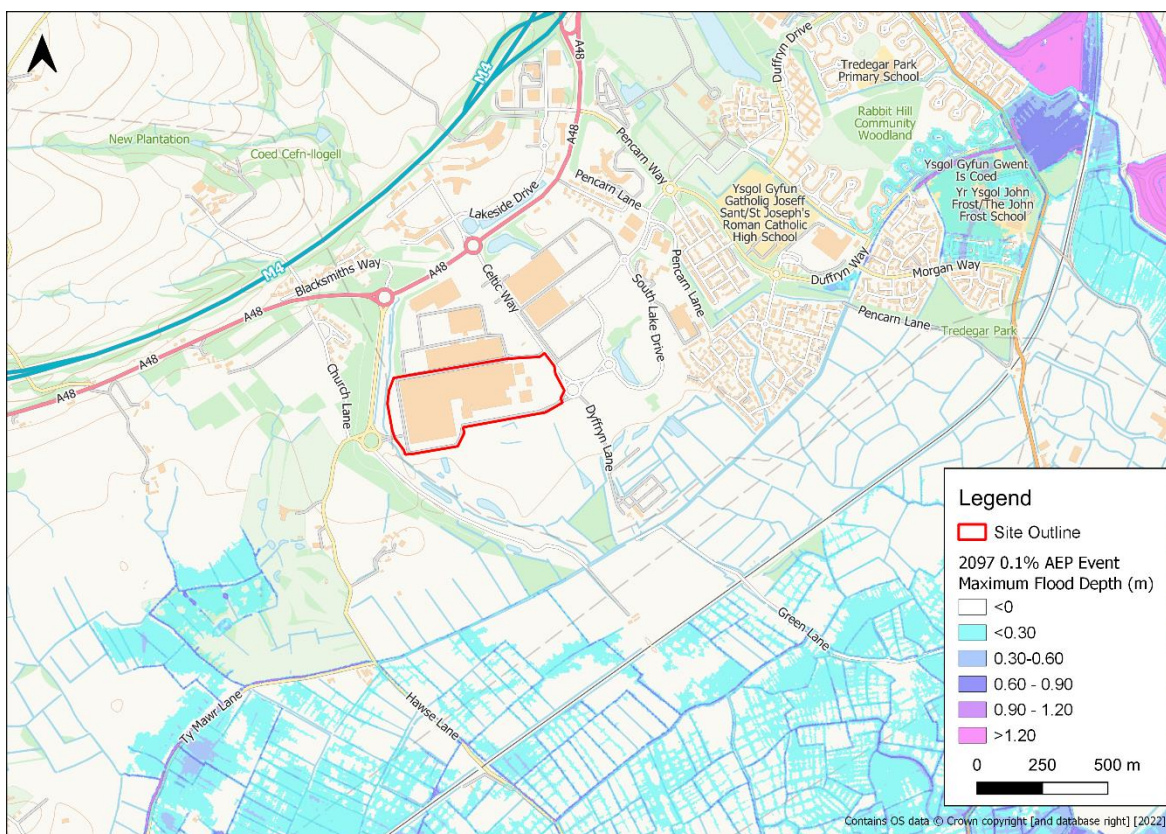


Figure 5-2 2097 0.1% AEP maximum flood depth

6 Flooding and the Plan Led System

6.1 Application of Flood Zones to Development Management Decisions

When considering a site for development, TAN-15 sets out the requirements for the form of development in any given flood zone.

It is understood that the presence of the site within the TAN-15 Defended Zone supplants the sites' location within Flood Zones 2 and 3, regardless of the source of risk. For a proposed redevelopment site within TAN-15 Defended Zone, Section 10.17 of TAN-15 states:

"On brownfield sites, redevelopment proposals should not over intensify use neither should they reduce the area's ability to absorb flood water nor cause problems with flooding elsewhere. All applications should consider opportunities to incorporate flood resilient design as appropriate and any proposal involving highly vulnerable development must be compliant with the tolerable conditions set out in section 11."

It is considered that the proposals do not result in an over intensification of use as a result of the general industrial nature of the development site. Both a radiator factory and a data centre would fall within the 'less vulnerable development' classification. The proposals result in minor changes to building footprint, with a general reduction in impermeable area as a result of the introduction of SuDS assets to manage surface water risk. The development site is located within an area with lots of other industrial developments within the same vulnerability category, sitting within a much larger and wider strategic employment area that includes Airbus, R&D centres, and Gocompare.com. It is therefore concluded that the proposal does not result in an over intensification of risk at the site.

The proposed development represents a sustainable and proportionate reuse of existing general industrial infrastructure to support the aims and objectives of the Newport LDP.

An assessment against the acceptability criteria has been undertaken in Section 6.2.

6.2 Assessment of Acceptability Criteria

The site has been assessed against the Acceptability Criteria of Section 11 of TAN-15, as shown in Table 6-1 below.

Table 6-1 Assessment of Acceptability Criteria

TAN-15 Acceptability Criteria	Comments	Achieved
No increase in flooding elsewhere	N/A - The development site is predicted to be entirely flood-free in both the 2097 0.1% AEP and 0.5% AEP events.	Yes
Occupiers aware of flood risk	N/A - The development site is predicted to be entirely flood-free in the 2097 0.1% AEP and 0.5% AEP events.	Yes
Escape/evacuation routes present	N/A - Flood free escape and evacuation routes are present in all design events up to 2097.	Yes
Flood emergency plans and procedures agreed and in place	N/A - The development site is predicted to be entirely flood-free during all design events up to 2097. The site is situated in the Coast from	Yes

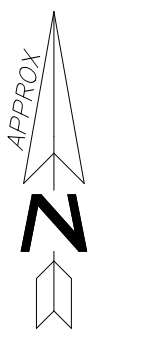
	Aberthaw to Severn Bridge Flood Alert Area. Although the site is predicted to be flood-free, it is still can still be beneficial for occupiers to sign up to flood alerts in the area.	
Flood resistant and resilient in design	N/A – The site remains entirely flood free in all design events up to 2097	Yes
Acceptable consequences for type of use	The site is flood free in all design events meeting the frequency thresholds and tolerable condition of Section 11 of TAN15.	Yes

7 Conclusions

- JBA Consulting were commissioned by Pinnacle Consulting Engineers to undertake a Flood Consequence Assessment to support a planning application to redevelop the former Quinn radiator factory in Imperial Park, Newport, into a data centre.
- This FCA has been prepared to support an S.73 application at the site which secures some design changes; the key changes in relation to flood risk relate to changes to TAN15; and those changes do not alter the conclusions of the original FCA.
- The proposed development will have a 'less vulnerable' development vulnerability classification which will not change from its previous classification.
- The site is located within the TAN-15 Defended Zone and presently benefits from tidal flood defences. Redevelopment proposals within the TAN-15 Defended Zone are justified provided that they are consistent with the acceptability considerations set out in Section 11 of TAN-15, and do not over intensify use.
- NRW's Flood Risk Assessment Wales maps shows the site has a very low/low risk of flooding all sources of flooding.
- The predominant source of flood risk to the site is from tidal flood risk. The FRAW data used to inform the flood risk assessment does not take in to account the impact of climate change. Therefore, to determine the impact of tidal flood risk to the site, based on the FMfP, detailed tidal modelling has been undertaken to further consider this risk.
- Detailed tidal modelling undertaken by JBA consulting in 2022 shows that the proposed development is predicted to be flood free during both the 0.5% AEP plus climate change and the 0.1% AEP plus climate change events for the present day (2022) and 75 years development lifetime (2097).
- The proposals have been assessed against the acceptability considerations and shown to meet all requirements.
- Consequently, we conclude on the grounds of flood risk, the proposed development meets the principles and requirements set out in TAN-15 and the aims of Planning Policy Wales.

Appendices

A Topographic Survey



PLAN NOTES

DRAWING IS BASED ON ORDINANCE SURVEY CO-ORDINATES
OBTAINED USING THE ACTIVE OPS NETWORK.

LEVELS ARE RELATED TO :- ACTIVE GPS NETWORK

PIVEY CONTROL STATIONS SHOWN

BREVATIONS (where applicable)

[illegible]

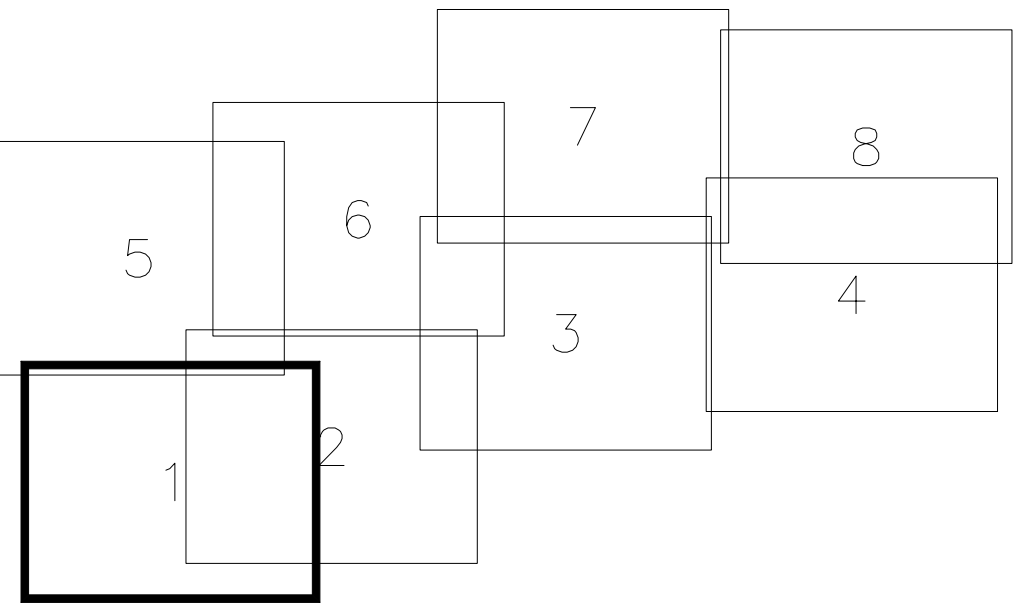
FW	Foul Water
SW	Storm Water
CW	Combined Water
PL	Pit Level
SL	Silt Level
D	Depth
S/C	Surcharged
B/D	Backdrop Pipe
NPV	No Pipes Visible

NOTES

- * Drillage pipe sizes (where shown) have been gauged from the surface for safety reasons and should be regarded as approximate only.
- * Tree species (where shown) should be treated with caution and expert identification is advised.
- * Although this is only a digital survey the accuracy and amount of detail shown is only commensurate with the graphical scale of mapping specified. Care should be exercised when working to larger details.
- * Visible features in the vicinity of the boundaries as shown above, may not represent the extent of legally conveyed ownership.
- * Whilst every effort has been made to achieve accuracy on this plan, CRUCIAL clearance dimensions, levels and invert levels should be checked prior to design and construction.
- * Kerb levels have been taken in the bottom of the channel.

FLOOR LAYOUT

TO SCALE

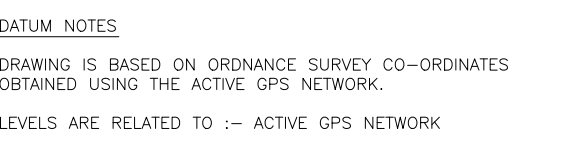
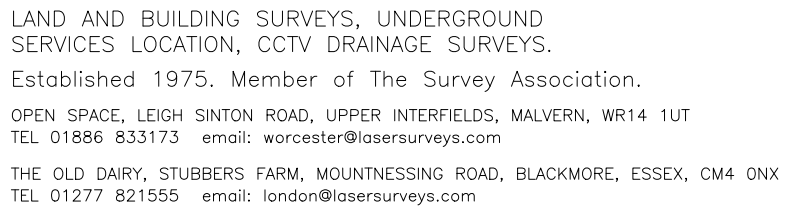


CELTIC WAY
COEDKERNEW
NEWPORT
NP10 8BE

TOPOGRAPHICAL SURVEY

SURVEYED FOR	Pinnacle Consulting Engineers Ltd. Alchemy Bessemer Road Welwyn Garden City Herts. AL7 1HE	SURVEYOR	D Jenkins R Harris
		DATE	May 2021

DATE		REVISION	
June 2020	Levels adjusted on western access road.		
June 2020	Investigation of Storm and Fall Water Outfalls - P1.		
DRAWING NO		N 1082/1	REV 2
DRAWING TITLE		TOPOGRAPHICAL	
SCALE		1 : 200 (A0)	
SEE ALSO DWG NOS			
SHEET		1 of 8	
REF NO		N 1082	



SURVEY CONTROL STATIONS SHOWN

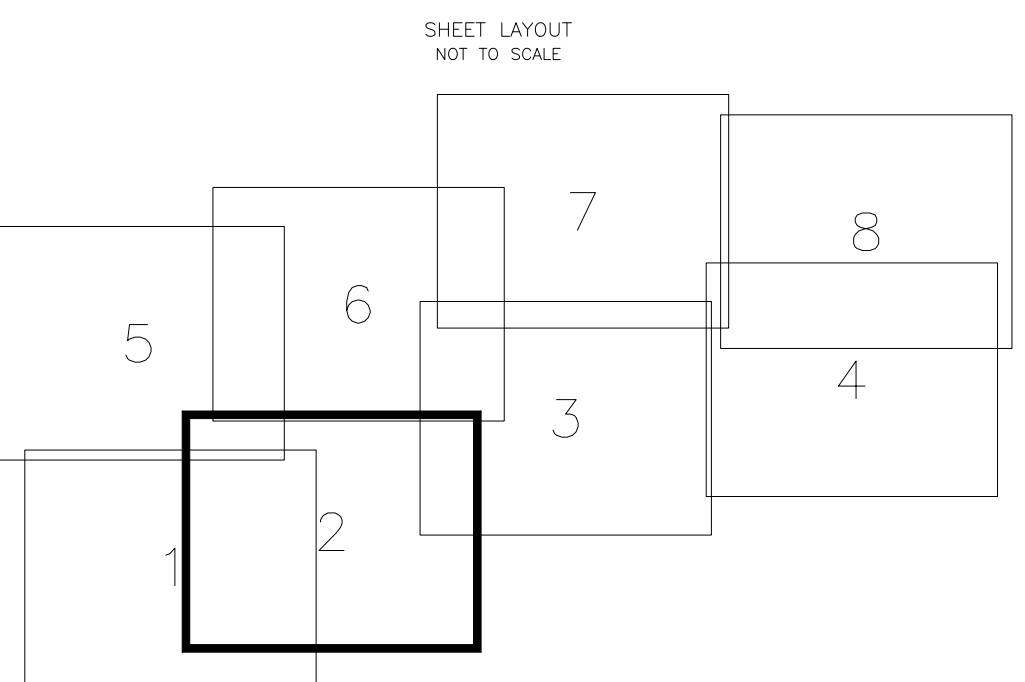
ABBREVIATIONS (where applicable)

[illegible]

FW	Foul Water
SW	Storm Water
CW	Combined Water
PL	Pit Level
SL	Silt Level
D	Depth
S/C	Surcharged
B/D	Backdrop Pipe
NPV	No Pipes Visible

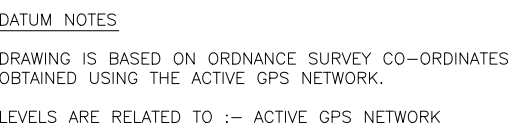
NOTES

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TOPOGRAPHICAL SURVEY

SURVEYED FOR		Pinnacle Consulting Engineers Ltd, Acharnery Bosconera Road Rajawade Garden City Herts. AL9 9JL U.K		SURVEYOR		D Jenkins R Morris	
				DATE		May 2021	
DATE		REVISION					
June 2020		Investigation of Storm and Foul Water Outfalls – P1.					
DRAWING NO				N 1082/2		REV 1	
DRAWING TITLE				TOPOGRAPHICAL			
SCALE				1 : 200 (A0)			
SEE ALSO DWG NOS							
SHEET				2 of 8			
REF NO				N 1082			



SURVEY CONTROL STATIONS SHOWN

ABBREVIATIONS (where applicable)

[illegible]

FW	Foul Water
SW	Storms Water
CW	Combined Water
PL	Fit Level
SL	Silt Level
D	Depth
S/C	Surcharged
B/D	Backdrop Pipe
NPV	No Pipes Visible

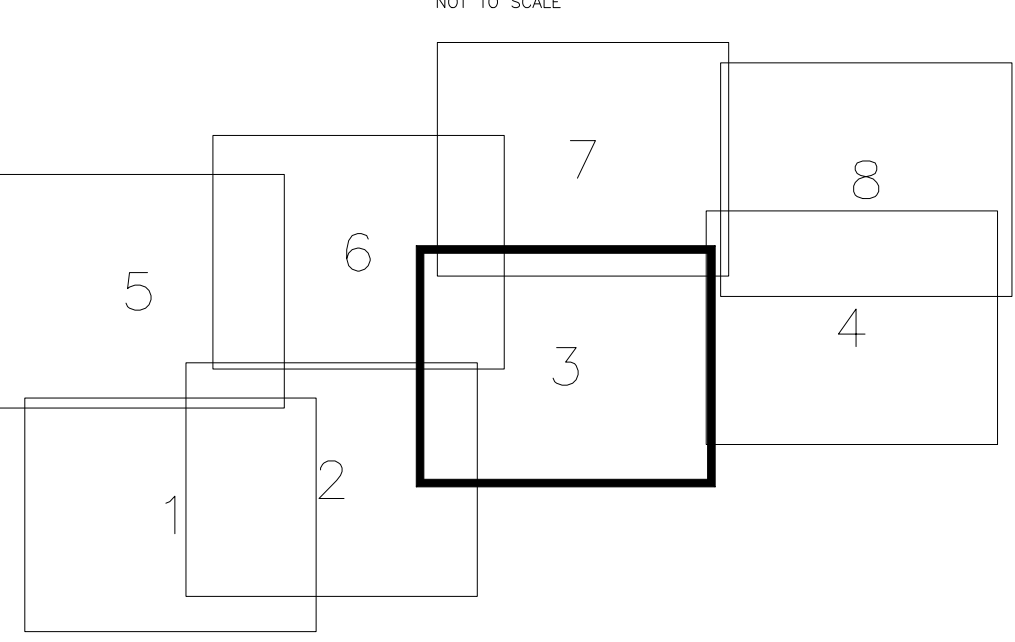
NOTES

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- * Kern levels have been taken in the bottom of the channel.

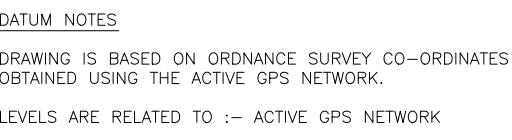
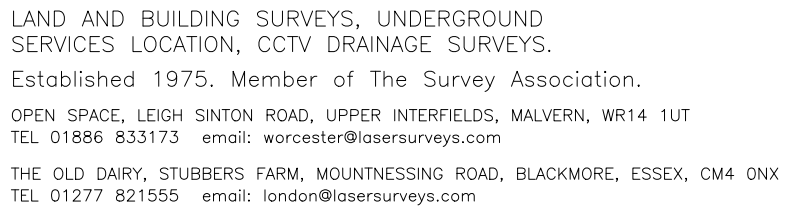
SHEET LAYOUT
NOT TO SCALE



CELTIC WAY
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TOPOGRAPHICAL SURVEY

SURVEYED FOR	Pinnacle Consulting Engineers Ltd. Alchemy Bessemer Road Welwyn Garden City	SURVEYOR	D Jenkins R Harris
		DATE	May 2021

DATE	REVISION	
DRAWING NO	N 1082/3	
DRAWING TITLE	TOPOGRAPHIC	
SCALE	1 : 200 (	
SEE ALSO DWG NOS		
SHEET	3	of 8
REF NO	N 1082	



SURVEY CONTROL STATIONS SHOWN

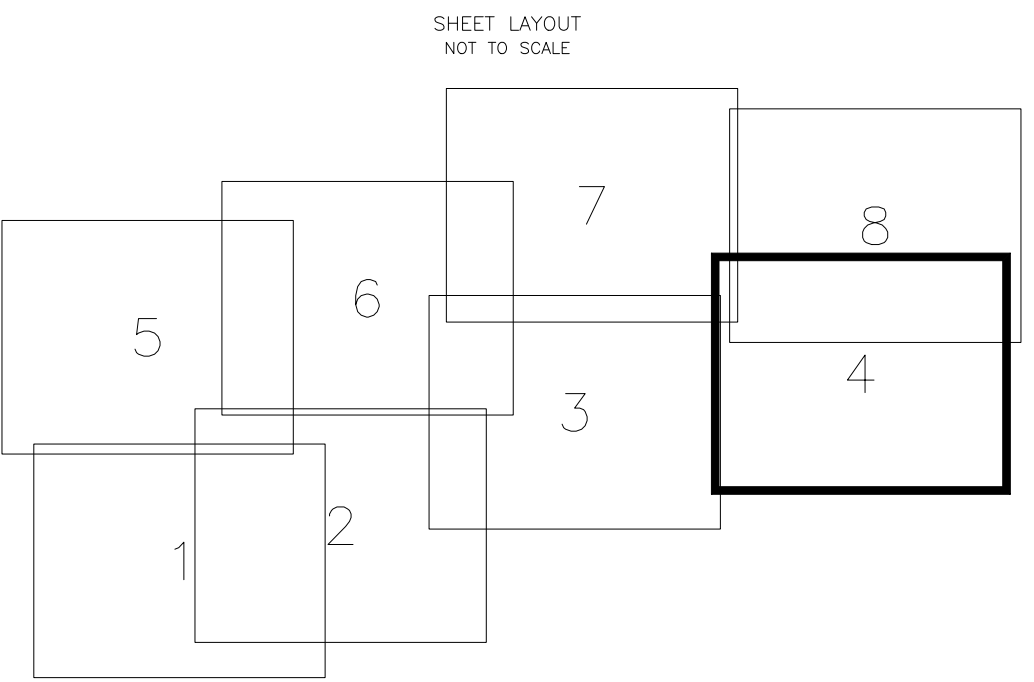
ABBREVIATIONS (where applicable)

[illegible]

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SW	Storms Water
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PL	Pit Level
SL	Silt Level
D	Depth
S/C	Surcharged
B/D	Backdrop Pipe
NPV	No Pipes Visible

NOTES

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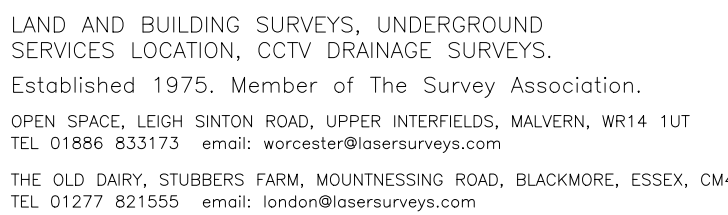
TOPOGRAPHICAL SURVEY

SURVEYED FOR Pinnacle Consulting Engineers Ltd.
Alchemy
Bessemer Road
Welwyn Garden City
Herts. AL7 1HE

SURVEYOR D Jenkins
 R Harris

DATE May 2021

DATE	REVISION		
June 2020	Investigation of Storm and Fault Water Outfalls - PU		
DRAWING NO		N 1082/4	REV 1
DRAWING TITLE		TOPOGRAPHICAL	
SCALE		1 : 200 (A0)	
SEE ALSO DWG NOS			
SHEET		4 of 8	
REF NO		N 1082	



DRAWING IS BASED ON ORDINANCE SURVEY CO-ORDINATES
OBTAINED USING THE ACTIVE GPS NETWORK.

LEVELS ARE RELATED TO :- ACTIVE GPS NETWORK

SURVEY CONTROL STATIONS SHOWN

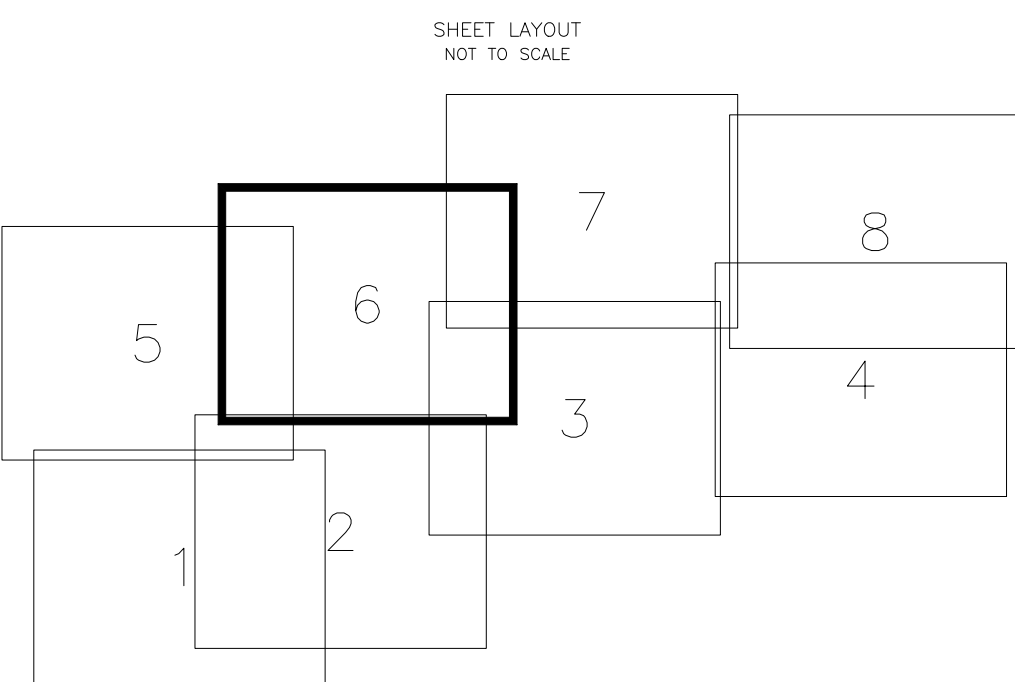
ABBREVIATIONS (where applicable)

[illegible]

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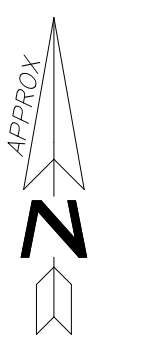


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TOPOGRAPHICAL SURVEY

SURVEYED FOR	Pinnacle Consulting Engineers Ltd. Alchemy Bessemer Road Welwyn Garden City Herts AL7 1HF	SURVEYOR	D Jenkins R Harris
		DATE	May 2021

DATE	REVISION		
DRAWING NO		N 1082/6	REV
DRAWING TITLE		TOPOGRAPHICAL	
SCALE		1 : 200 (A0)	
SEE ALSO DWG NOS			
SHEET		6 of 8	
REF NO		N 1082	



PLAN NOTES

DRAWING IS BASED ON ORDINANCE SURVEY CO-ORDINATES
OBTAINED USING THE ACTIVE GPS NETWORK.

LEVELS ARE RELATED TO :- ACTIVE GPS NETWORK

KEY CONTROL STATIONS SHOWN

BREVATIONS (where applicable)

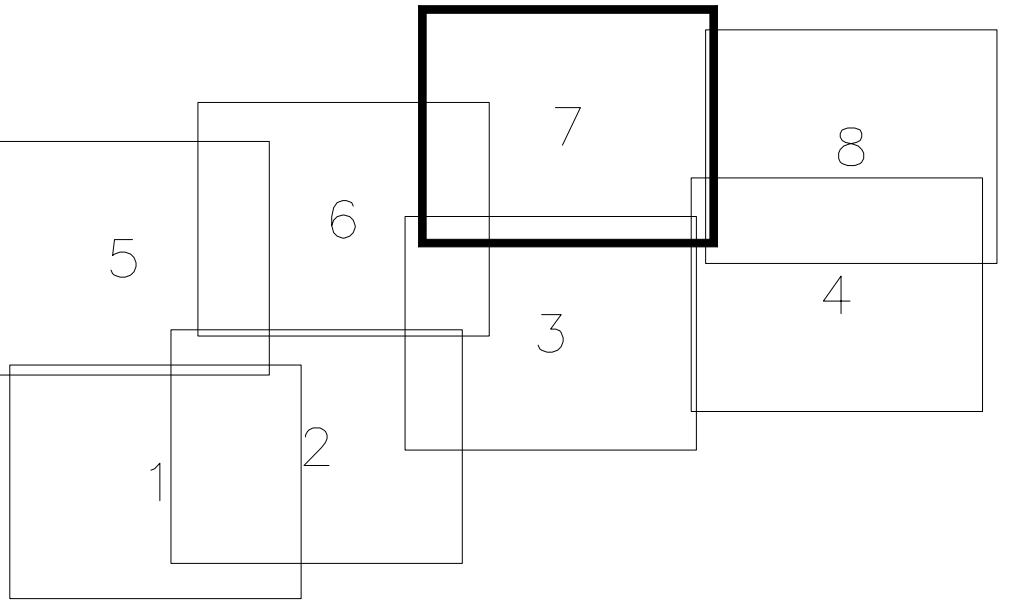
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ITES

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- Kerb levels have been taken in the bottom of the channel.

HEET LAYOUT
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CELTIC WAY
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TOPOGRAPHICAL SURVEY

SURVEYED FOR Pinnacle Consulting Engineers Ltd.
Alchemy
Bessemer Road
Welwyn Garden City
Herts. AL7 1HE

BYOR D Jenkins
R Harris

DATE May 2021

DATE	REVISION		
June 2020	Investigation of Storm and Foul Water Outfalls - PJ		
DRAWING NO		N 1082/7	REV
DRAWING TITLE		TOPOGRAPHICAL	
SCALE		1 : 200 (A0)	
SEE ALSO DWG NOS			
SHEET		7 of 8	
REF NO		N 1082	

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