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Neath Abbey Road Flood Consequences Assessment

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This report describes work commissioned by Alpha Building Group Ltd, by an instruction dated 9 September 2025. The Client's representative for the contract was Gregg Richards of Alpha Building Group Ltd. Nick Yeo of JBA Consulting carried out this work.

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Abbreviations

1D	One Dimensional (modelling)
2D	Two Dimensional (modelling)
AEP	Annual Exceedance Probability
AONB	Area of Outstanding Natural Beauty
BGS	British Geological Survey
CIRIA Association	Construction Industry Research and Information
DTM	Digital Terrain Model
FCA	Flood Consequence Assessment
FEH	Flood Estimation Handbook
FMfP	Flood Map For Planning
LiDAR	Light Detection And Ranging
mAOD	metres Above Ordnance Datum
NGR	National Grid Reference
NRW	Natural Resources for Wales
OS	Ordnance Survey
OS NGR	Ordnance Survey National Grid Reference
PFRA	Preliminary Flood Risk Assessment
PPW	Planning Policy Wales
SFRA	Strategic Flood Risk Assessment
TAN-15 Risk	Technical Advice Note 15: Development and Flood
TUFLOW	Two-dimensional Unsteady FLOW

1 Introduction

1.1 Terms of Reference

JBA Consulting (JBA) was commissioned by Alpha Building Group Ltd to undertake a Flood Consequences Assessment (FCA) to support a planning application for a commercial development at Neath Abbey Road, Neath, South Wales, SA10 7BR.

This FCA assesses and demonstrates the suitability of the proposed redevelopment and describes the flood mitigation measures recommended to appropriately manage flooding at the site.

1.2 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;
- Minimal impact of the proposed development on flood risk generally; and
- Minimal disruption to the sustainable management of natural resources.

2 Site Summary

The proposed development site is located to the south of Neath Abbey Road, in Neath, South Wales, as shown in Figure 2-1. The site is approximately 0.8ha and is currently occupied by an existing commercial/industrial building occupied by CNS Precision Engineering. Associated access and car parking is located in the western half of the site, with adjacent brownfield land to the east. An Aldi supermarket store is located to the north and residential dwellings are situated to the north-east within Llys-Y-Coed and Glynleiros Gardens.

The site is accessed by vehicles and pedestrians from unnamed road to the north, leading to Neath Abbey Road.

Further information on the site is provided in Table 2-1.

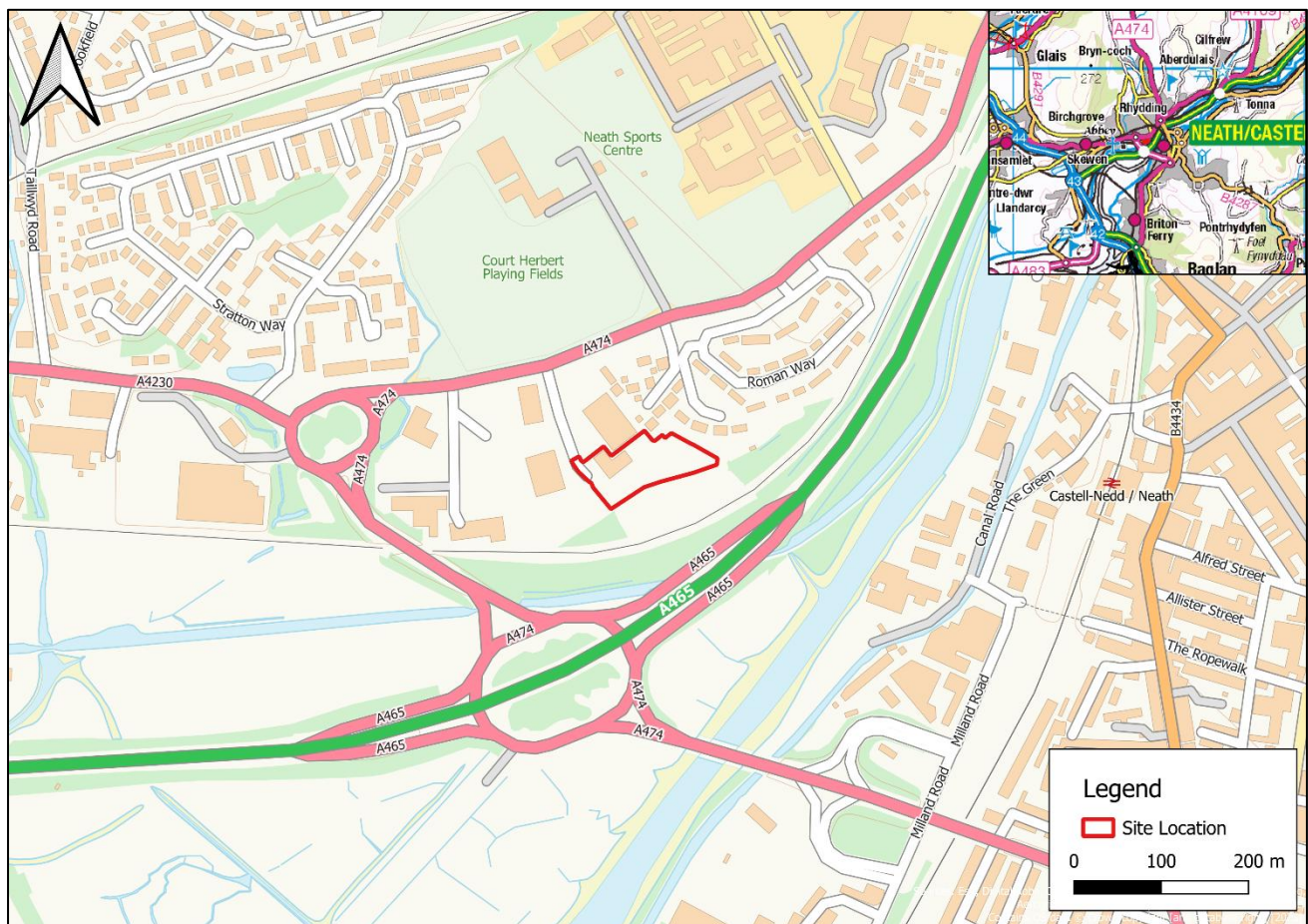


Figure 2-1 Site Location

Table 2-1 Site Summary

Parameter	Description
Site Name	CNS Engineering, Neath Abbey Road
Site area	0.8ha
Existing land use	Brownfield - Commercial/Industrial
Purpose of development	Industrial units
OS NGR	SS 74575 97512
Local Planning Authorities	Neath Port Talbot County Borough Council
Lead Local Flood Authority	Neath Port Talbot County Borough Council

2.1 Site Topography

A topographic survey was undertaken by Healer Surveys in June 2025 and is provided in Appendix A. Figure 2-2 shows the 1m Digital Terrain Model (DTM) derived from Light Detection and Ranging (LiDAR), which provides an alternative illustration of the site topography.



Figure 2-2 1m LiDAR

The topographical survey indicates that the highest ground levels are found in the north-east to a maximum of 7.70 metres Above Ordnance Datum (mAOD) near the site boundary

and much of the eastern half of the site is elevated above 7.00mAOD. Ground levels slope towards the south to 5.89mAOD along the southern boundary.

In the western half of the site, the topographical survey records the Finished Floor Level of the existing CSN Precision Engineering building as 6.96 mAOD. The asphalt and concrete surfaces are elevated between 6.90mAOD and 6.03mAOD. LiDAR indicates that ground levels rise along the unnamed access road to the north, to 7.24mAOD at Neath Abbey Road.

2.2 Soils and Geology

The geology of the site has been assessed using the BGS Geoindex¹. The bedrock geology is shown to be Swansea Member comprised of Sandstone. Superficial deposits are Glacial Sheet Deposits comprised of sand and gravel. The underlying geology suggests the site could have highly permeable characteristics.

The soils on the site have been assessed using the Cranfield University Soilsclapes Viewer² and are shown to be loamy and clayey soils with naturally high groundwater. This could be a function of the proximity to the River Neath and associated high water table.

2.3 Watercourses and Flood Defences

Figure 2-3 shows the locations of the nearest waterbodies and watercourses.

The River Neath, an NRW-designated Main River, is located approximately 200m to the south of the site. According to the Flood Estimation Handbook (FEH) web service, the watercourse has a catchment area of 260km² and flows in a south-westerly direction. At the site location the River Neath is influenced both tidally and fluvially. The site is located within the catchment area of this watercourse.

The River Clydach, an NRW-designated Main River, is located 600m to the west of the site. According to the FEH web service, the watercourse has a catchment area of 1km² and flows in a southerly direction into the River Neath.

Tennant Canal is located 80m to the south of the site boundary and is culverted beneath the A465. LiDAR indicates that the canal is elevated at approximately 6.0mAOD, i.e. lower than the site.

Ordnance Survey (OS) mapping indicates two small land drains located 35m and 70m to the east. The downstream connectivity of the land drains is unclear, although they do not have significant catchment areas.

The site does not benefit from the presence of flood defences.

¹ <https://www.bgs.ac.uk/map-viewers/geoindex-onshore/>

² <https://www.landis.org.uk/soilsclapes/>

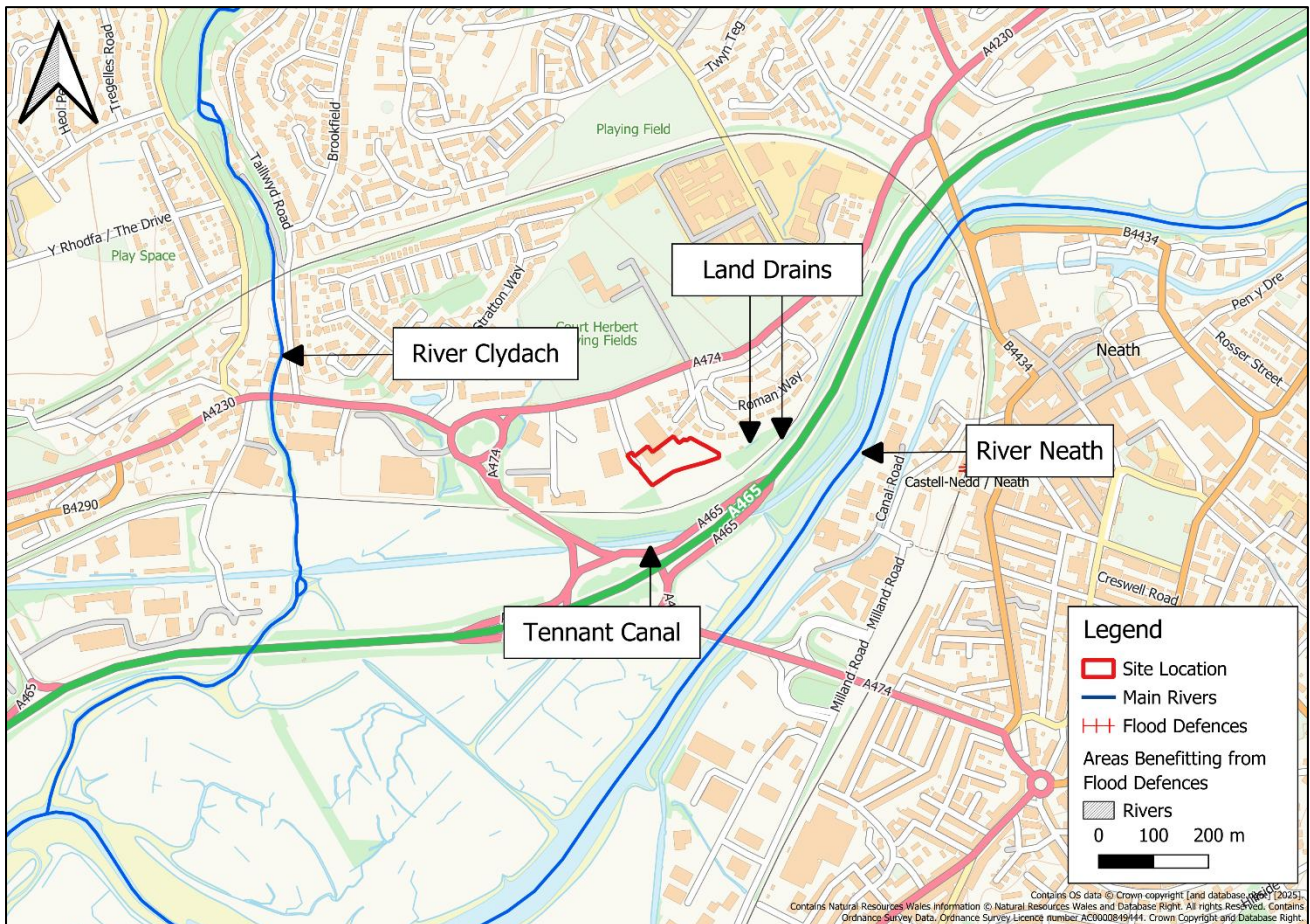


Figure 2-3 Watercourses and Flood Defences

2.4 Development Proposal

Development proposals are for the construction of eight industrial units in the eastern part of the site, with associated parking and access. The proposed units will comprise ground floor only, formed by double height units to accommodate racking. Development proposals also include a bin store located in the north-western corner of the site.

The existing CNS Precision Engineering building will be retained as part of the proposal.

External ground level changes are proposed adjacent to the buildings to provide access into the units where required. The proposed external ground levels in the parking and hardstanding area range from 6.45 to 7.20 mAOD to provide a more level surface and ramped access into the buildings. The proposed ground levels are typically within 100-200mm of existing levels and include areas of both raising and lowering.

Access onto the unnamed road leading to Neath Abbey Road will be retained via the existing site entrance. A pedestrian access route will be provided along the northern site boundary behind the existing CNS Precision Engineering building.

Existing and proposed plans are contained in Appendix B.

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	Definition
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, the development proposal is for industrial units on previously developed (brownfield) land. As such, the development proposals are 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 aligns with the **Less Vulnerable Development** classification for general industrial, employment, commercial and retail development.

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, and 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

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.*"

Furthermore, Section 10.29 of TAN-15 states "*Where new developments will have shorter lifetimes, it is reasonable that the flood consequences assessment focusses on potential risks during the developments lifetime.*"

The development proposals comprise industrial units where an operational lifetime of 50 years is considered to be appropriate. It is understood that this has been deemed acceptable for similar forms of development in Wales.

3.5 Flood Map for Planning Classifications

The Flood Map for Planning (FMfP) is the starting point for the 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 Flood Zone 1, Flood Zone 2, Flood Zone 3 and the Defended Zone. The FMfP displays predicted future flood risk with an allowance made for climate change. It should be noted that the allowance for climate change used in the FMfP is based on a lifetime of 100 years, beyond that of the proposed development.

Proposals for development located partially or wholly in Flood Zone 2 or 3 must be supported by a Flood Consequences Assessment (FCA).

3.5.1 Flood Map for Planning - Rivers

The site is within Flood Zones 2 and 3 for Rivers, as shown in Figure 3-1. The site is predominantly located within Flood Zone 2, however an area of flood zone 3 encroaches into the south-western corner of the site.

Flood Zone 2 represents areas that have between 1% AEP (1 in 100 year) and 0.1% AEP (1 in 1000 year) and Flood Zone 3 represents areas that have greater than 1% AEP (1 in 100 year) chance of flooding in any given year including climate change.

This source of flood risk is assessed further in Section 5.2.2 of the FCA.

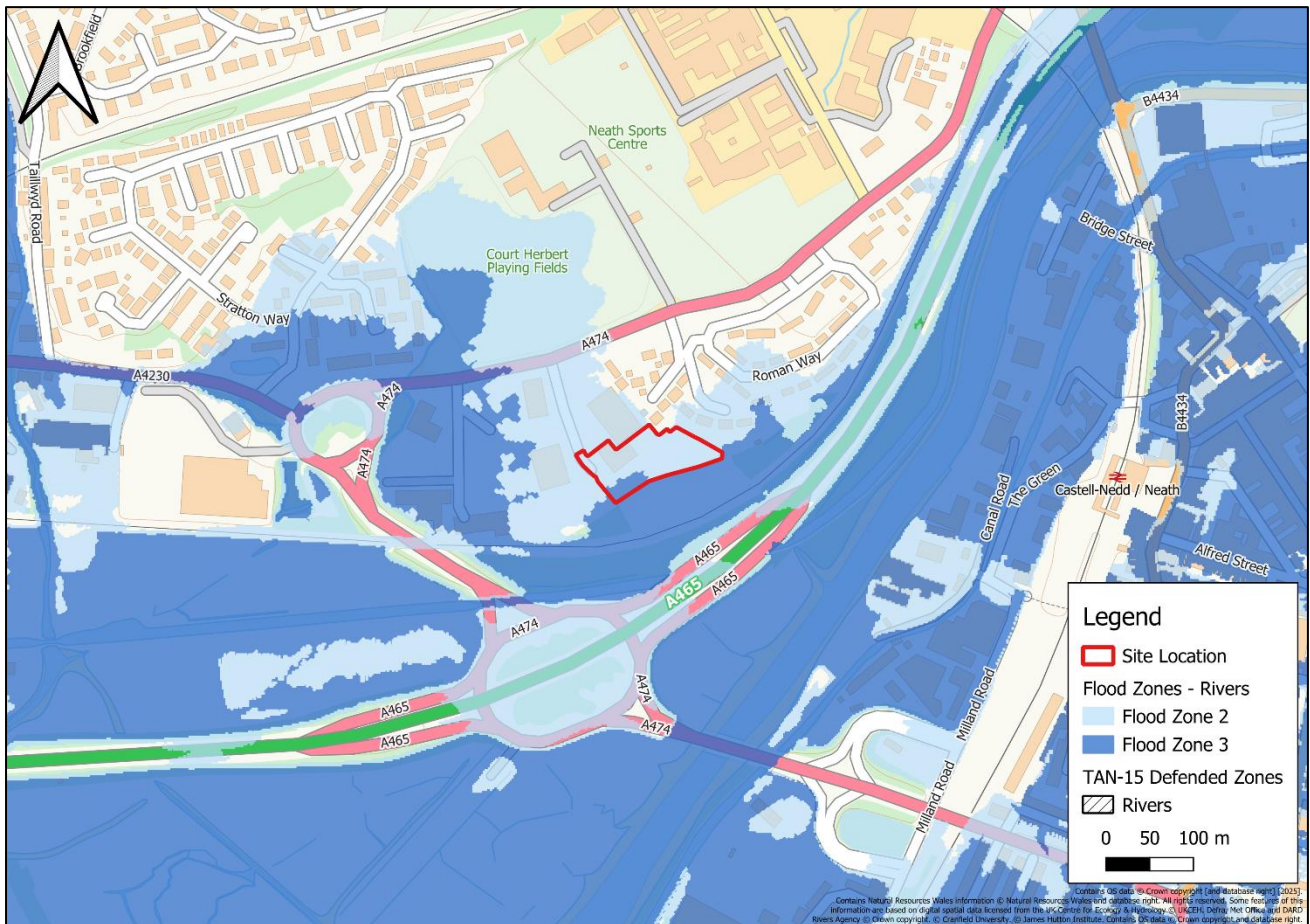


Figure 3-1 Flood Map for Planning - Rivers

3.5.2 Flood Map for Planning - Sea

As shown in Figure 3-2, the site is almost entirely located in Flood Zone 3 for the sea. A small area of Flood Zone 2 is present to the north-eastern corner.

Flood Zone 3 for the sea represents areas that have greater than 0.5% AEP (1 in 200 year) chance of flooding in any given year including climate change. Flood Zone 2 represents areas that have between 0.5% AEP and 0.1% AEP chance of flooding in any given year including climate change.

This source of flooding risk is assessed in detail in Section 4 of the FCA.

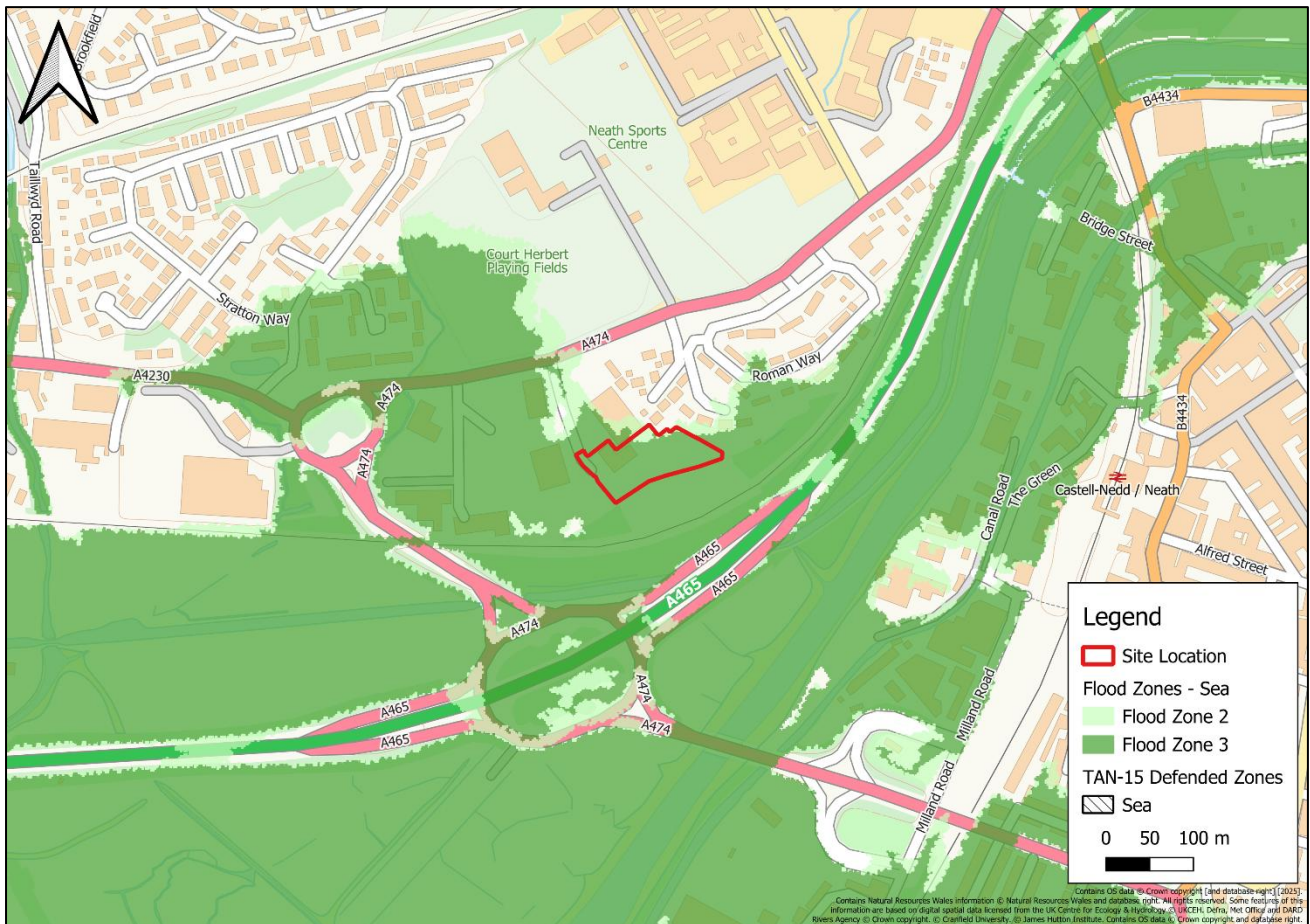


Figure 3-2 Flood Map for Planning - Sea

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

Figure 3-3 shows the site is predominantly within Flood Zone 1 for Flood Risk from Surface Water and Small Watercourses. Flood Zone 1 represents areas that have a less than 0.1% AEP (1 in 1000 year) chance of flooding from surface water or small watercourses.

Lesser areas of the site are situated in Flood Zones 2 and 3 of the FMFP for Surface Water and Small Watercourses. Flood Zone 2 indicates areas which have a less than 1% AEP but greater than 0.1% AEP chance of surface water flooding in any given year, including climate change. Flood Zone 3 shows areas with a 1% AEP chance or greater of flooding occurring in any given year, including climate change.

This source of flood risk is assessed further in Section 4.2 of the FCA.

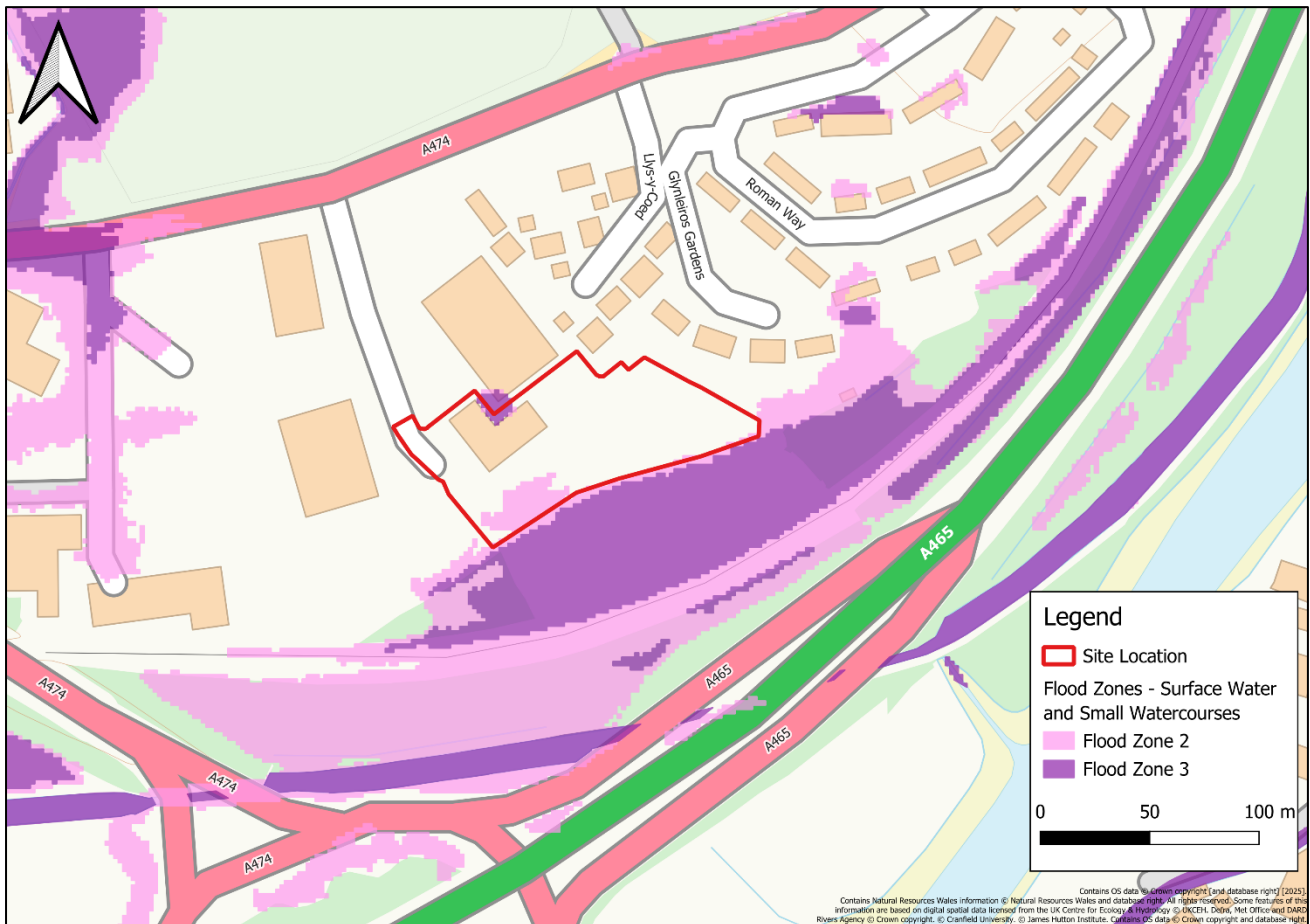


Figure 3-3 Flood Map for Planning - Surface Water and Small Watercourses

4 Flood Risk Assessment

This section has been completed using publicly available information only, including the NRW datasets.

Table 4-1 below provides a summary of the flood risk to the site from all sources of risk.

Table 4-1 Summary of Flood Risk

Source of Flooding	Onsite Presence	Description
Flood Risk from Rivers	✓	Refer to Chapter 5 for detailed assessment
Flood Risk from the Sea	✓	Refer to Chapter 5 for detailed assessment
Flood Risk from Surface Water and Small Watercourses	✓	Very Low - The site is at very low risk of surface water flooding.
Flood Risk from Groundwater	✓	High - The site is at high risk of flooding from groundwater.
Flood Risk from Reservoirs	✗	Low - The site is at low risk of flooding from reservoirs.
Flood Risk from Sewers	✗	Low - The site is at low risk of flooding from sewers.

4.1 Historical Flooding

NRW's map of recorded flood extents shows that the nearest record is 600m to the north-east, associated with the River Neath in 1979.

Table 5-1 of the Neath Port Talbot Council Preliminary Flood Risk Assessment (PFRA, 2011) identifies a number of historical flood events in Neath, including in 1768, 1909, 1910, 1979 and 2007. No records specifically relate to the site or Neath Abbey Road.

Table 6-2 of the Neath Port Talbot Council PFRA (2011) describes flooding to Days Garage on Neath Abbey Road, located approximately 150m to the west of the site. This notes flooding associated with insufficient culvert capacity.

The Neath Port Talbot Council PFRA (2011) states that there are no specific areas of historical groundwater flooding recorded in the borough. The PFRA also records a total of 430 sewer flooding events in the borough, of which 355 were identified as being high risk with 34 suffering from internal flooding. No specific mention is made to the proposed development site.

4.2 Flood Risk from Surface Water and Small Watercourses

The NRW FRAW flood risk from Surface Water and Small Watercourses mapping shows that the proposed development site is predominantly at **very low risk** of flooding from these sources, as shown in Figure 4-1. Very low risk means that there is a less than 1 in 1000 (<0.1% AEP) chance of flooding in any given year.

As discussed in Section 3, parts of the site are located within Flood Zone 2 and 3 from surface water and small watercourses. In the absence of site specific small watercourse modelling, NRW's National Flood Hazard Maps have been consulted, as the source of best available information. The 0.1% AEP event with an allowance for climate change is shown in Figure 4-1. This demonstrates that the impacted areas on site are to the north of the existing building, and in the south-western corner of the site along the existing access road. There will be no change to these areas as part of the proposed development (the eastern corner will be retained as open space/landscaping, considered water compatible development). The depth of flooding in this event does not exceed 400mm.

The risk appears to be interlinked with the fluvial risk from the small watercourses surrounding the site. It is considered that the surface water flood risk is less significant than the tidal and fluvial risk and, therefore, is not considered further, with further assessment of fluvial flooding in Section 5.

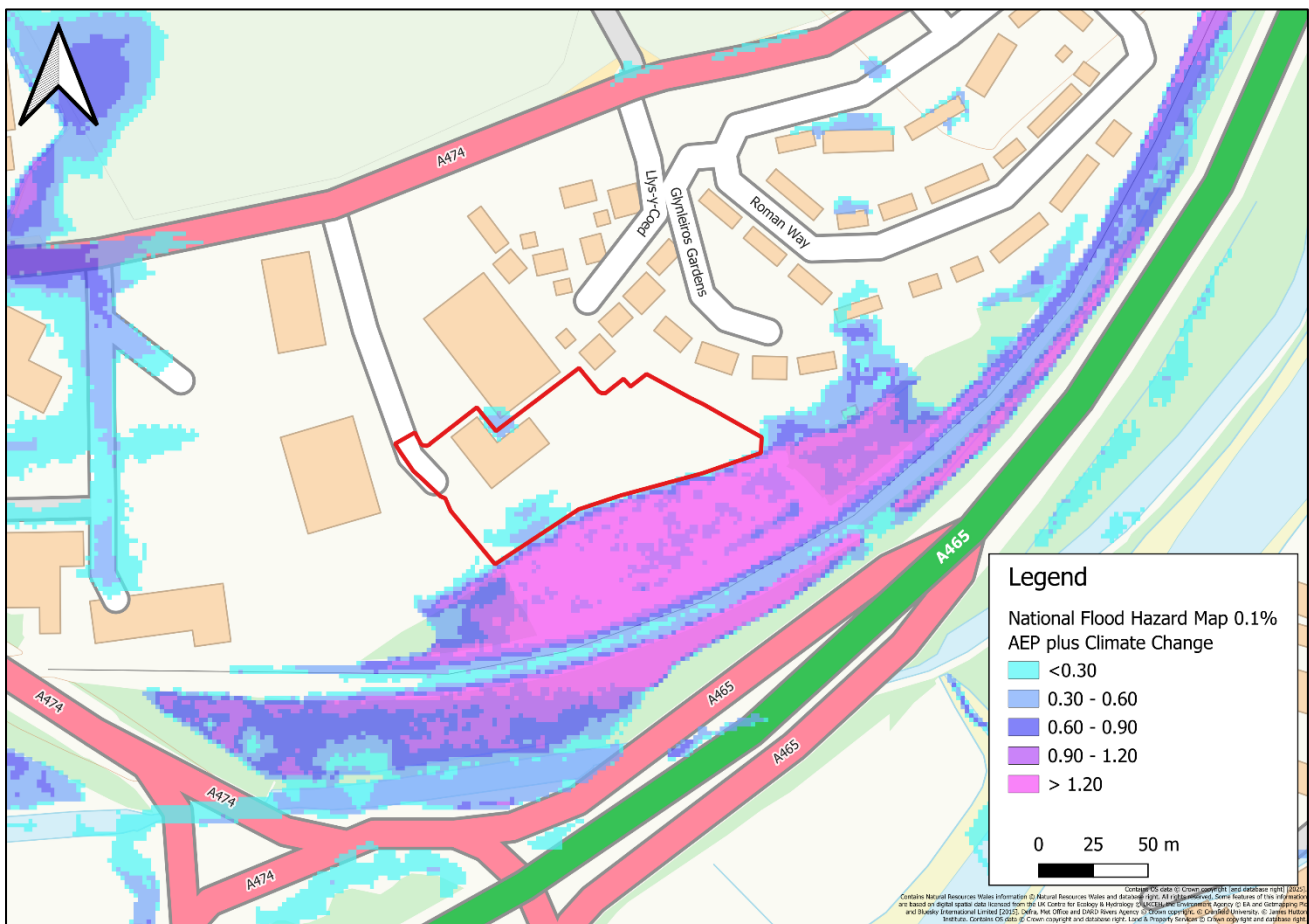


Figure 4-1 National Flood Hazard Map - Surface Water and Small Watercourses 0.1% AEP event plus climate change

4.3 Flood Risk from Groundwater

Ground water flooding occurs when the water table rises above ground level, especially after a prolonged rainfall event. This is most likely to occur in low-lying areas that are underlain by permeable bedrock and superficial geology. Unlike other forms of flooding, groundwater flooding does not pose a significant risk to life. However, it can cause serious damage to property.

According to the PFRA (2011), there is no mention of historical groundwater flooding at the site and groundwater flood risk is low for the majority of the borough. The PFRA Appendices include Susceptibility to Groundwater Flooding which is divided into four categories on a 1 km square grid basis and indicates how much of the grid square might be at risk of groundwater flooding. The categories are as follows:

- Up to 25%
- 25-50%
- 50-75%
- Greater than 75%

The mapping indicates that susceptibility to groundwater flood risk is up to 75% for the grid square the site is located within. A borehole record is available from the British Geological Survey (BGS) approximately 100m to the south of the site. Borehole data within BGS reference SS79NW81 records groundwater at 4 feet (1.22m) below ground level.

The underlying permeable superficial geology and proximity to the River Neath suggests that the site could be at risk of groundwater flooding and/or shallow groundwater could be present along the corridor of the watercourse. The proposal does not involve basement development or elements of lowering existing ground levels and is therefore unlikely to be impacted by groundwater flooding.

The risk of groundwater flooding can be mitigated alongside the measures proposed for fluvial and tidal flooding (Section 5.2).

4.4 Flood Risk from Reservoirs

The NRW FRAW Flood Risk from Reservoirs map illustrates that the site is not at risk of flooding from reservoirs, as shown in Figure 4-2.

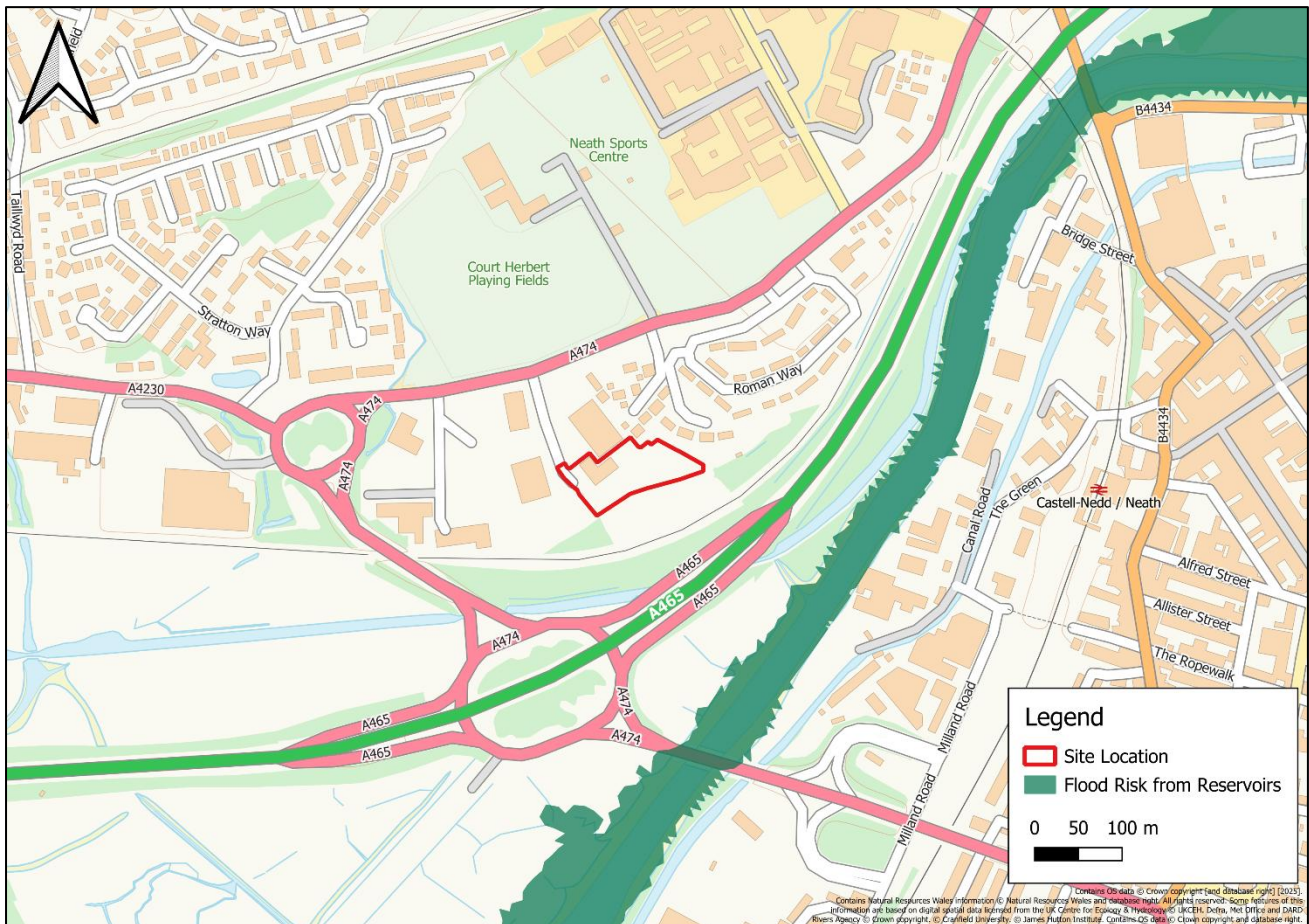


Figure 4-2 FRAW - Flood Risk from Reservoirs

4.5 Flood Risk from Sewers

As detailed in Section 4.1, the Neath Port Talbot Council PFRA (2011) records a total of 430 sewer flooding events in the borough, of which 355 were identified as being high risk with 34 suffering from internal flooding. No evidence is provided that the site has previously experienced sewer flooding. Therefore, it is concluded that the site has a low risk of flooding from sewers.

5 Detailed Flood Risk Assessment

As identified in Section 4, the dominant sources of flood risk to the site are fluvial and tidal. Therefore, to better understand the risk of flooding posed to the site and the potential implications of climate change, further assessment using detailed hydraulic modelling is provided in this section.

5.1 Lifetime of Development

The FMfP indicates that the site is located within Flood Zone 3 from both fluvial (the River Clydach and River Neath) and tidal sources. However, the FMfP considers climate change over a period of 100 years (100 year lifetime of development). As detailed in Section 10.29 of TAN-15, *'Where new developments will have shorter lifetimes, it is reasonable that the flood consequences assessment focusses on potential risks during the developments lifetime'*.

The redevelopment site is considered to have a Lifetime of Development of 50 years, as detailed in Section 3.4 of this report. Consequently, further assessment has been undertaken against this shorter Lifetime of Development. The hydraulic modelling set out below applies climate change to the tidal scenarios to the year 2075 to account for sea level rise. For the fluvial scenarios, it is noted that the shorter Lifetime of Development does not impact the allowance band that the development falls within. Therefore, an increase of 30% has been applied based on the central estimate for the 2080's (2070-2115) in the West Wales river basin district.

5.2 Hydraulic Modelling

The hydraulic modelling has been based on the River Neath 2015 1D/2D ESTRY TUFLOW model to assess fluvial and tidal risk. JBA have prepared an updated version of the River Neath 2015 model dated November 2025 to provide an improved understanding of the risk of flooding to the site, details of the modelling exercise are included in the Hydraulic Modelling Report.

The purpose of the model was to confirm the baseline flood risk to the site, to provide flood levels, depths and an assessment of climate change. The model was also updated to include the 0.1% AEP fluvial event including climate change, which was not present in the 2015 model.

The model was further used to assess the post-development impact of the buildings and ground level changes on flood risk to third parties. Post-development modelling was undertaken to inform mitigation to demonstrate that the development will be safe and ensure it will not increase flood risk elsewhere. The following sections provide a summary of the results.

5.2.1 Flooding mechanisms

The hydraulic model indicates that the site is subject to fluvial and tidal flood risk sources:

- Fluvial flooding from the River Clydach from the west.
 - The River Neath model shows floodwater comes out of bank where the River Clydach is culverted beneath the A4230 approximately 650m to the west of the site. Floodwater flows towards the site in an easterly direction via Neath Abbey Road before encroaching into the site principally from the western and southern boundaries.
- Fluvial flooding from the River Neath.
 - The River Neath model shows floodwater spills over the A465 approximately 400m to the north-east. Floodwater flows towards the site in a westerly direction, before entering the site from the southern boundary.
- Tidal flooding from the sea.
 - Floodwater encroaches from the south, overtopping the Tennant Canal and enters the site from the southern boundary.

5.2.2 Baseline results

Fluvial

Figure 5-1 shows that the predicted fluvial flood extent and depths during the 1% AEP plus climate change event. The predicted flood extent encroaches into the south-western corner of the site, to shallow depths of less than 300mm. The existing unnamed access road is predicted to be predominantly flood free, with some localised areas predicted to flood to depths of approximately 300mm. The existing building on site, and those proposed as part of the development, are predicted to be flood free during this event. The predicted flood level is 6.26 mAOD.

Figure 5-2 shows predicted flood extent and depth during the 0.1% AEP event including climate change. The flood extent covers the majority of the site, including the area for the proposed industrial units. The maximum depth of flooding in the location of the proposed buildings is 380mm. The predicted flood level is 7.08 mAOD.

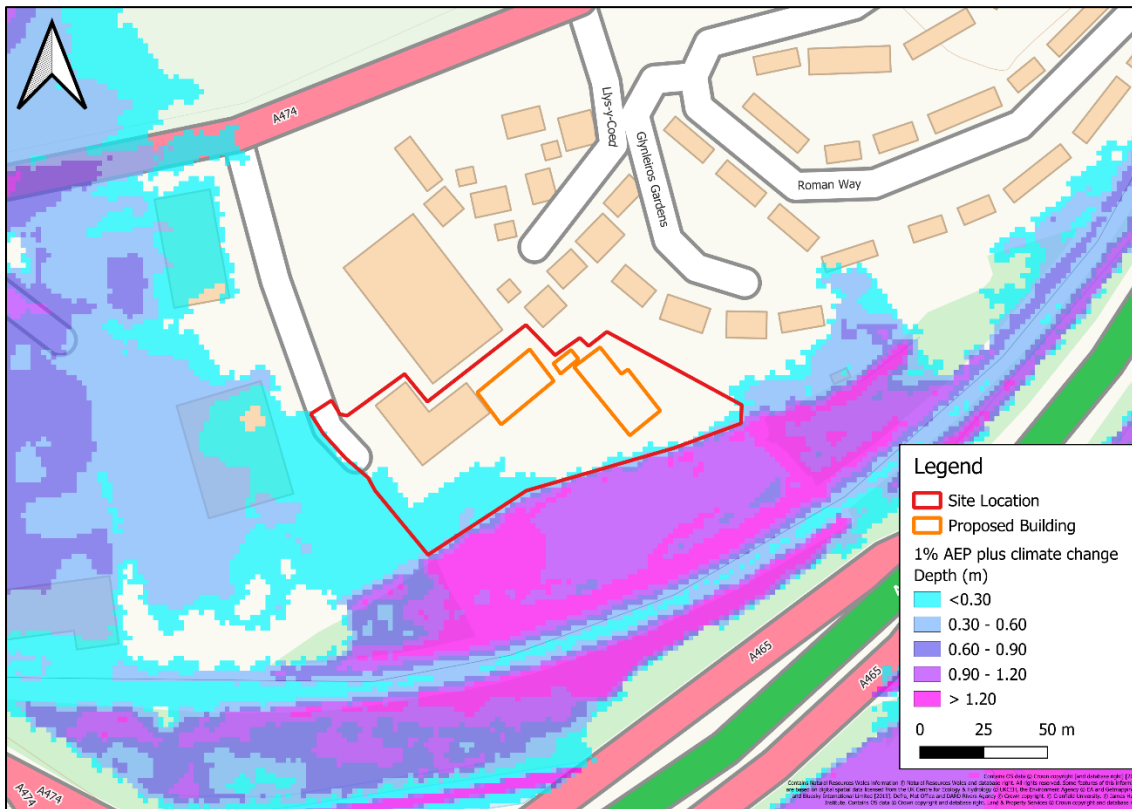


Figure 5-1 Fluvial 1% AEP event plus climate change (2070-2115)

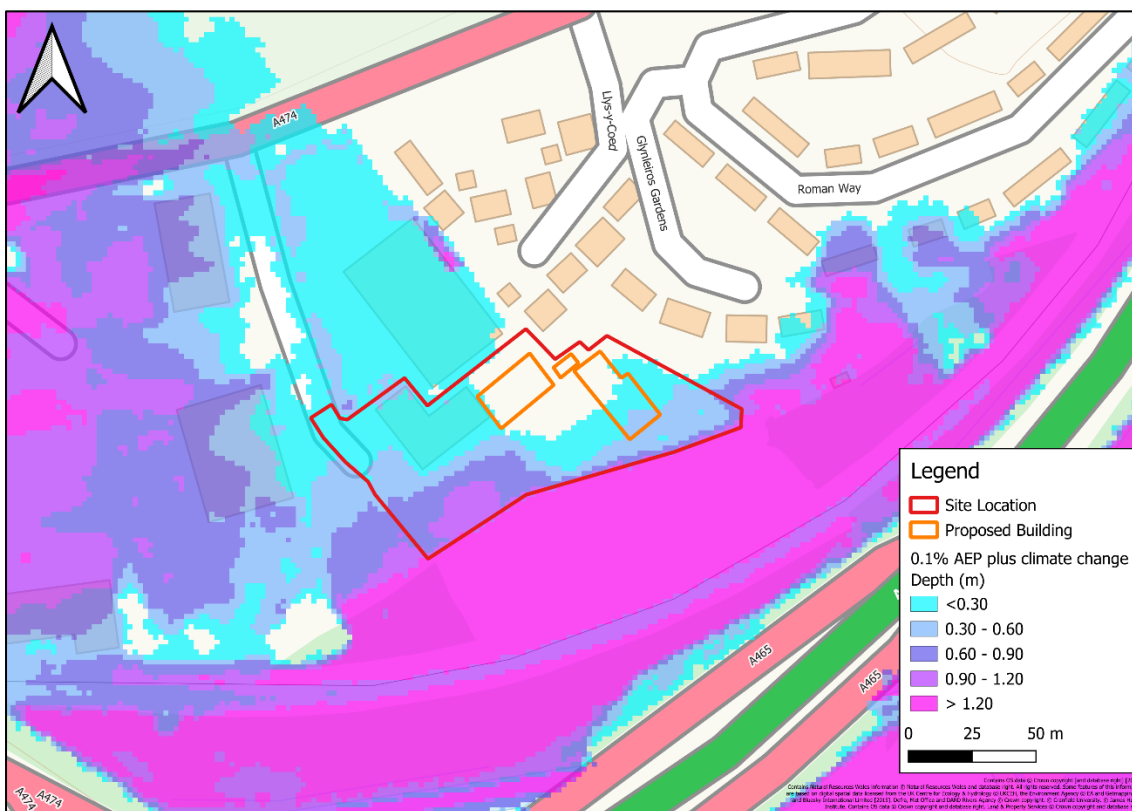


Figure 5-2 Fluvial 0.1% AEP event plus climate change (2070-2115)

Tidal baseline results

Figure 5-3 shows the predicted flood extent and depths during the 2075 0.5% AEP tidal event. The majority of the site is predicted to flood, including the location of the proposed buildings. Flood depths vary across the site, with a maximum predicted flood depth of 1.6m in the south-western corner. Across the area proposed for new light industrial units, a flood depth of 400mm is predicted. The predicted flood level is 7.04 mAOD.

Figure 5-4 shows predicted flood depths for the 2075 0.1% AEP tidal event. The predicted flood extent is marginally greater than that predicted in the 2075 0.5% AEP event. Flood depths are also increased, with a maximum predicted depth of 1.8m in the south-western corner. Across the proposed buildings, the predicted flood depths reach a maximum of 630mm. The predicted flood level is 7.28 mAOD.

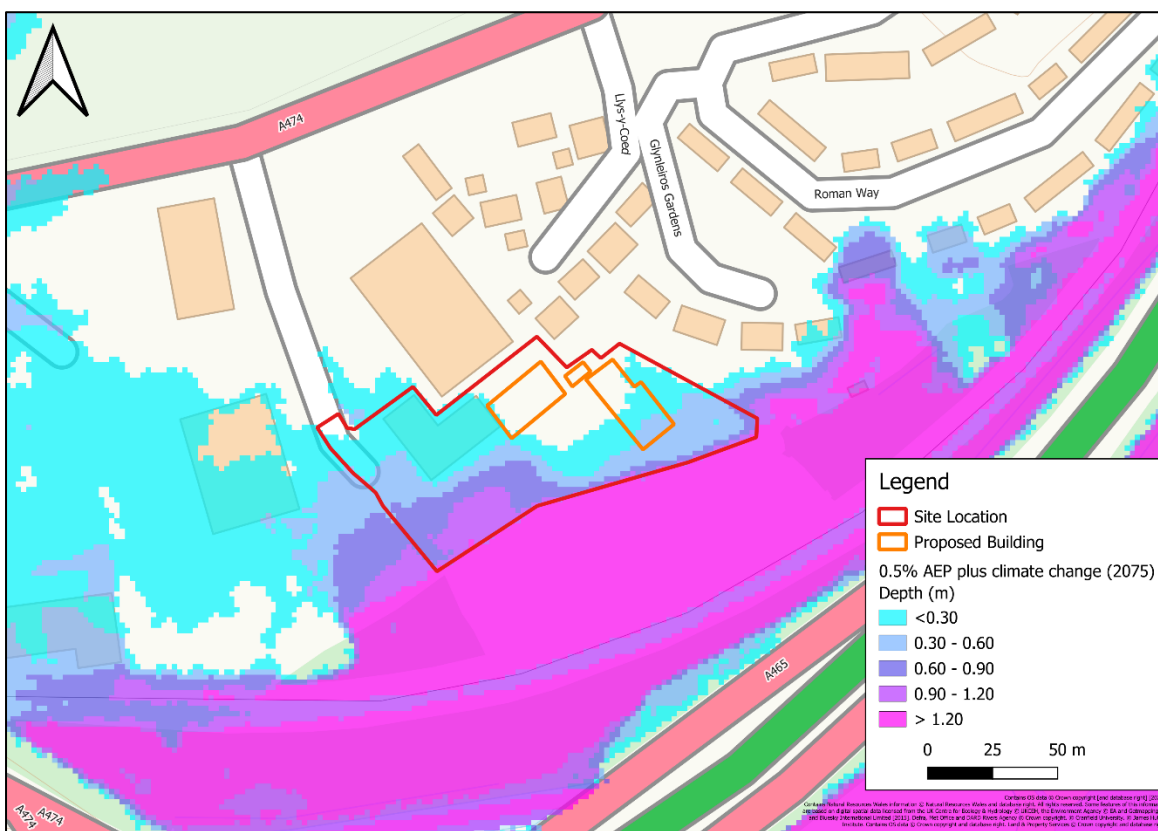


Figure 5-3 Tidal 2075 0.5% AEP event

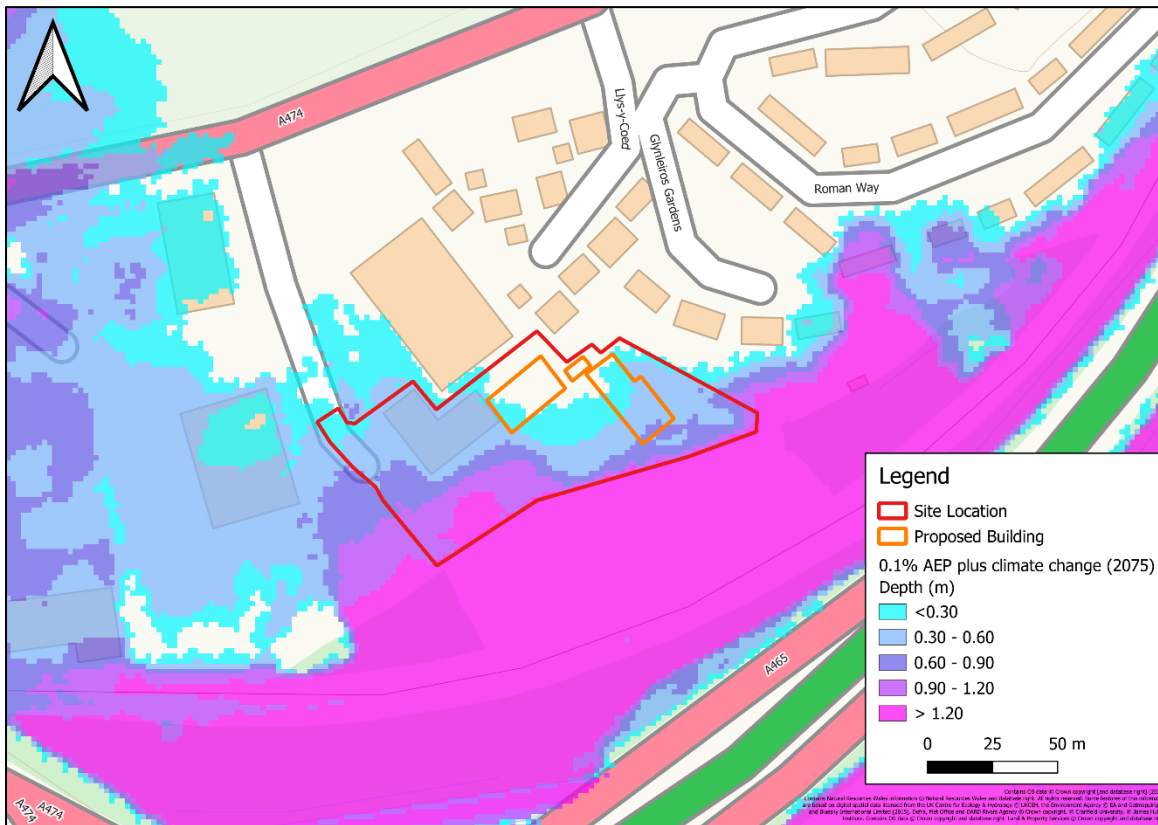


Figure 5-4 Tidal 2075 0.1% AEP event

Summary

Modelled flood levels relevant to the proposed buildings for all design events are displayed in Table 5-1.

Table 5-1 Modelled Flood Levels

Baseline Event		Flood Level (mAOD)
Fluvial	1% AEP (100-year) + climate change (2070-2115)	6.26
	0.1% AEP (1000-year) + climate change (2070-2115)	7.06
Tidal	0.5% AEP (200-year) + climate change (2075)	7.04
	0.1% AEP (1000-year) + climate change (2075)	7.28

5.2.3 Post-development results

Post-development modelling was completed to understand the impact of the proposed development on flood risk and inform mitigation measures. The model was updated to include the proposed building finished floor levels of 7.20 mAOD, and changes in ground level to allow access into the buildings. The proposed external ground levels in the parking and hardstanding area range from 6.45 to 7.20 mAOD to provide a more level surface and ramped access into the buildings. The proposed ground levels are typically within 100-200mm of the existing levels and include areas of both raising and lowering.

Fluvial

The proposed buildings and ground level changes are located outside the 1% AEP plus climate change event and therefore are unchanged from the baseline scenario shown above.

As a consequence of raising FFLs, the proposed light industrial units are predicted to be flood free in the 0.1% AEP plus climate change event, as shown in Figure 5-5. The proposed ground level changes in the parking and hardstanding area immediately adjacent to the buildings would result in a slightly larger flood extent, however, flood depths in this area would still be limited to less than 300mm.

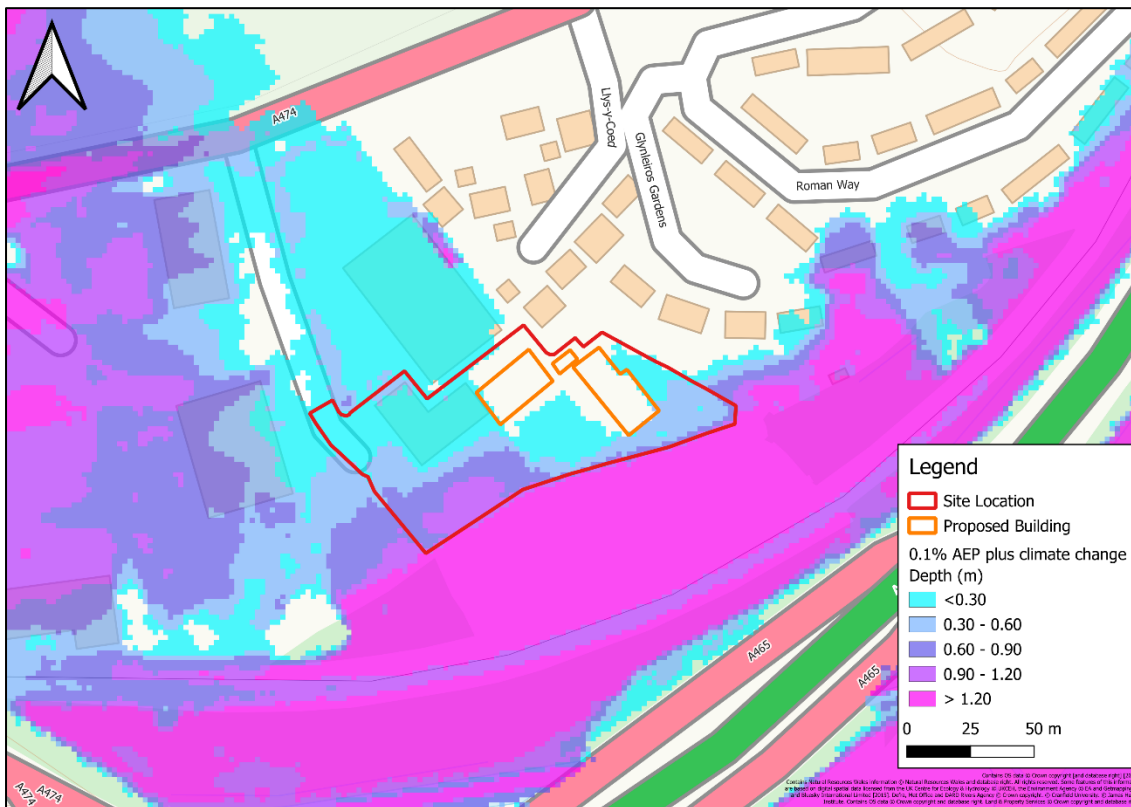


Figure 5-5: Post-development: Fluvial 0.1% AEP plus climate change event

Tidal

Figure 5-6 shows that in the post-development scenario, the proposed building finished floor levels would be elevated above the tidal 2075 0.5% AEP event.

Figure 5-7 shows that during the 2075 0.1% AEP event, the proposed finished floor levels would result in shallow flooding of the buildings to a depth of less than 0.1m (predominantly to 0.08m or less).

The proposed ground level changes in the parking and hardstanding area immediately adjacent to the buildings would result in a slightly larger flood extent in 2075 0.5% and 0.1% tidal events, however, flood depths in this area would still be limited to less than 300mm and 600mm, respectively.

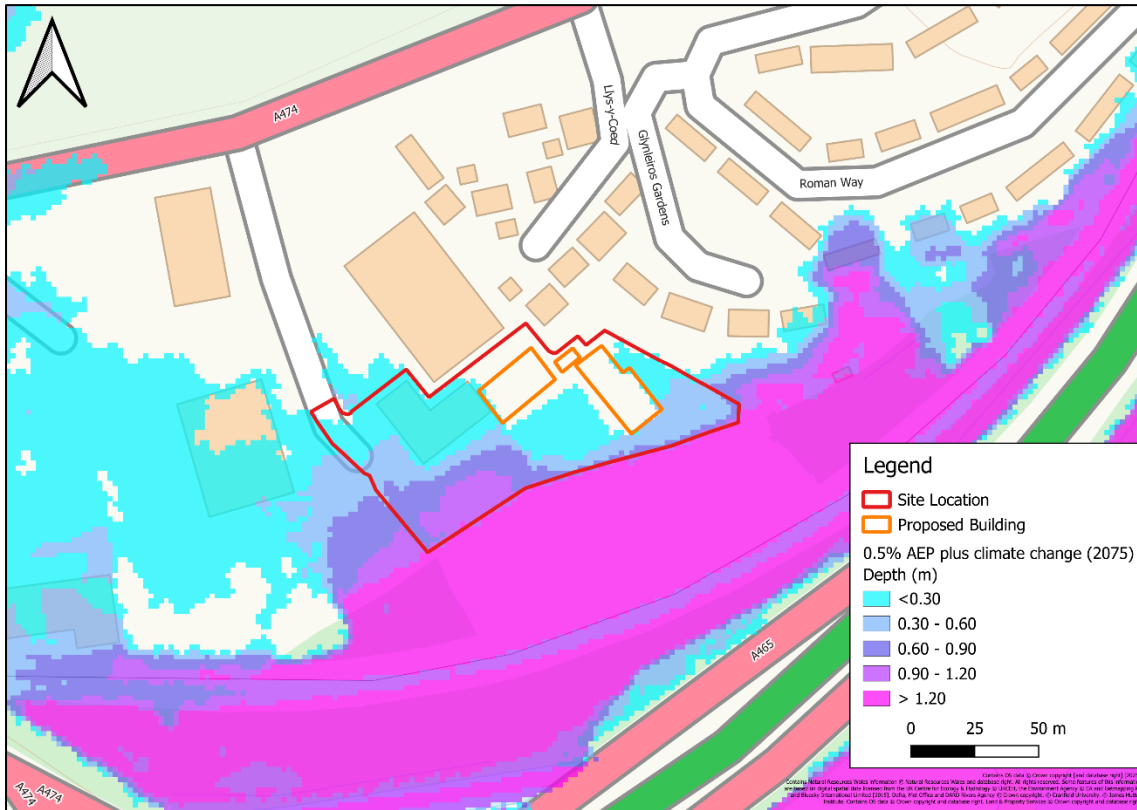


Figure 5-6: Post-development: Tidal 2075 0.5% AEP event

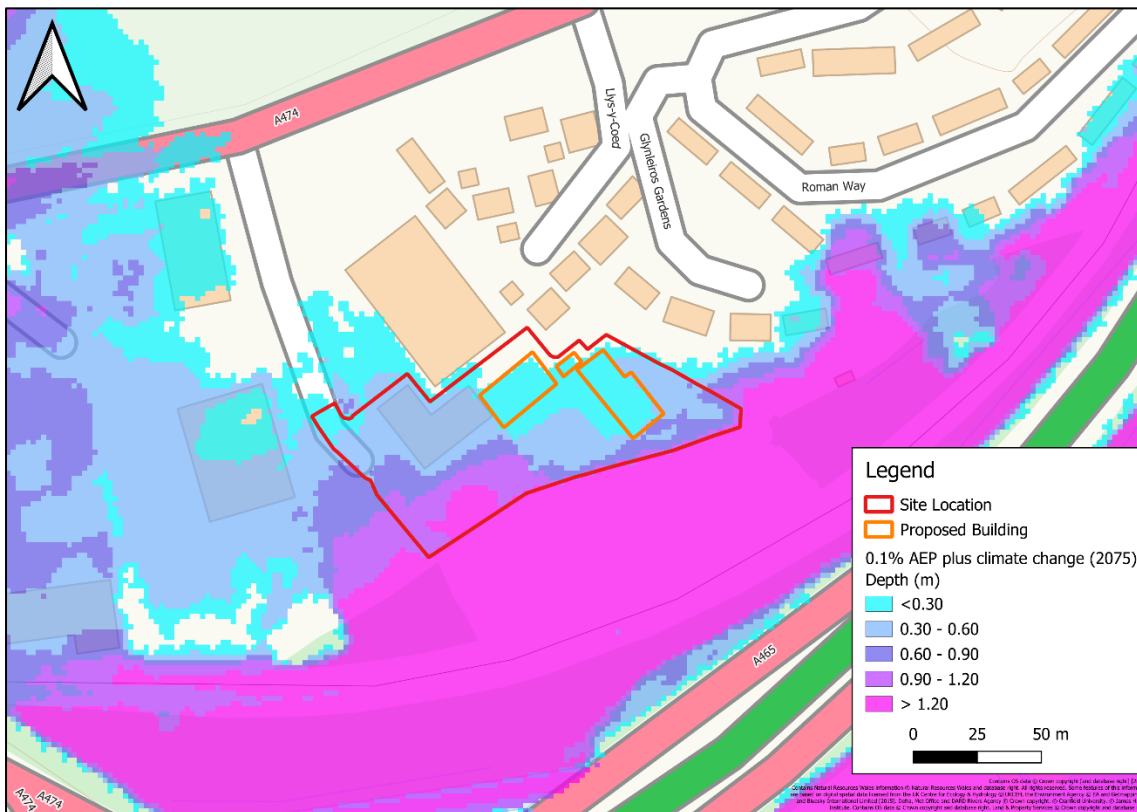


Figure 5-7: Post-development: Tidal 2075 0.1% AEP event

Detriment Analysis

Development proposals which have the potential to impact flood flows or storage must be shown to have no impact of flood risk elsewhere. Consequently, detriment analysis has been undertaken to demonstrate the impact of the proposals on third parties. It should be noted that the client owns the land immediately to the west and south of the site boundary.

Figure 5-8 shows a comparison between the baseline and post-development results for the fluvial 0.1% AEP event including climate change. There is no increase in fluvial flood risk to third parties as a result of the proposed development. There is a slight increase in flood depths within the red line boundary, which is considered acceptable to the site owner. The increase in depth is a result of lowering of the external area adjacent to the buildings to provide a more level surface.

Figure 5-9 shows a comparison between the baseline and post-development results for the tidal 2075 0.1% AEP event. There is no increase in tidal flood risk to third parties as a result of the proposed development. There is a slight increase in flood depths within the red line boundary, which is considered acceptable to the site owner.

It is therefore concluded that the proposed development would not increase the risk of flooding to third parties for its operational lifetime.

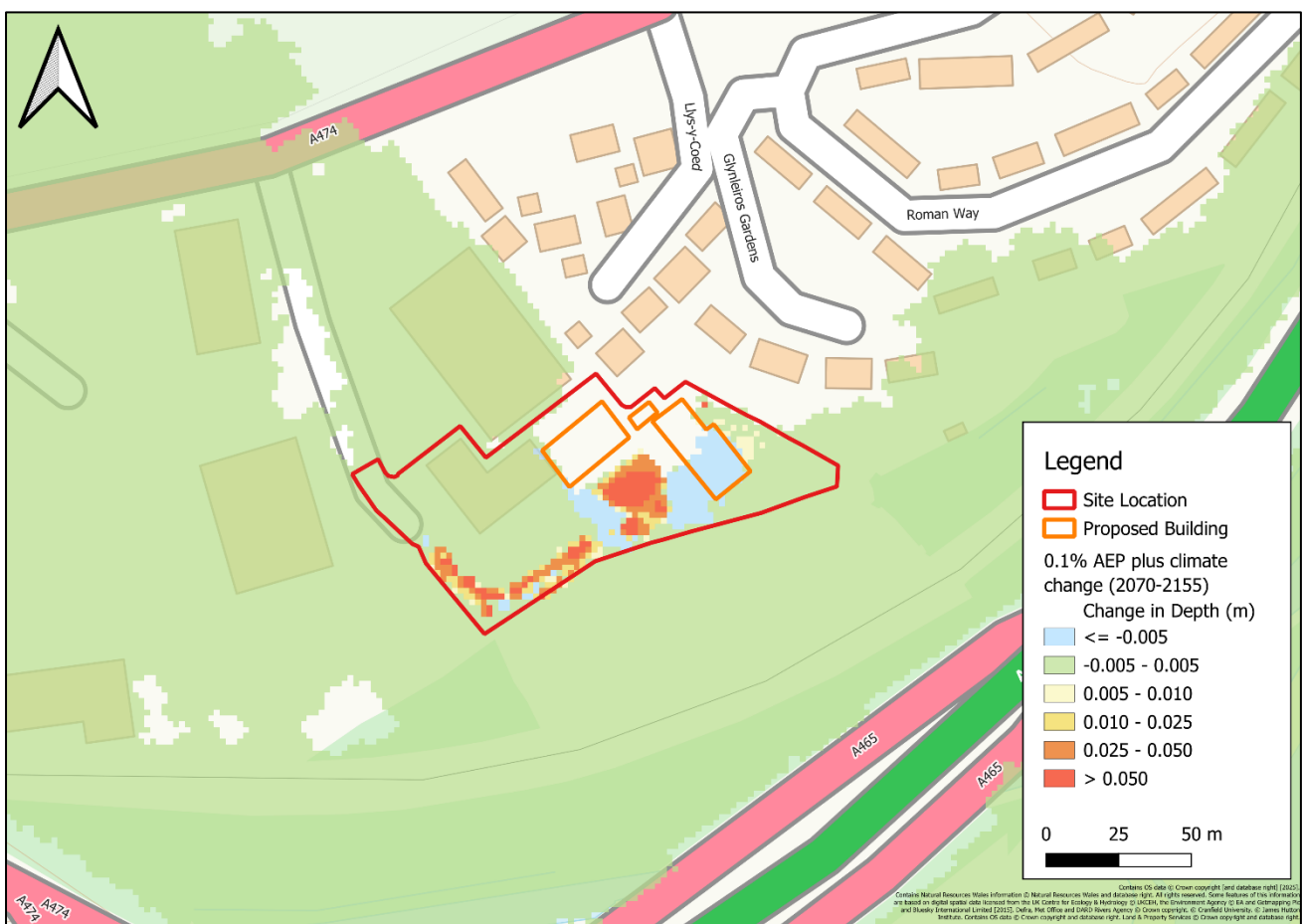


Figure 5-8: Baseline vs post-development: Depth comparison: Fluvial 0.1% AEP + climate change event

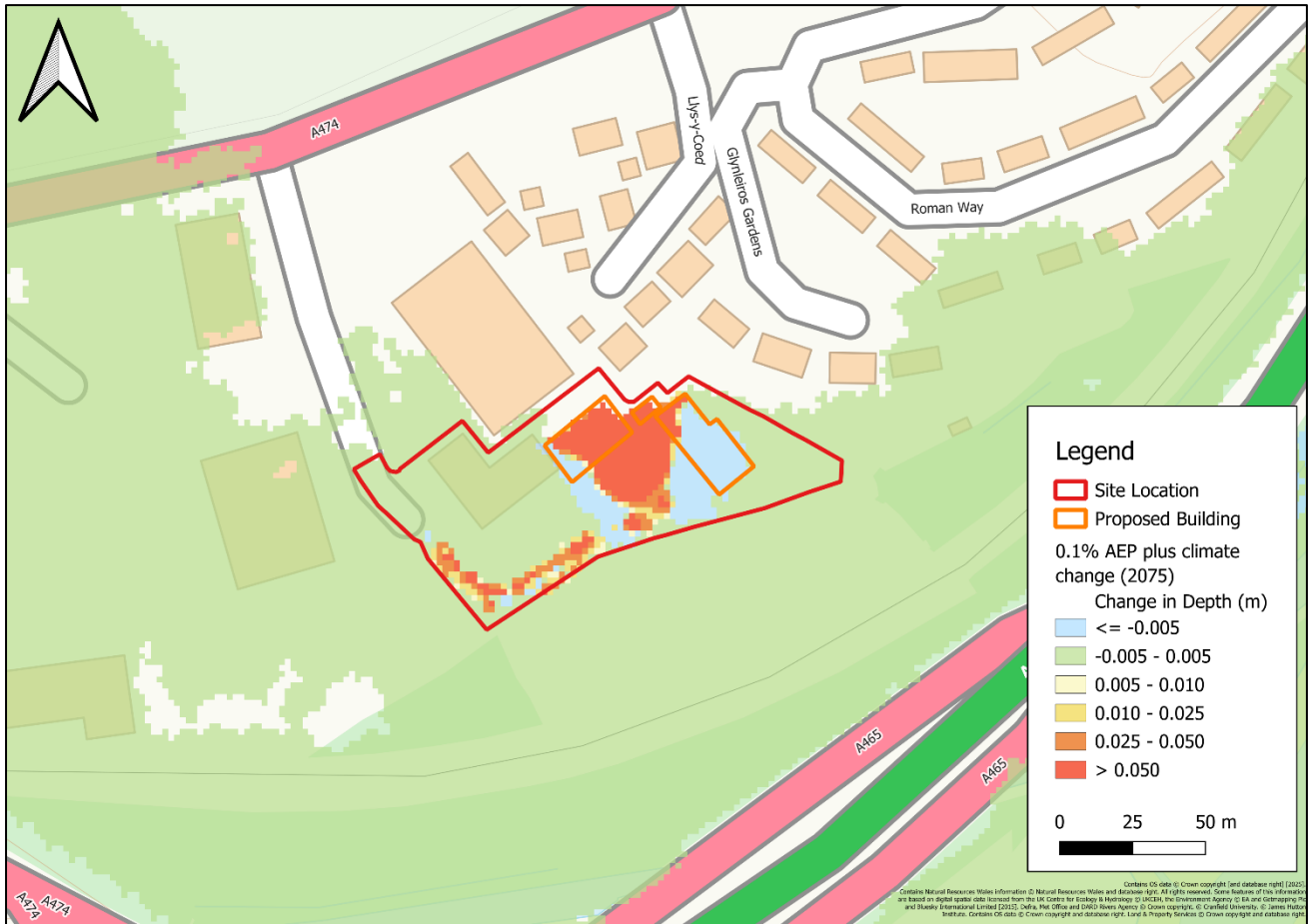


Figure 5-9: Baseline vs post-development: Depth comparison: Tidal 2075 0.1% AEP event

6 Flood Resilience

This section has been prepared in accordance with the CIWEM Code of Practice for Property Flood Resilience and the CIRIA Code of Practice for Property Flood Resilience. The code of practice sets out recommendations for mitigation in categories defined as: realignment, resistance, resilience and response. Mitigation in relation to each category and how it can be applied to the proposed development is considered below.

6.1 Realignment

Opportunities to realign the flood receptor (i.e. the proposed development) and realign the flood pathways are set out in Table 6-1.

Table 6-1 Realignment Mitigation

Measure	Description	Feasibility
Realign flood receptor	Sequential approach in layout	The proposed light industrial units will be located within the area at lowest risk of flooding in the north-east of the site, in the area of highest ground levels.
	Raise finished floor levels	Finished Floor Levels will be raised above the fluvial 1% AEP plus climate change and tidal 0.5% plus climate change event in accordance with TAN15 frequency thresholds, i.e. a minimum finished floor level of 7.05mAOD. Plans in Appendix B show finished floor levels of 7.20mAOD.
	Locate vulnerable elements to first floor	The proposed units are ground floor only and the proposed commercial use is acceptable on the ground floor.
	Restrict use of building	The proposed development is for commercial purposes and will be restricted to non-residential use.
Realign flood pathway	Redirect flow pathway	The proposed units will be raised above the predicted design flood levels. It is not practicable to redirect flow paths due to the widespread flood extents and nature of the risk, without increasing flood risk to third parties. The changes in flood depths within the site boundary are considered tolerable to the site owner.

Measure	Description	Feasibility
	Change ground levels	Ground levels across the site will be maintained as per the baseline scenario as far as practicable, with the exception of reductions to provide a more level surface and increases to facilitate access into the buildings. To greatly amend ground levels with the aim of increasing flood resilience to the site is not feasible without increasing the risk of flooding elsewhere.
	Sustainable Drainage Systems (SuDS)	The development should include a surface water drainage system incorporating SuDS to ensure that surface runoff does not increase post-development. The strategy will subject to the agreement of the SuDS Approval Body (SAB). Regular maintenance of the surface water drainage system should be undertaken to reduce the risk of blockage or failure.

6.2 Resistance and Resilience

Further to the consideration of realignment measures, it is recommended that the development should adopt flood resistance measures in accordance with the CIRIA Property Flood Resilience Code of Practice.

Flood resistance measures (i.e. keeping water out of the building) are generally feasible for flood depths less than 0.6m. The depth of flooding within the buildings in the tidal 0.1% AEP plus climate change event is predicted to be less than 0.6m based on the highest flood level of 7.28mAOD (i.e. flood depth of 0.08m). Therefore, flood resistance measures are likely to be appropriate in this instance.

Resilience measures should be included alongside flood resistance, as keeping water out of the building is unlikely to be 100% effective.

Resistance and resilience measures could include (but not limited to):

- using flood resistant and resilient materials to at least 600mm above the highest flood level;
- flood doors or barriers on external entrances (where practicable);
- raising sensitive equipment, wiring and sockets 600mm above the highest flood level (where practicable);
- locate service entry points above the flood level or seal to avoid creating points of entry for flood water (where practicable);
- ensure access to all spaces internally to enable drying and cleaning; and
- fit non-return valves to drainage pipework for backflow protection against sewer flooding.

Whilst not part of the proposals nor a planning requirement, the above measures could also be considered for the existing CNS Precision Engineering building to increase resilience to flooding. The existing building has a Finished Floor Level of 6.96 mAOD and could flood to a depth of 0.32m in the 2075 0.1% AEP tidal event.

6.3 Response

Preparation in how to respond in the event of a flood is a critical mitigation measure. Overall the site access is impacted the greatest in the fluvial event, however, it is noted that depths are higher along the pedestrian access route during the tidal event.

Figure 6-1 shows the access routes and associated depths in the fluvial 0.1% AEP event plus climate change. Whilst the site access is impacted to depths of up to 1.1m in this event, the model indicates that from the point that the River Clydach begins flooding onto the A4230 650m to the west, it would take a further 1.10 hours for floodwater to reach the site access.

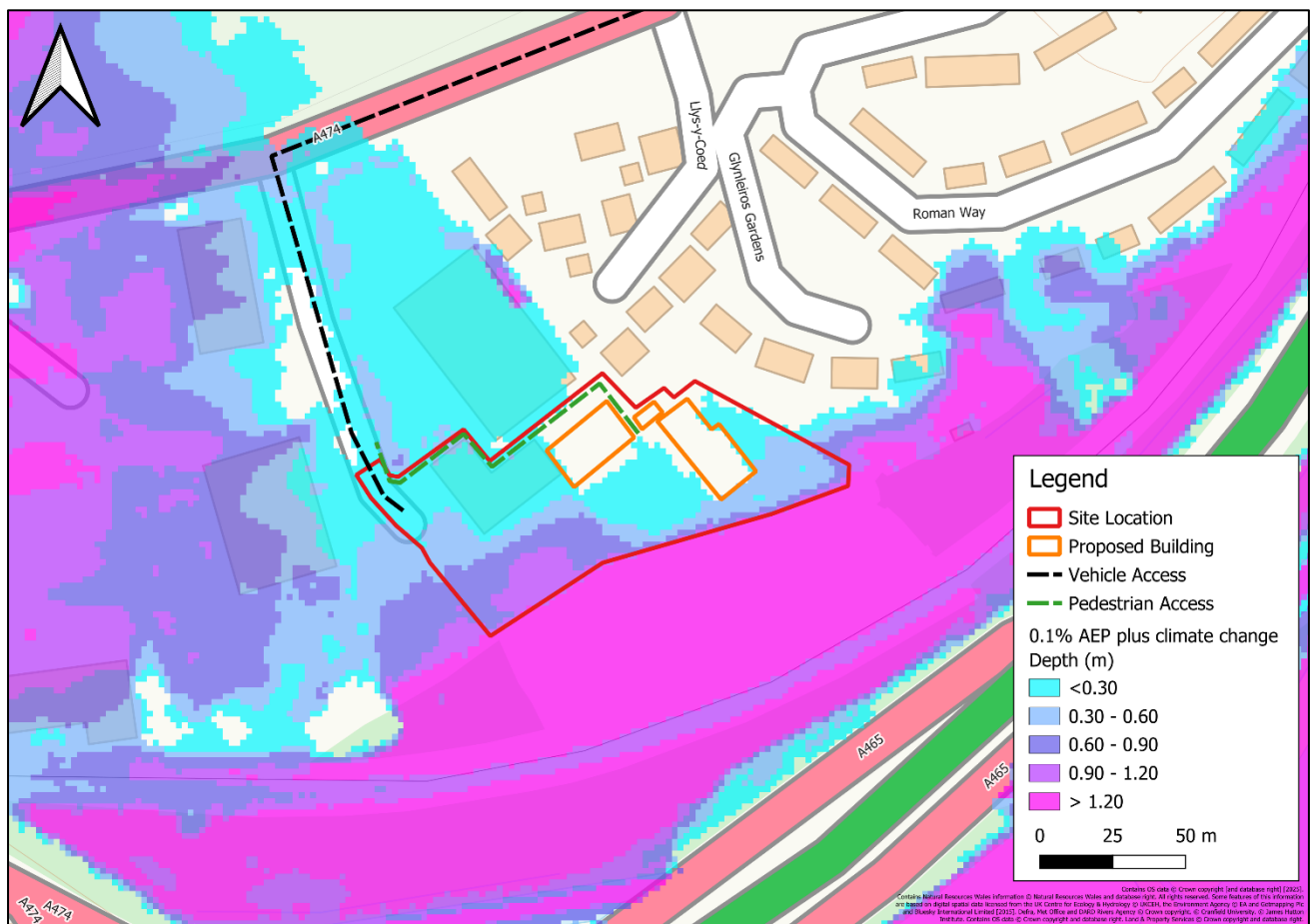


Figure 6-1 Access route in the fluvial 0.1% AEP plus climate change event

Figure 6-2 shows the access routes and associated depths in the tidal 0.1% AEP event plus climate change, to maximum depth of up to 1.3m. The model indicates a duration of 4.10 hours from the beginning of the tidal scenario before the extent reaches the southern site

boundary. Tidal flooding is also more predictable than fluvial flooding and additional warning would be available in advance of the event.

The highest depths in both events could be avoided via the proposed pedestrian access route along the northern site boundary, where depths are limited to less than 0.6m. This route would be impacted later than the vehicle route to the south and would provide emergency access if the vehicle access was prohibited first.

Land outside of the model flood extents is located a short distance of 120m to the north on Neath Abbey Road. From here a route free from flooding is available in an easterly direction.

The site manager should sign up to the NRW's flood warning and Met Office weather warning services to allow the closure or evacuation of the site before a flood event if sufficient warning is provided.

In the event that insufficient warning is provided, occupants would need to seek safe refuge within the buildings.

It is recommended that a Flood Response Plan (FRP) is prepared to inform the occupants of the risk of flooding and detail procedures to take in the event of flooding.

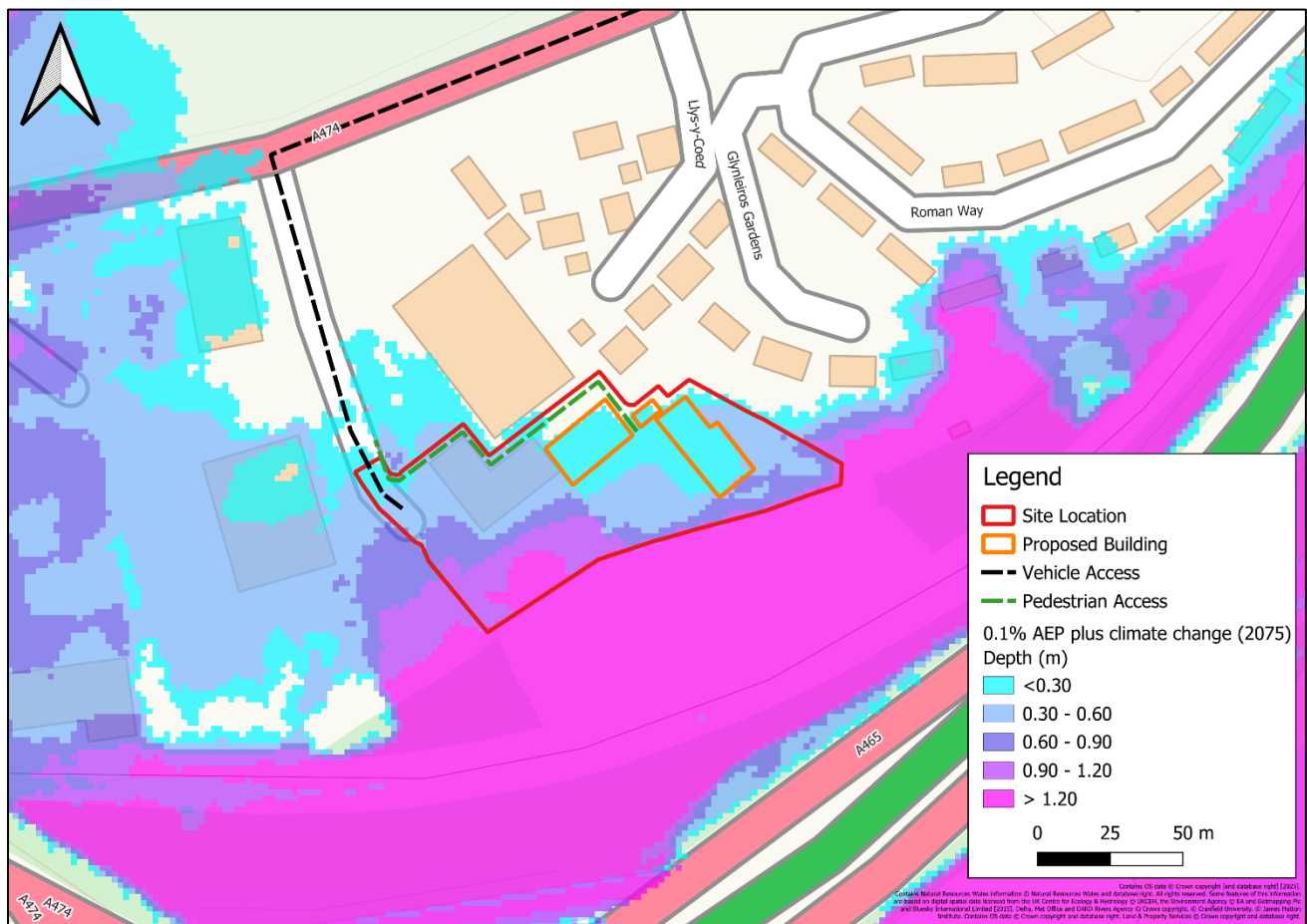


Figure 6-2 Access route in the tidal 0.1% AEP plus climate change event

Given the proposed commercial use and availability of warning prior to an event, it is concluded that access and egress to the site would be considered safe with the inclusion of an FRP.

7 Flooding and the Plan Led System

7.1 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.

According to the Flood Map for Planning the site is located within Flood Zone 3 from rivers and the sea. For a proposed redevelopment site within Flood Zone 3, Section 10.23 of TAN-15 states:

"proposals will only be appropriate if they are essential to the Development Plan Strategy to regenerate an existing settlement or achieve key economic or environmental objective. Any redevelopment proposal must be consistent with the acceptability considerations in section 11".

The development proposal is for industrial units and commercial use, classified as Less Vulnerable Development and Redevelopment of a brownfield site. The development proposal will provide economic benefits and will be located in an area where industrial and commercial uses are established.

The proposed development is consistent with Policy EC2 Existing Employment Areas and Policy EC3 Employment Area Uses of the Neath Port Talbot Council Local Development Plan (2011-2026). Paragraph 5.2.18 states:

"Existing employment areas throughout the County Borough will be protected and future development restricted to employment uses as set out in Policy EC3. This will include vacant land and premises within these employment areas where appropriate infill development will be allowed."

Provided that the principal of development is justified, development must demonstrate compliance with the acceptability considerations set out within Section 11 of TAN-15. This is demonstrated in Section 7.2.

7.2 Acceptability of Flood Consequences

Whether a development should proceed or not will depend upon whether the consequences of flooding can be safely managed, including its effects on flood risk elsewhere. TAN-15 sets out the key conditions that should be met to demonstrate that development is appropriate for its location.

The site has been assessed against the Acceptability Criteria of Section 11 of TAN-15, as shown in Table 7-1 below.

Table 7-1 Assessment of Acceptability Criteria

TAN-15 Acceptability Criteria	Comments	Achieved
No increase in flooding elsewhere.	Hydraulic modelling has demonstrated that there will be no increase in flood risk to third parties.	Yes
Occupiers aware of flood risk	The site owners will be provided with information on the risk to the site in the form of this report.	Yes
Escape/evacuation routes present	As detailed in Section 6.3.	Yes
Flood emergency plans and procedures agreed and in place	As detailed in Section 6.3, access and egress is viable in the extreme flood event. It is recommended that a Flood Response Plan is prepared to ensure site occupiers know how to respond in the event of a flood warning, or subsequent flood.	Yes
Flood resistant and resilient design	As detailed in Section 6.2, the proposals will increase FFLs of the proposed buildings to mitigate flood risk in the extreme flood events. Further resilience options, in the form of Property Flood Resilience, could be incorporated into design proposals to further increase the site's resilience, but are not considered strictly necessary.	Yes
Acceptable consequences for type of use	Detailed in Section 7.	Yes

7.2.1 Frequency thresholds: designing development to be flood free

The required design standard for new development is to be flood free during the fluvial 1% AEP event and tidal 0.5% AEP event, plus an allowance for climate change over the lifetime of development. The proposal meets the design standard for new development by raising Finished Floor Levels and the proposed buildings comply with the frequency thresholds. It is acknowledged that external areas and access would flood in the fluvial 1% AEP and tidal 0.5% AEP events, however, there would no significant change in risk or impact to the existing site use as a result of the development. Section 11.8 of TAN-15 states that the frequency thresholds may be applied with more flexibility for redevelopment and therefore allows for the risk shown to the existing access and external areas.

As per Section 5 of this report, the proposals meet this frequency threshold based on the proposed finished floor levels, which are located above both the fluvial 1% AEP and tidal 0.5% AEP event plus allowances for climate change.

7.2.2 Tolerable conditions: managing consequences in an extreme flood event

The flood free thresholds relate to very serious but not extreme flood events. During extreme flood events there is recognition that it may not be possible to keep development flood-free. Figure 6 of TAN-15 provides indicative tolerable flood depth and velocity conditions for the 0.1% AEP event, including an allowance for climate change. Up to 600mm of flooding is considered tolerable within Less Vulnerable Developments, and it is understood that some flexibility to this indicative value is afforded to redevelopment sites.

As per Section 5 of this report, the buildings would flood to a depth of less than 0.6m in the 0.1% AEP climate change events based on the proposed Finished Floor Levels. The proposed development therefore complies with the tolerable conditions as outlined in Figure 6 of TAN-15.

8 Conclusions

JBA Consulting was commissioned by Alpha Building Group Ltd to undertake a Flood Consequences Assessment (FCA) to support a planning application for a commercial development at Neath Abbey Road, Neath, South Wales, SA10 7BR.

Development proposals are for the construction of industrial units in the eastern part of the site, with associated parking and access.

The development proposals are classified as Less Vulnerable development under TAN-15. The development proposals comprise industrial units where an operational lifetime of 50 years is considered to be appropriate. It is understood that this has been deemed acceptable for similar forms of development in Wales.

The dominant sources of flood risk are from fluvial and tidal sources associated with the River Clydach and River Neath. The site is at low risk of reservoir and sewer flooding and very low risk of surface water flooding. The site is located in an area at high risk of groundwater flooding, although this is less significant than the fluvial and tidal risk and can be mitigated alongside these sources.

Hydraulic modelling has been completed based on the River Neath 2015 1D/2D ESTRY TUFLOW model to assess fluvial and tidal risk. Post-development modelling was undertaken to inform mitigation to demonstrate that the development will be safe and ensure it will not increase flood risk elsewhere.

Finished Floor Levels will be raised above the fluvial 1% AEP plus climate change and tidal 0.5% plus climate change event in accordance with TAN15 frequency thresholds, i.e. a minimum finished floor level of 7.05mAOD. Plans in Appendix B show finished floor levels of 7.20 mAOD.

Flood resistance and resilience measures should be included to mitigate against a more extreme tidal 0.1% AEP plus climate change event, which could impact the buildings to a depth of less than 0.1m.

Given the proposed commercial use and availability of warning prior to an event, it is concluded that access and egress to the site would be considered safe with the inclusion of a Flood Response Plan.

In conclusion, the FCA has found that in respect to flood risk, the development meets the requirements set out in TAN-15 and the aims of Planning Policy Wales.

A Topographical Survey



- Notes:
- SURVEYED FEATURES ARE ANNOTATED APPROPRIATELY.
 - TREE SPECIES IS ONLY ANNOTATED WHERE KNOWN.
 - SERVICE COVERS ARE SURVEYED WHERE ACCESSIBLE
 - DRAINAGE PIPE SIZES HAVE BEEN VISUALLY INSPECTED/ASSESSED FROM GROUND LEVEL ONLY AND SHOULD BE TREATED AS APPROXIMATE
 - HEALER SURVEYS CANNOT ACCEPT LIABILITY FOR MISSING COVERS DUE TO THEM BEING BURIED OR OBSCURED BY PARKED VEHICLES AT THE TIME OF THE SITE VISIT.

Station Table:

Stotion	Easting	Northing	Level
S1	274519.335	197469.200	6.216
S2	274582.175	197500.290	6.961
S3	274557.022	197533.373	7.623
S4	274522.203	197513.444	6.885
S5	274511.353	197523.872	6.925
S6	274488.610	197506.091	7.108

Grid Origin and Level Datum:
Ordnance Survey GPS OSGB36(15) Grid and Levels used.
GPS Grid to Ground Scale Factor used 1.000
For TPS measures use Ground to Grid Mean
Scale Factor 0.99980035

Revisions:

A:	
B:	
C:	
D:	
E:	
F:	
G:	
H:	

Client:

RWP Properties

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Drawing:	Topographic Survey	
Date:	June 2025	
Surveyed:	JAE	
Drawn:	JAE	
Checked:	RE	
Scale:	Sheet Size:	Sheet No:
1:500	A2	1 of 1
Job No:	P4034	
Rev.		

B Proposed Development Plans

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