CELTIC HOUSE, LANGLAND WAY

FLOOD CONSEQUENCES ASSESSMENT

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DATE: NOVEMBER 2025

BEAR CONSULTING DOCUMENT REFERENCE: P0644Rc_04b

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APPENDICES

Revision	Date	Notes	Author	Approved
-	29/08/2025	First Issue	WH	PC
A	07/10/2025	Updated to suit NRW's comments	WH	PC
B	13/11/2025	Updated to suit NRW's comments	WH	PC

1.0 INTRODUCTION

Bear Consulting has been instructed to prepare a Flood Consequence Assessment (FCA) for the development at Celtic House, Langland Way, Newport, NP19 4PT, to support the proposed development of an 'extension to existing building with an open canopy and the erection of a single storey portal frame building for the provision of warehouse storage (Use Class B8).' (NCC planning ref:25/0476).

This FCA has been prepared in accordance with Technical Advice Note 15 (TAN 15): Development, Flooding and Coastal Erosion (Welsh Government, March 2025) and relevant supporting guidance.

The purpose of this assessment is to:

- Establish whether the site is currently affected by flooding.
- Assess the suitability of the proposed development in this location.
- Identify and propose mitigation measures to ensure the development and its occupants remain safe during a flood event.
- Demonstrate that the development will not increase flood risk elsewhere.
- Assess compliance with the acceptability criteria set out in TAN 15 (2025).
- Provide the additional information requested by Natural Resources Wales (NRW), as the statutory consultee for flood risk, to inform the planning process.

2.0 EXISTING SITE AND DEVELOPMENT SUMMARY

2.1 Site Address and OS Grid Reference

The site is located at Celtic House, Langland Way, Newport, NP19 4PT (E.333265, N.186441)

Figure 1 – Site Location

The red line in Figure 1 shows the proposed development boundary. The blue line indicates the applicant's ownership boundary. Vehicular access is gained from Langland Way adjacent to the eastern site boundary.

2.2 Existing Site Description

The site is a previously developed land within an established industrial area, bounded by other industrial plots to the north, south, and west.

The topographical survey (included within Appendix A) shows a steel portal frame building centrally located on the plot, storage containers positioned in the north-western area, hardstanding gravel surfaces to the west and brick paving to the east of the building, soft landscaped margins along the boundaries.

Ground levels across the site range from 7.32m to 8.40m AOD, generally falling gently away from the existing building.

The topographic survey also indicates the presence of existing private on-site surface water and foul water drainage networks within the site boundary. However, no above-ground surface water drainage features, such as drainage channels or gullies, were identified within the development area (red line boundary). It is therefore assumed that runoff from the development area currently flows in a south-westerly direction, discharging off-site and ultimately reaching the Langland Way highway gullies.

The nearest watercourses are:

- Great Spytty Reen (main river), approximately 100m east.
- River Usk (main river), approximately 700m west.

There are no Site of Special Scientific Interest (SSSI), Special Area of Conservation (SACs) or Local Nature Reserves (LNR) / National Nature Reserves (NNR) / Special Protection Areas (SPA) lying within or directly adjacent to the site.

Soilscapes has identified the soil as loamy and clayey soils of coastal flats with naturally high groundwater, with naturally wet drainage. The relevant information has been included within Appendix C.

The bedrock geology has been identified as Mercia Mudstone Group - Mudstone. The superficial deposit has been identified as Tidal Flat Deposits - Clay and silt. The relevant information has been included within Appendix D.

2.3 Proposed Development Description

It is proposed to construct an extension (2 no. units - plasma cutting unit and workshop) directly adjacent to the west of the existing building and the erection of a single-storey portal frame building for the provision of warehouse storage (considered as 2 units due to the structural arrangement). It is therefore considered that there are 4 proposed units as part of this development.

Relevant proposed design information has been included within Appendix B.

Given the relationship to the existing buildings, the proposed units are considered to be extensions to the existing site use as stand-alone units.

2.4 Vulnerability Classification

Under TAN 15 (2025), the proposed development falls within the “Less Vulnerable” category, as it comprises industrial and warehouse use.

Vulnerability category	Types
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.

Table 1 – Development vulnerability categories extracted from TAN15 (March 2025)

3.0 PLANNING CONTEXT AND FLOOD ZONE CLASSIFICATION

3.1 Planning Status

At the time of writing (August 2025), a planning application for the proposed development (Ref: 25/0476) has been submitted to Newport City Council and is under consideration.

3.2 Relevant National and Local Policy

This FCA report has been prepared in accordance with:

- Technical Advice Note 15 (TAN 15): Development, Flooding and Coastal Erosion (Welsh Government, March 2025).
- Welsh Government National Standards for Sustainable Drainage (SuDS).

Where relevant, reference has also been made to other current Natural Resources Wales (NRW) policy and guidance.

3.3 Development Location Flood Zone

According to the NRW Flood Map for Planning (included within Appendix E), the proposed development lies entirely within a Sea Flood Zone 3 area, defined as land with a greater than 0.5% annual probability (1 in 200) of tidal flooding, including the effects of climate change.

The site is also located within the TAN 15 Defended Zone.

4.0 SOURCES OF FLOOD RISK

4.1 Identify Relevant Sources of Flooding

A desk-based review has been undertaken, including the use of the Natural Resources Wales (NRW) Flood Map for Planning (FMfP), to assess potential sources of flood risk affecting the site. The relevant information from the NRW Flood Map for Planning (FMfP) has been included within Appendix E.

Surface Water Flooding

According to NRW Flood Map for Planning, the site does not lie within Surface Water Flood Zones 2 and 3. On this basis, the risk from surface water flooding is considered negligible.

Flood Zone	Probability	Explanation
Zone 2	Medium	• Areas with 0.1% to 1% (1 in 1000 to 1 in 100) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change.
Zone 3	High	• Areas with more than 1% (1 in 100) chance of flooding from surface water and/or small watercourses in a given year, including the effects of climate change.

Table 2 – NRW Surface Water and Small Watercourses Flood Zones

River Flooding

The nearest river to the site is the main river, Great Spytty Reen, approximately 100m to the east of the site and another main river, River Usk, is located approximately 700m to the west of the site.

The FMfP confirms that the site does not lie within a designated river flood zone and is therefore not at significant risk from river flooding. The risk of flooding from rivers is therefore considered negligible.

Flood Zone	Probability	Explanation
Zone 2	Medium	• Areas with 0.1% to 1% (1 in 1000 to 1 in 100) chance of flooding from rivers in a given year, including the effects of climate change.
Zone 3	High	• Areas with more than 1% (1 in 100) chance of flooding from rivers in a given year, including the effects of climate change.

Table 3 – NRW Rivers Flood Zones

Sea Flooding

The closest estuary to the site is the Bristol Channel, located approximately 4 km to the south.

According to the NRW Flood Map for Planning, the site lies within Sea Flood Zone 3, defined as areas with more than a 0.5% (1 in 200) annual probability of flooding from the sea, including the effects of climate change.

Flood Zone	Probability	Explanation
Zone 2	Medium	• Areas with 0.1% to 0.5% (1 in 1000 to 1 in 200) chance of flooding from the sea in a given year, including the effects of climate change.
Zone 3	High	• Areas with more than 0.5% (1 in 200) chance of flooding from the sea in a given year, including the effects of climate change.

Table 4 – NRW Sea Flood Zones

It should be noted that the site is also situated within the TAN 15 Sea Defended Zone, an area that benefits from Risk Management Authority flood defences designed for a 1 in 200-year (present-day) sea flooding event.

Reservoir Flooding

There are no reservoirs located in the vicinity of the site. The NRW Flood Map for Planning indicates that the site is not within an area at risk of reservoir flooding; therefore, the flood risk from reservoirs is considered negligible.

Sewer Flooding

Sewer flooding may occur during periods of heavy rainfall when the sewer system is either blocked or lacks sufficient capacity. It is noted that there are existing private on-site surface water and foul water systems that connect to the highway drain and the DCWW public sewer beneath the adjacent public road, Langland Way, according to information from the topographical survey and the DCWW sewer map. Existing drainage information has been included within Appendix F. At the time of writing, no information is available regarding sewer flooding in the vicinity of the site; therefore, the risk of sewer flooding is considered unknown.

A new drainage system shall be designed that will control surface water runoff to an agreed-upon, restricted rate. A non-return valve will also be considered to prevent backflow into the system. This ensures the development does not put additional strain on the local sewer network. Therefore, the risk of sewer flooding can be considered low.

Groundwater Flooding

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rise of groundwater into man-made ground when the normal range of groundwater levels is exceeded.

Groundwater flooding tends to occur sporadically in both location and time and typically affects low-lying areas, below-surface infrastructure, and buildings (e.g., tunnels, basements, and car parks) underlain by permeable rocks (aquifers).

It is acknowledged that groundwater conditions can vary across the site. A site investigation, including a groundwater assessment, will be carried out at a later stage of the development to provide confirmation.

At this stage, the risk of groundwater flooding is unknown. However, as later demonstrated in section 6, mitigation measures will be incorporated into the development. Hence, the overall risk of groundwater flooding to the proposed development is considered to be low.

4.2 Known Historic Flooding

According to the Natural Resources Wales (NRW) Flood Map for Planning, there are no recorded flood extents at the site

4.3 Existing Flood Defences

According to the NRW Flood Map for Planning, the site is situated within the TAN 15 Sea Defended Zone, an area that benefits from Risk Management Authority flood defences designed for a 1 in 200-year (present-day) sea flooding event.

5.0 FLOOD RISK ASSESSMENT AND ACCEPTABILITY OF FLOOD CONSEQUENCES

NRW has provided the 2016 Caldicot and Wentlooge Coastal Model (Ref: CaldicotAndWentlooge_5_V1.0_2016_Product6, flood model, carried out by JBA consulting). The relevant flood modelling results extracts have been included in Appendix G of this report to support the assessment against the criteria set out in TAN 15.

It should be noted that the flood modelling result includes the climate change simulations for the 200-year and 1,000-year events. These simulations represent the potential increase in flood risk up to the year 2115 based on the Welsh Government guidance for sea-level rise estimates (FCDPAG3).

The Caldicot and Wentlooge Coastal VDM – Model User Report prepared by JBA explains that "the tidal boundary for the Caldicot TUFLOW model runs parallel with the coastline and extends up the River Wye to Alcove Wood in Chepstow in the east of the model domain and up the River Usk to the M4 Bridge in Newport at the western extent of the model". The model boundary, as illustrated in the JBA report, encompasses the proposed development site. It is therefore considered that tidal flood risk associated with the River Usk has been appropriately represented within the JBA flood model results used for this FCA.

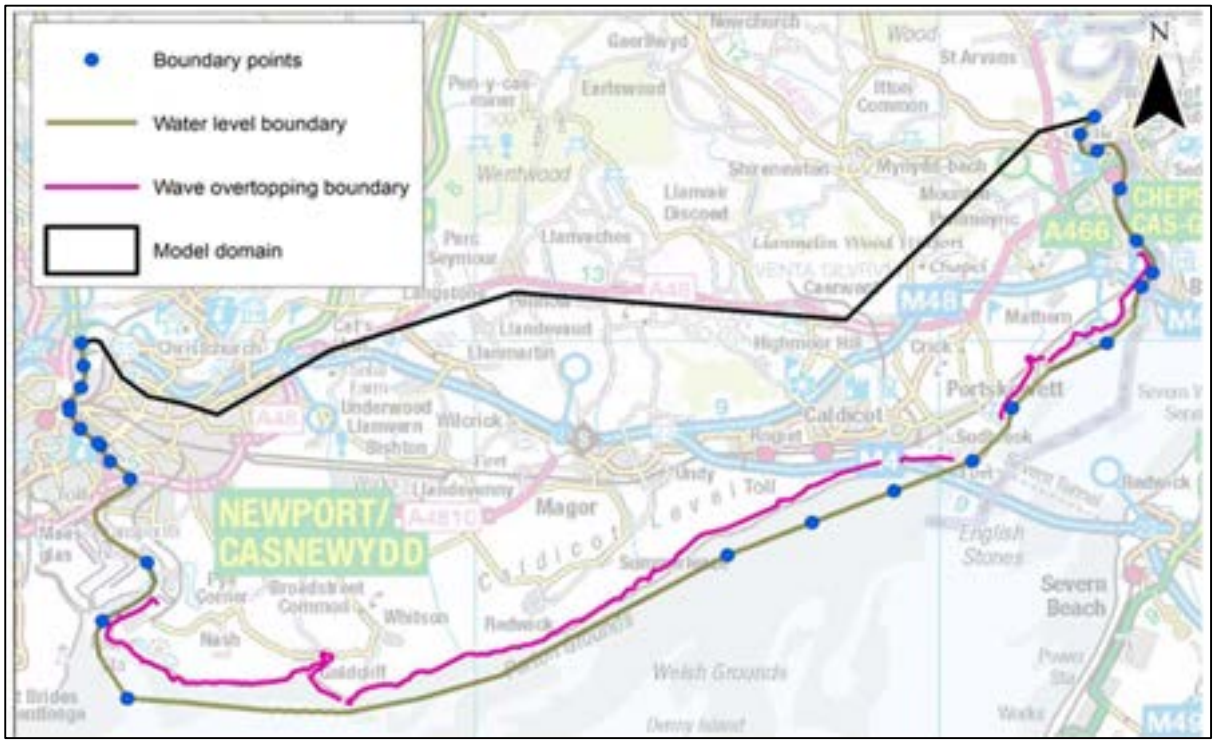


Figure 2 – Caldicot TUFLOW model boundaries extracted from JBA Caldicot and Wentlooge Coastal VDM - Model User Report

5.1 Frequency Thresholds

In accordance with TAN15 (2025), the proposed development is classified as 'less vulnerable development' for all commercial/industrial areas.

Section 11.7 of TAN15 states that new developments should be designed to remain flood-free during a 1% river flood event (i.e., a flood with a 1 in 100 chance of occurring in any year) and a 0.5% coastal flood event (i.e., a flood with a 1 in 200 chance of occurring in any year), including an allowance for climate change over the lifetime of the development.

Vulnerability category		Flood Event Type	
		Rivers	Sea
Highly vulnerable development	Emergency services (command centres and hubs)	0.1%+CC (1 in 1,000)	0.1%+CC (1 in 1,000)
	All other types	1% +CC (1 in 100)	0.5%+CC (1 in 200)
Less vulnerable development Water compatible development that may be occupied by people		1% +CC (1 in 100)	0.5% +CC (1 in 200)

Table 4 – Frequency thresholds for Flood events in which development must be flood-free extracted from TAN15 (March 2025)

The flood water level for the 1 in 200-year coastal flooding event with climate change (year 2115 horizon year) and breached flood defences scenario (using model result file: Caldicot_T0200CC_WD_B4_001_h_ g005_Max) has been analysed.

The JBA "Caldicot and Wentlooge Coastal VDM – Model User Report", upon which the modelling results of this FCA are based, explains that the breach simulations analysis was carried out by the HR Wallingford using the EMBREA (EMbankment BREAch) model to simulate the breaching process for 12 embankments in the Caldicot model. The closest breached location is located at Goldcliff, approximately 5km to the south of the site.

The flood model results indicate that the maximum flood water level under the aforementioned assessed scenario is 8.178 mAOD. The Finished Floor Levels (FFL) of all four proposed units will be set at 8.370 mAOD, consistent with the existing building FFL, as detailed in Section 6.2 of this report. Model outputs show that all predicted flood levels in the vicinity of the proposed units remain below 8.220 mAOD. Consequently, it is concluded that all four proposed units are expected to remain flood-free during the 1 in 200-year coastal flooding event, including allowances for climate change and a breached flood defence scenario.

During the 1 in 200-year coastal flooding event inc. climate change allowance (2115 horizon year), within the 95% confidence interval and without flood defences (based on model output file Caldicot_T0200CCCI_ND_stability_001_h_g005_Max.asc), the maximum flood water level on site is predicted to reach 10.068 mAOD. However, it should be noted that flood defences are present in reality. Under the 1 in 200-year coastal flooding event with climate change (2115 horizon year) and with flood defences in place (based on model output file Caldicot_T0200CC_WD_001_h_g005_Max), the maximum flood water level on site is reduced to 8.243 mAOD. On this basis, the proposed buildings are expected to remain flood-free during this event.

The 'TUFLOW (2013-12-AE-w64)' has been used to analyse the 'current' scenario, as this is the only model that has been provided and available to assess. The site is considered flood free for all 1 in 200-year flood events as shown in Table 6 below. However, it is noted that this model did not allow for climate change and is over ten years old. For this reason, the 2115 epoch model is considered more relevant.

It should also be noted that section 11.8 of TAN15 states that "**if the criteria set out in Table 4 above cannot reasonably be met, the planning authority should seek the views of the relevant risk management authorities on the resilience measures proposed to help it reach a decision.**" It further notes that "**the thresholds may be applied with more flexibility for redevelopment, changes of use, conversions, and extensions, where the ability to substantially redesign a development is limited**".

The site is not located within the NRW Flood Map for Planning River Flood Zones. It is therefore considered that the risk of flooding from rivers, including climate change allowance, is less than 0.1%, meeting the 'frequency threshold' criteria set out in section 11.7 of TAN15. Additionally, all proposed units are located outside the Surface Water and Small Watercourses flood zones.

JBA Flood Modelling Scenario	Maximum water height of flooding within the proposed units' area(mAOD)	All 4 Proposed Units' FFL (mAOD)	Expected to be Flood Free
1 In 200 Year Flood Event (with 2115 Climate Change Horizon Year - Breached Scenario)	8.178	8.370	Yes
1 In 200 Year Flood Event (with 2115 Climate Change Horizon Year with 95% Confidence Interval – Undefended Scenario)	10.068	8.370	No
1 In 200 Year Flood Event (with 2115 Climate Change Horizon Year - Defended Scenario)	8.243	8.370	Yes

Table 5 – Flood Water Level Analyses Summary for '1 in 200 years coastal flooding event with climate change (year 2115 horizon year)

JBA Flood Modelling Scenario	Maximum water height of flooding within the proposed units' area(mAOD)	All 4 Proposed Units' FFL (mAOD)	Expected to be Flood Free
1 In 200 Year Flood Event - Breached Scenario (2013 model)	No data (Doesn't reach site)	8.370	Yes
1 In 200 Year Flood Event – Undefended Scenario (2013 model)	8.291	8.370	Yes
1 In 200 Year Flood Event - Defended Scenario (2013 model)	No data (Doesn't reach site)	8.370	Yes

Table 6 – Flood Water Level Analyses Summary for '1 in 200 years coastal flooding event (2013 model)

5.2 Tolerable Conditions

Table 7 below shows the tolerance condition under which new development may be considered acceptable in extreme events.

Types of new development	Maximum depth of flooding (mm)	Maximum velocity of flood waters (metres/sec)
Highly vulnerable development	600	0.15
Less vulnerable development	600	0.3

Table 7 – Tolerable conditions in an extreme flood event extracted from TAN15 (March 2025)

The '1 in 1000-year Flood Event Flood Water Height (with 2115 Climate Change Horizon Year and Breached Flood Defence)' (based on model output file Caldicot_T1000CC_WD_B6_001_h_g005_Max) is included in Appendix G of the updated FCA report.

The JBA "Caldicot and Wentlooge Coastal VDM – Model User Report", upon which the modelling results of this FCA are based, explains that the breach simulations analysis was carried out by the HR Wallingford using the EMBREA (EMbankment BREAch) model to simulate the breaching process for 12 embankments in the Caldicot model. The closest breached location is located at Goldcliff (breach no. 32a), approximately 5km to the south of the site.

Model results indicate a maximum flood water height of 8.438 mAOD, while all flood levels across the site remain below 8.970 mAOD, corresponding to a maximum flood depth of 600 mm. This is within tolerable conditions relative to the proposed FFL of 8.370 mAOD.

During the 1 in 1000-year coastal flooding event inc. climate change allowance (2115 horizon year), within the 95% confidence interval and without flood defences (based on model output file Caldicot_T1000CCCI_ND_stability_001_h_g005_Max.asc), the maximum flood water level on site is predicted to reach 10.715 mAOD. However, it should be noted that flood defences are present in reality. Under the 1 in 1000-year coastal flooding event with climate change (2115 horizon year) and with flood defences in place (based on model output file Caldicot_T1000CC_WD_001_h_g005_Max), the maximum flood water level on site is shown as 8.351 mAOD, and the proposed buildings are expected to remain flood-free.

JBA Flood Modelling Scenario	Maximum water height of flooding within the proposed units' area(mAOD)	All 4 Proposed Units' FFL (mAOD)	Maximum Depth of Flooding (mm)	Maximum flooding water velocity within the proposed units' area(m/s)	Within 600mm Maximum Depth of Flooding	Within 0.3m/s Maximum Velocity of Flooding
1 In 1000 Year Flood Event (with 2115 Climate Change Horizon Year) **(Breached scenario)**	8.438	8.370	68mm	0.78m/s	Yes	No
1 In 1000 Year Flood Event (2115 Climate Change Horizon Year) 95% C.I. **(Undefended)**	10.715	8.370	2345mm	0.84m/s	No	No
1 In 1000 Year Flood Event (2115 Climate Change Horizon Year) **(Defended)**	8.351	8.370	0mm	0.79m/s	Yes	No

Table 8 – Flood Water Level Analyses Summary for '1 In 1000 Year' Events – 2115 Epoch Year

The '1 in 1000-Year Flood Event Flood Water Velocity (with 2115 Climate Change Horizon Year and Breached Flood Defence)' (based on model output file Caldicot_T1000CC_WD_B6_001_v_g005_Max) has also been included in Appendix G of the updated FCA report. Model results indicate that flood water velocities across most of the site are within 0.5 m/s. It is noted that some minor areas adjacent to the western boundary show velocities of up to 0.78 m/s, likely due to the lower topography in this part of the site.

It is understood that during the 1 in 1000-year coastal flooding event with climate change (2115 horizon year), within the 95% confidence interval and without flood defences (based on model output file Caldicot_T1000CCCI_ND_stability_001_v_g005_Max.asc), the maximum flood water velocity on site is predicted to reach 0.840 m/s. However, it should be noted that flood defences are present in reality. Under the 1 in 1000-year coastal flooding event with climate change (2115 horizon year) and with flood defences in place (based on model output file Caldicot_T1000CC_WD_stability_001_v_g005_Max), the maximum flood water velocity on site is reduced to 0.791 m/s.

It is acknowledged that the flood model results indicate that the maximum flood water velocity exceeds the tolerable condition set out in TAN 15. However, it should be noted that the proposed external levels on site will be raised to match the proposed buildings' FFL, and as a result, the flood water velocities at the site are expected to be lower than those indicated in the model results.

An analysis of the 1 in 1000-year event with flood defences (based on model output file Caldicot_T1000_WD_001_v_g005_Max and Caldicot_T1000_WD_001_h_g005_Max) has also been carried out to assess the 'current' scenario. The JBA modelling results indicate that one location adjacent to the western boundary shows a flood velocity of 0.305 m/s, while the flood velocity across the rest of the site remains within 0.3 m/s. The maximum flood water height in this scenario is also shown as 7.897 mAOD and expected to be flood-free.

It is also acknowledged that this analysis is based on present-day conditions and does not include the climate change allowance, and is therefore not strictly aligned with the tolerable condition set out in TAN 15. However, this represents (a highly unlikely) present-day condition flood event.

JBA Flood Modelling Scenario	Maximum flood water height within proposed units' area(mAOD)	Maximum flooding water depth within proposed units' area(mm)	Expected to be flood-free	Maximum flooding water velocity within the proposed units' area(m/s)	Within 0.3m/s Maximum Velocity of Flooding
1 In 1000 Year Flood Event (2013 model) **(Defended)**	7.897 mAOD	0mm	Yes	0.3m/s	Yes

Table 9 – Flood Water Analyses for '1 In 1000 Year 2013 Flood Event (Defended)

TAN15 states that "each site, however, must be considered individually, and a judgement taken in the context of the circumstances which could prevail at that site."

It should be noted that all proposed building units for this development are considered to be extensions to the existing site use as stand-alone units, as stated previously. Therefore, the tolerable conditions described above should not be directly applicable to the assessment of this development, and the assessment should instead be based on the specific nature of the proposed extensions.

Therefore, it is considered that the proposed commercial/industrial standalone unit extensions on this site broadly comply with the requirements of TAN15, subject to the planning authority's judgment and assessment. The mitigation measures and resilience measures are listed in sections below to provide further information to the planning authority to make a planning decision.

5.3 Acceptability Criteria For Flooding Consequences

The development will ensure the below conditions are met in accordance with the requirements set out in section 11.4 in TAN 15:

- No increase in flooding elsewhere
- Occupiers aware of flood risk
- Escape/evacuation routes present
- Flood emergency plans and procedures agreed and in place

- Flood-resistant and resilient design

Section 11.5 TAN 15 notes that the flood consequence assessment should be used to establish whether suitable mitigation measures can be incorporated within the development to ensure that the development is as safe as possible 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 natural heritage.

Due to the nature of the proposed development and the mitigation measures outlined in the sections below, the development is expected to have minimal impact on each of the bullet points identified above, as addressed within this report.

6.0 MITIGATION MEASURES

6.1 Site Layout Design

To reduce the risk of flooding to future site occupants, and to ensure that the development remains safe throughout its lifetime, it is proposed that the storage units be located in the north-western area of the site, with the proposed plasma cutting unit and workshop positioned directly to the west of the existing building.

It should be noted that multiple storage containers currently occupy the north-western area of the site. These are placed directly on the ground and are presently used for storage as part of the site's operations. The proposed single-storey portal frame warehouse storage unit will be located in this area, replacing the existing storage containers. This new building will provide a safer, larger, and more efficient internal space, with improved accessibility and improved operation environment for site users.

The proposed plasma cutting unit and workshop will be located directly to the west of the existing building, where flood depth and velocity are comparatively lower than in the remainder of the site as shown in the JBA flood modelling information.

6.2 Structural Resilience

All four proposed units will have finished floor levels (FFLs) set at 8.370 mAOD, matching the existing building's FFL, to allow for vehicular access required for the effective operation of the development. The FFL will also be at least 150 mm above the adjacent ground level to mitigate the risk of surface water flooding. The adjacent ground levels shall fall away from any buildings on site. Flood-resistant materials will be considered for use in external walls, floors, doors, and finishes. In addition, electrical sockets and services will be installed at a minimum of 600 mm above ground level to provide resilience to flooding.

6.3 Flood Compensation Considerations

Due to the overall size of the site and the limited extent of the proposed development, it would not be practical to provide dedicated flood compensatory areas, as the resulting level changes would render the yard area non-operational. In the event of a tidal flood, the additional displacement of water resulting from the proposed units would be negligible when compared to the scale of flooding in the wider area.

6.4 Evacuation Plans, Safe Refuge Areas and Warnings

<u>Flood Warning</u>

The site is located within a flood risk area. Therefore, the landowner or acting agents will register with NRW's flood warning telephone service. Guidance on preparing for a flood is available on the NRW website (https://naturalresources.wales/flooding/preparing-for-a-flood/). Contact details for the site will be registered with the NRW flood warning service to ensure timely receipt of flood alerts and warnings.

All site occupants will be made aware of the NRW Floodline telephone number, together with the flood warning codes and their meanings. The landowner will act as the designated flood warden for the site, ensuring that they understand the local flood mechanisms and that the safety of occupants and visitors is not compromised during a flood event.

Flood Plan

All unit occupiers will be expected to prepare a flood plan, setting out the precautions and actions to be taken when a flood event is anticipated, in order to minimise potential impacts and damage. Sensible measures include raising electrical equipment, irreplaceable, or sentimental items off the ground, or relocating them to an upper floor where possible. Other recommended actions include rolling up carpets and rugs, switching off utilities, and preparing for possible evacuation. Evacuation planning should consider safe access and egress routes and the advance preparation of a flood kit containing essential items such as warm clothing, medication, a torch, food, and wellington boots.

The flood plan will be treated as a 'living' document and should be periodically reviewed and updated to ensure it provides clear and practical advice to occupants in the event of an extreme flood. By implementing and maintaining the plan, occupiers will reduce their vulnerability to flooding and improve awareness of flood mechanisms specific to the site. The designated flood warden will be responsible for monitoring flood levels, keeping occupants and visitors informed, and determining when to initiate the flood plan.

7.0 ACCESS AND EGRESS

7.1 Access Routes During Flood Events

During a flood event, or once a flood warning has been received, site occupants will follow the designated safe egress route shown in Figure 3. This route leads to the public road to the north of Spytty Road, which lies outside all NRW flood zones and is expected to remain flood-free during a flood event.

7.2 Emergency Services Access

During a flood event, emergency services will access the site via the main entrance located on the eastern boundary. This access route connects directly to the local highway network, providing safe entry and exit for emergency vehicles. The proposed development will ensure that water does not accumulate along this route, allowing emergency responders to reach all parts of the development safely and efficiently, even during extreme rainfall events. The site occupier will ensure that access routes remain clear at all times, enabling emergency services to maintain direct access to building frontages.

Access and egress routes will enable occupants to safely enter and exit properties during the designed flood conditions. These routes must also allow emergency services to reach the development during a flood event and ensure that flood defence authorities are able to carry out any necessary duties during periods of flooding.

Safe Access and Egress Route

A safe access and egress route, including emergency access, will be maintained for vehicles and pedestrians. In the event of flooding, people should make their way to areas located outside the flood zone. As the entire site is situated within the NRW Sea Flood Zone 3, it is recommended that occupants evacuate via the adjacent public road, Langland Way.

The safe access and egress route is illustrated in Figure 3. This identifies the exit route to be followed by all site users (occupants and visitors) once a flood warning has been issued. Site occupants will evacuate to the north of Spytty Road, following the designated egress route, and continue to the public highway outside any NRW-designated flood zones.

It should also be noted that the existing site building is two storeys in height. If evacuation cannot be undertaken safely in time, occupants may temporarily seek refuge on the first floor of the building until it is safe to leave or assistance arrives.

In the event of a flood warning, essential belongings such as waterproof clothing, necessary medication, and items required for infants and children should be collected in advance of evacuation. All site occupiers and visitors must be accounted for prior to leaving the premises, and the evacuation should proceed along the route shown in Figure 3.

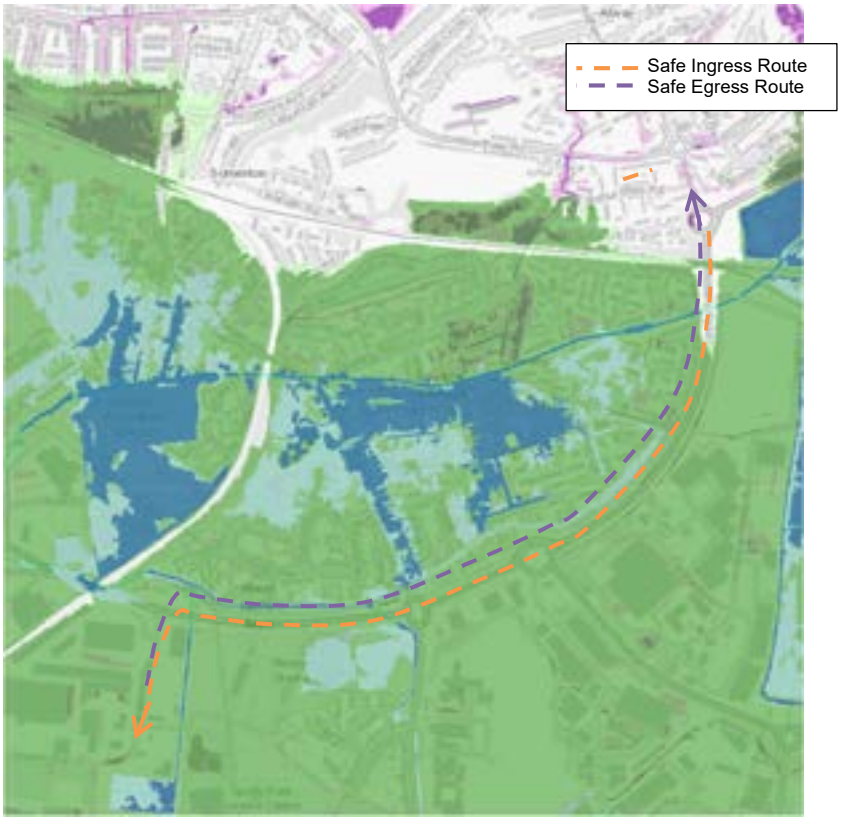


Figure 3 – Safe Access and Egress Route

8.0 DRAINAGE STATEMENT

8.1 Proposed Surface Water Drainage Strategy

A SAB-compliant drainage system will be incorporated into this development and will comply with the Welsh Government's National SuDS Standards. The proposed surface water drainage system will incorporate an agreed restricted flow rate with SAB, likely based on the greenfield runoff rate, and will provide appropriate attenuation measures.

The drainage system will accommodate a 1 in 100-year rainfall event, with an additional 40% allowance for climate change and a 10% allowance for urban creep. Hydraulic modelling will be undertaken to demonstrate that the drainage network is feasible and effective. A non-return valve will be considered for incorporation into the system to prevent backflow caused by tidal flooding.

Runoff water quality will meet the thresholds set out in CIRIA C753, and all SuDS features will be in accordance with CIRIA C753 guidance. SuDS features will be incorporated across the site to provide the required treatment and attenuation volumes. The surface water drainage system will also consider enhancements to amenity and biodiversity, for example, through natural channels such as swales.

A SuDS maintenance plan will be prepared and provided to future occupiers and will form part of the SAB submission. This plan will ensure that the drainage system remains effective throughout the lifetime of the development.

At the time of writing, a SAB pre-application has been submitted to Newport SAB, and the proposed drainage strategy has been submitted to planning. The proposed drainage layout has been included in Appendix H.

8.2 Infiltration Feasibility

A desktop study has been undertaken to assess the potential for surface water discharge via infiltration. Information was sourced from the British Geological Survey (BGS) and the Cranfield Soil and Agri-food Institute (CSAI) Soilscapes mapping.

The bedrock geology has been identified as Mercia Mudstone Group - Mudstone. The superficial deposit has been identified as Tidal Flat Deposits - Clay and silt. Soilscapes has identified the soil as loamy and clayey soils of coastal flats with naturally high groundwater, with Naturally wet drainage.

Given the soil and geological conditions indicated above, infiltration is considered unsuitable for this site. This will be confirmed in consultation with the SAB prior to finalising the surface water drainage system.

8.3 Runoff Rates and Volumes

It is proposed that surface water runoff from the development will be discharged at a restricted flow rate (Qbar), based on the greenfield runoff rate, to ensure that the development does not increase flood risk either on-site or elsewhere. The proposed runoff rate will be agreed with the SAB authority during the SAB application stage.

It is acknowledged that any development will have an effect on the reduction of the existing flood storage volume due to the displacement of floodwater. As mentioned in section 8.1 above, the development area will incorporate an SAB compliance design to manage the runoff from the site.

8.4 Exceedance and Overland Flow

Exceedance and overland flow pathways will be considered in the surface water drainage system to ensure that the development is safe, flood-resilient, and does not increase flood risk elsewhere. In the event of exceedance or blockage, surface water runoff from the site will follow the natural topography, flowing toward the lowest part of the site in accordance with the existing site conditions.

9.0 SUMMARY AND CONCLUSION

This Flood Consequence Assessment (FCA) has been prepared to support the proposed development of an 'extension to existing building with an open canopy and the erection of a single storey portal frame building for the provision of warehouse storage (Use Class B8).' (NCC planning ref:25/0476)

The proposed warehouse storage unit will replace the existing storage container units, providing a safer, larger, and more open internal space with improved access and operation environment for site users. The proposed plasma cutting unit and workshop will be located directly to the west of the existing building, where the flood depth and velocity are comparatively lower than in other parts of the site, as indicated in the JBA flood model data. All 4 proposed units' FFL are to be set as 8.370mAOD to match the existing building's FFL and to allow vehicular access. The adjacent ground levels shall fall away from any buildings on site.

The FCA concludes that the development can satisfy the updated criteria of Technical Advice Note 15 (TAN15) (March 2025), subject to the planning authority's assessment and approval.

The 2016 Caldicot and Wentlooge Coastal Model provided by NRW has been used (Product 6 Ref: CaldicotAndWentlooge_5_V1.0_2016_Product6) to assess the various flooding scenarios. The flood modelling data included the climate change simulations for the 200-year and 1,000-year events. These simulations represent the potential increase in flood risk up to the year 2115 (at the time the model was carried out) based on the Welsh Government guidance for sea-level rise estimates (FCDPAG3).

In accordance with the updated tolerable conditions set out in TAN 15 (2025), the proposed development is considered capable of satisfying the requirements for 'less vulnerable' development. The flood modelling demonstrates that the proposed finished floor levels remain above predicted flood levels during the 1 in 200-year coastal flood event with climate change, ensuring the units remain flood-free under the design scenario.

For the extreme 1 in 1,000-year coastal event with climate change, the predicted maximum flood depths across the site remain within the 600 mm depth threshold applicable to less vulnerable development for both the 'breach' and 'defended' scenarios. Although the modelled flood velocities at parts of the site exceed the indicative tolerable value, the proposed raising of external levels and incorporation of resilience measures are expected to reduce the on-site velocity and associated risks relative to the modelled baseline.

The proposed development includes suitable structural and operational mitigation, including elevated floor levels and a SAB-compliant drainage network. A defined flood warning and evacuation plan will be prepared, implemented and periodically updated, ensuring that the consequences of an extreme flood event can be safely managed. On this basis, the development can meet the TAN 15 tolerable conditions for extreme events and the flood consequences are considered acceptable.

Appendix A

Scale 1:200

2 0 2 4 6 8 10 20

Distances in metres

N

National Grid

333250E

333300E

186450N

dense foliage
palisade fence ht 1.8m
pile
shrubs
shed
gravel
asphalt
step
cladding
concrete paving slabs
containers
container
overgrown
rough ground
CPS
concrete ramp
concrete
brick paving
drop kerb
MH(SWS) CL7.94 IL5.73
MH(FWS) CL7.92 IL6.85
MH(FWS) CL7.95 IL6.68
MH(SWS) CL7.97 IL6.45
MH(FWS) CL7.97 IL6.70
MH(SWS) CL7.90 IL6.40
MH(FWS) CL8.01 IL6.62
MH(FWS) CL7.99 IL6.82
MH(FWS) CL7.93 IL6.73
gazebo
multi-pole
hedge
CB wall ht 1.6m
brick wall ht 1.6m
metal post & chain link fence ht 1.8m
B / R W
gate
grass
sapling
stump

▲9001 ▲9002 ▲9003 ▲9004

Abbreviations:

BB	Bellsha beacon	MH	man hole	ht	height (of feature)	**Walls**	
Bl	Bollard (illuminated)	MK	marker post	→	arrow indicates up (unless otherwise stated)	B	brick
BL	Bollard	MP	mile post	▲9002	survey control point	C	concrete
BT	telecom inspection cover	NB	name board			CB	concrete block
CATV	cable television cover	O/H	overhead	**Fences**		G	gabion backets
CPS	conc. paving slabs	OHC	overhead cable/wire	BW	barbed wire	S	stone
DC	drainage channel	PO	post	C	chain	RW	retaining wall (e.g.: S/RW)
DK	drop kerb	RE	rodding eye	CB	close boarded	W	free-standing wall (e.g.: SW)
DR	drain	RP	reflector post	CL	chain link		
EP	electricity pole	RS	road sign	CM	corrugated metal panel	**Drainage Features**	
ER	earth rod	RSJ	rolled steel joist	CP	concrete panel	CL	cover level
FB	flower bed	RWP	rain water pipe	CW	chicken wire	ID	invert depth
FFL	finished floor level	Sap.	sapling	IR	metal rail	IL	invert level
FS	flag staff	SP	sign post	IWN	interwoven wooden slat	FWS	foul water sewer
GP	gate post	SPS	stone paving slabs	MM	metal mesh	SWS	storm water sewer
GV	gas valve	stay	stay wire	OB	open boarded	CWS	combined water sewer
HR	handrail	SV	stop valve	PA	paling	UTD	unable to determine
HY	fire hydrant	SVP	soil vent pipe	PAL	palisade	UTL	unable to lift
IC	inspection cover (general)	tact.	tactile paving	R	wooden rail	pipe diameter (mm)	
JB	junction box	THL	threshold level	W	wire	SL	soffit level
KO	kerb outlet	TL	traffic light	Wap	wood lap	→	arrow indicates direction of flow
LP	lamp post	TP	telephone pole	CP	concrete post (e.g.: CP/CL)		
		TV	cable TV	WP	wooden post (e.g.: WP/BW)		
		VP	vent pipe				
		WM	water meter				

Notes:

Revisions:

AZIMUTH LAND SURVEYS LIMITED
28 CARDIFF ROAD NEWPORT NP20 2ED UK
enquiries@azimuthgroup.co.uk www.azimuthlandsurveys.co.uk
Tel: 01633 263 575

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

Celtic House, Langland Way, Newport, NP19 4PT

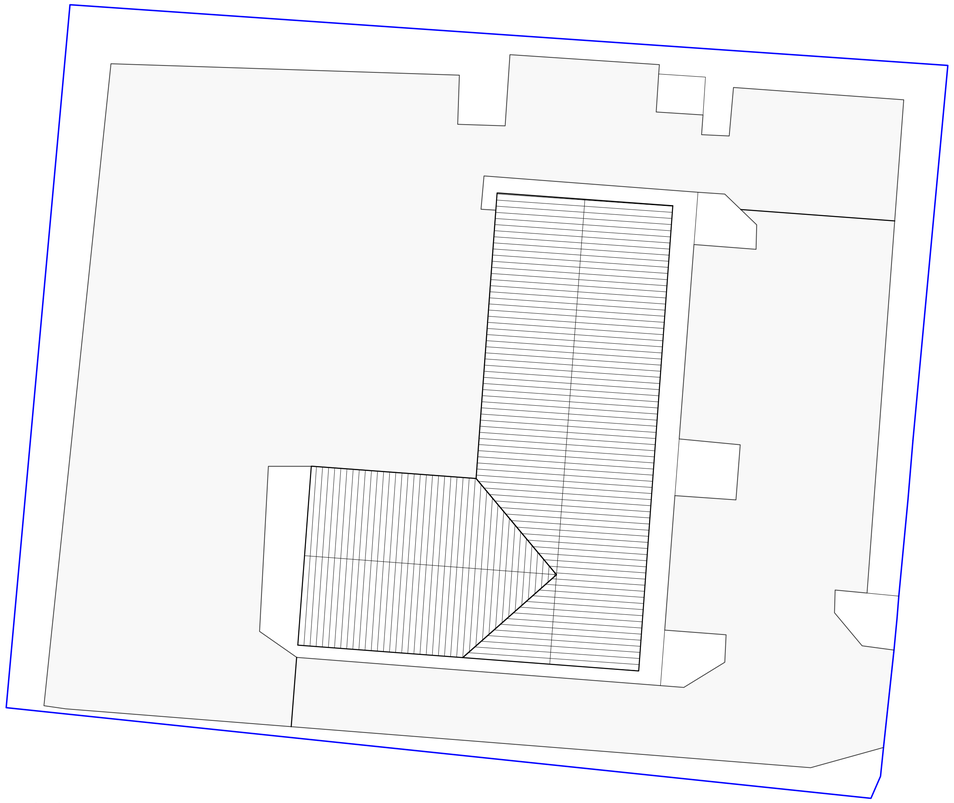
Topographical Survey

Client	Sustainable Studio Architects						
Coord Grid	Plane Grid related to National Grid			Level Datum	OS Datum via Active GPS		
Scale	1:200@A2	Date	May 2025	Status	Final	Job No.	SS4802
Surveyed	L. Williams	Drawn	L. Rajnohova	Checked	R. Williams	Dwg. No.	SS4802-01

0mm 50mm 100mm

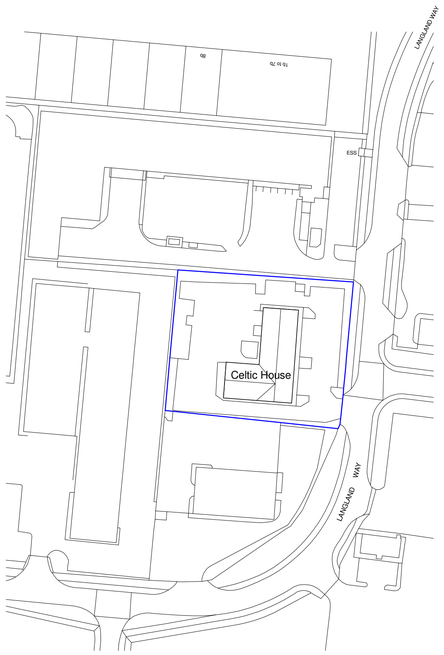
Site Boundary

Site Ownership



Existing Block Plan
1 : 250

Proposed Block Plan
1 : 250



Site Location Plan
1 : 1250

NORTH

0 25 50 75 100 125m

REV	DATE	DESCRIPTION	BY
1	23/07/2025	Canopy change	EJ

CLIENT
Mr A Carter

DRAWN
AA

CHECKED
AJ

Sustainable Studio Architects
1 Gold Tops, Newport NP20 4PG
www.sustainablestudio.co.uk

PROJECT
New Warehouse Unit and Extension at
Celtic House,
Langland Way,
Newport, NP19 4PT

DRAWING TITLE
Site Location and Block Plans

DRAWING STATUS	SCALE
PL : PLANNING	As indicated @ A1
NUMBER	REVISION
PL-001	1

Appendix B

Proposed Ground Floor Plan

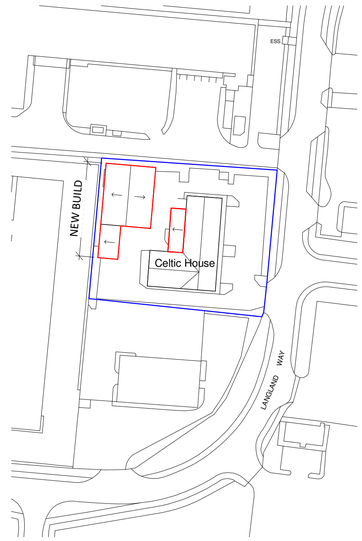
1 : 100

0 5 10 m

NORTH

Responsibility is not accepted for errors made by others in scaling from this drawing.
All construction information should be taken from figured dimensions only.

0mm 50mm 100mm



GROSS EXTERNAL FLOOR AREA (GEFA):

NEW BUILD WAREHOUSE = 579M²
EXTENSION TO EXISTING BUILDING = 88M²

REV	DATE	DESCRIPTION	BY
1	23/07/2025	Canopy change	EJ

CLIENT
Mr A Carter

DRAWN
AA

CHECKED
AJ

Sustainable Studio Architects
1 Gold Tops, Newport NP20 4PG
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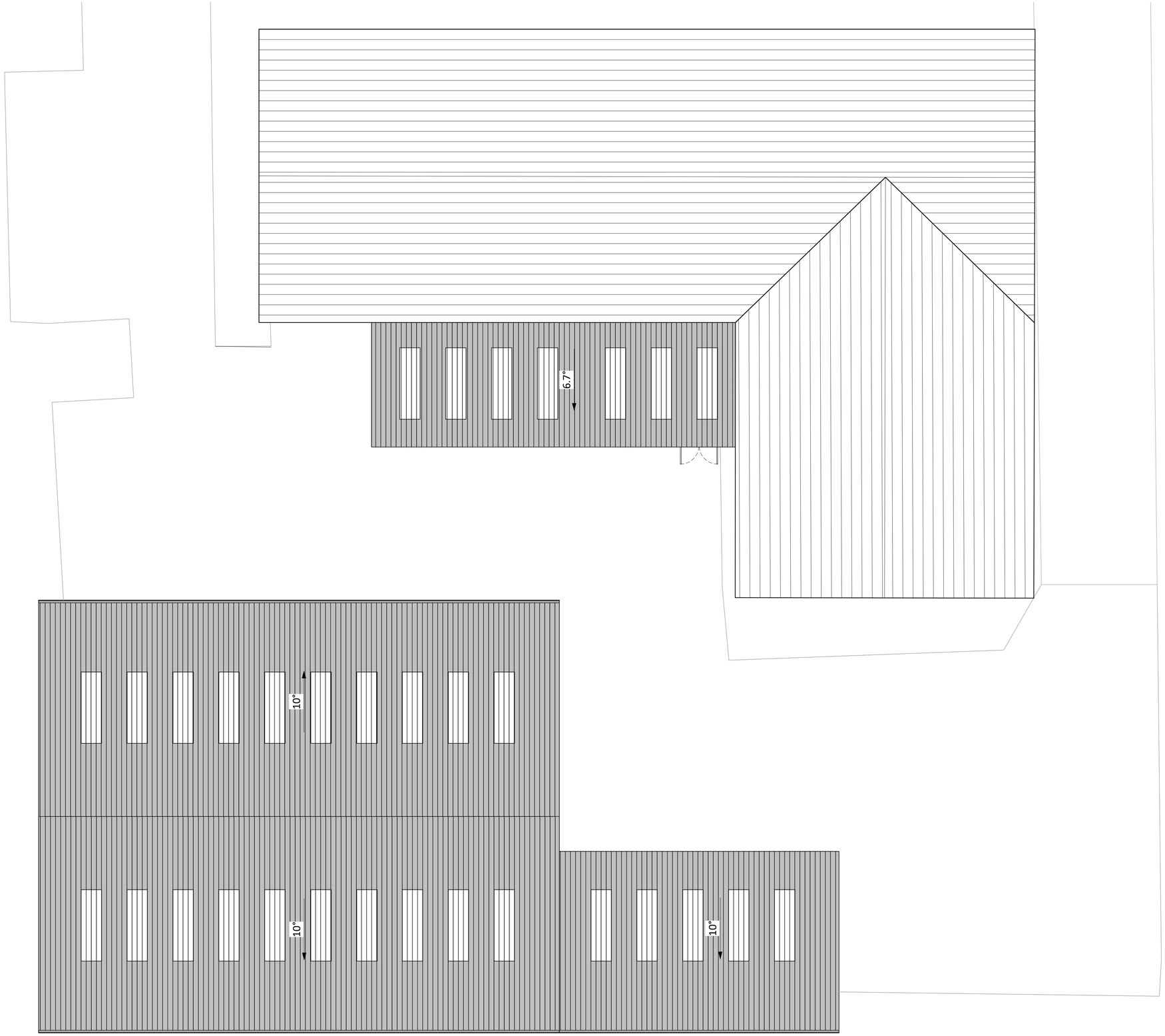
PROJECT
New Warehouse Unit and Extension at
Celtic House,
Langland Way,
Newport, NP19 4PT

DRAWING TITLE
Proposed Plans - Ground Floor

DRAWING STATUS	SCALE
PL : PLANNING	As indicated @ A1
NUMBER	REVISION
PL-005	1

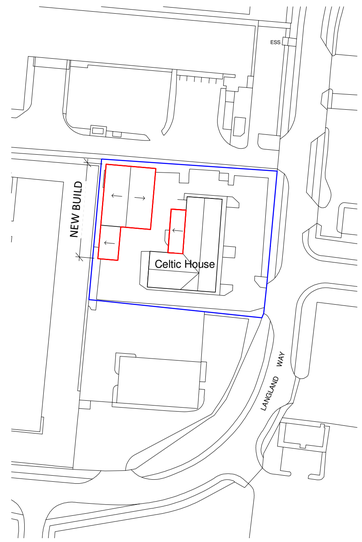


Proposed Roof Plan
1 : 100

0 5 10 m

NORTH

0mm 50mm 100mm



GROSS EXTERNAL FLOOR AREA (GEFA):

NEW BUILD WAREHOUSE = 579M²
EXTENSION TO EXISTING BUILDING = 88M²

REV	DATE	DESCRIPTION	BY
1	23/07/2025	Canopy change	EJ

CLIENT
Mr A Carter

DRAWN
AA

CHECKED
AJ

Sustainable Studio Architects
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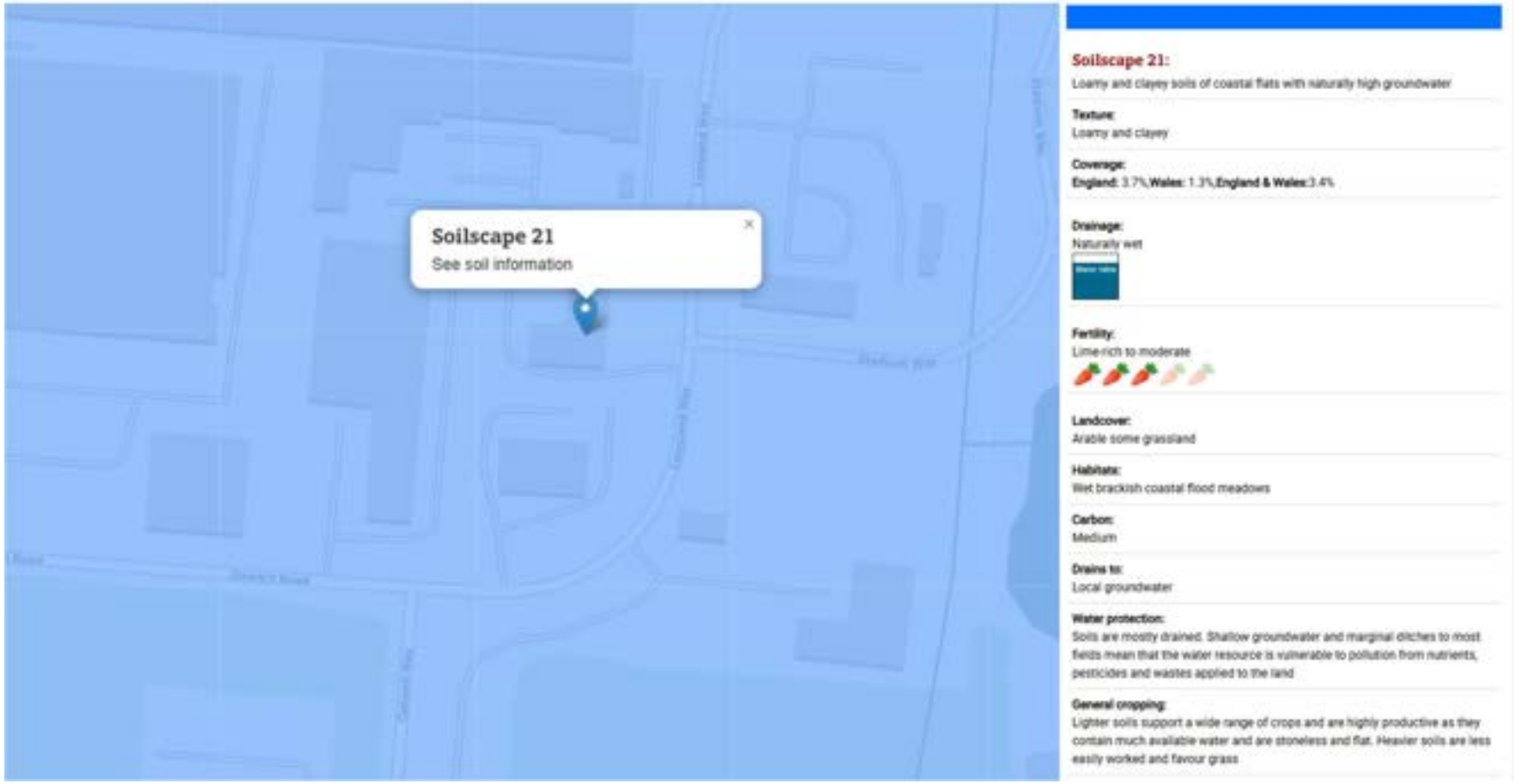
PROJECT
New Warehouse Unit and Extension at
Celtic House,
Langland Way,
Newport, NP19 4PT

DRAWING TITLE
Proposed Plans - Roof

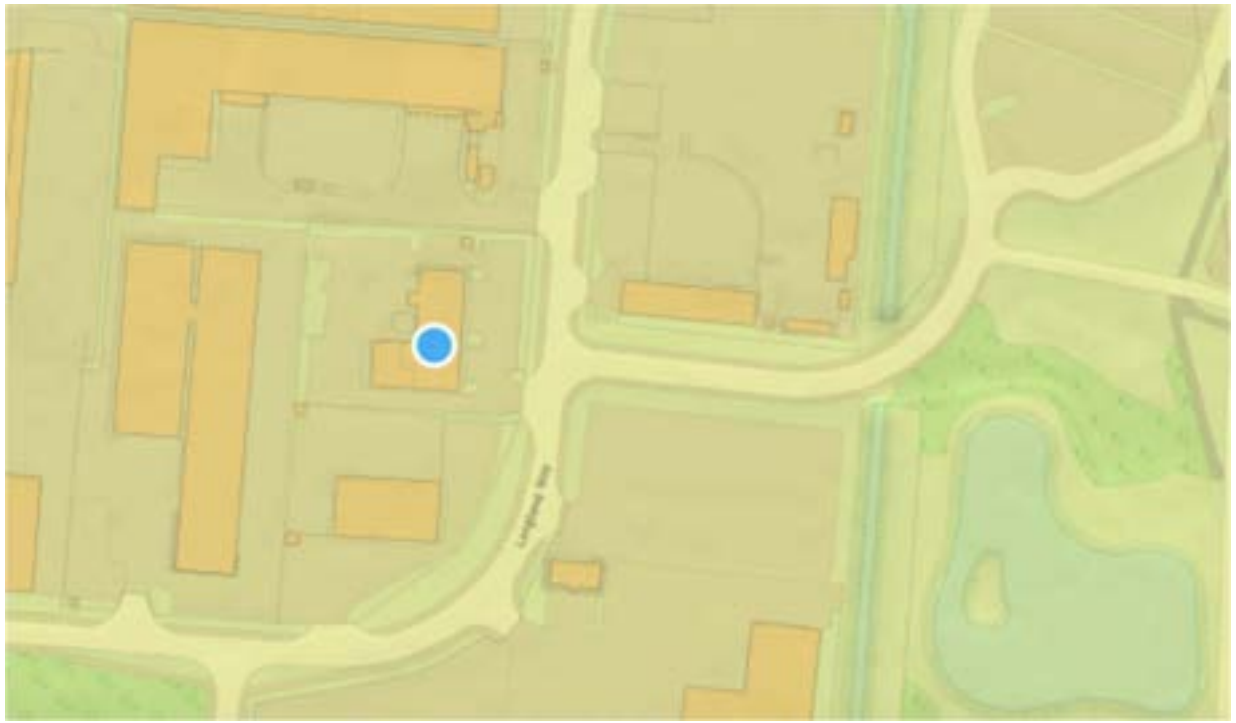
DRAWING STATUS	SCALE
PL : PLANNING	As indicated @ A1
NUMBER	REVISION
PL-006	1

Appendix C



Cranfield Soil and AgriFood Institute Soilscapes Mapping

Appendix D



British Geology Survey - Bedrock and Superficial Deposit Map

Bedrock Geology:

Mercia Mudstone Group - Mudstone. Sedimentary bedrock formed between 252.2 and 201.3 million years ago during the Triassic period.

Superficial deposits:

Tidal Flat Deposits - Clay and silt. Sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period.

Appendix E

Cyfoeth Naturiol Cymru
Natural Resources Wales

Flood Map for Planning - Detail

P0403 NRW Flood Map Detailed

Legend

- Flood Defence Locations
- TAN15 Defended Zones
- Rivers
- Sea
- Rivers and Sea
- Rivers
  - Flood Zone 3
  - Flood Zone 2
- Sea
  - Flood Zone 3
  - Flood Zone 2
- Surface Water and Small Watercourses
  - Flood Zone 3
  - Flood Zone 2
- Recorded Flood Extents
- Flood Risk from Reservoirs
- Main Rivers

Scale at A3: 1:5,000

Date: 21/08/2025

0.2 0.1 0 0.2
km

British National Grid

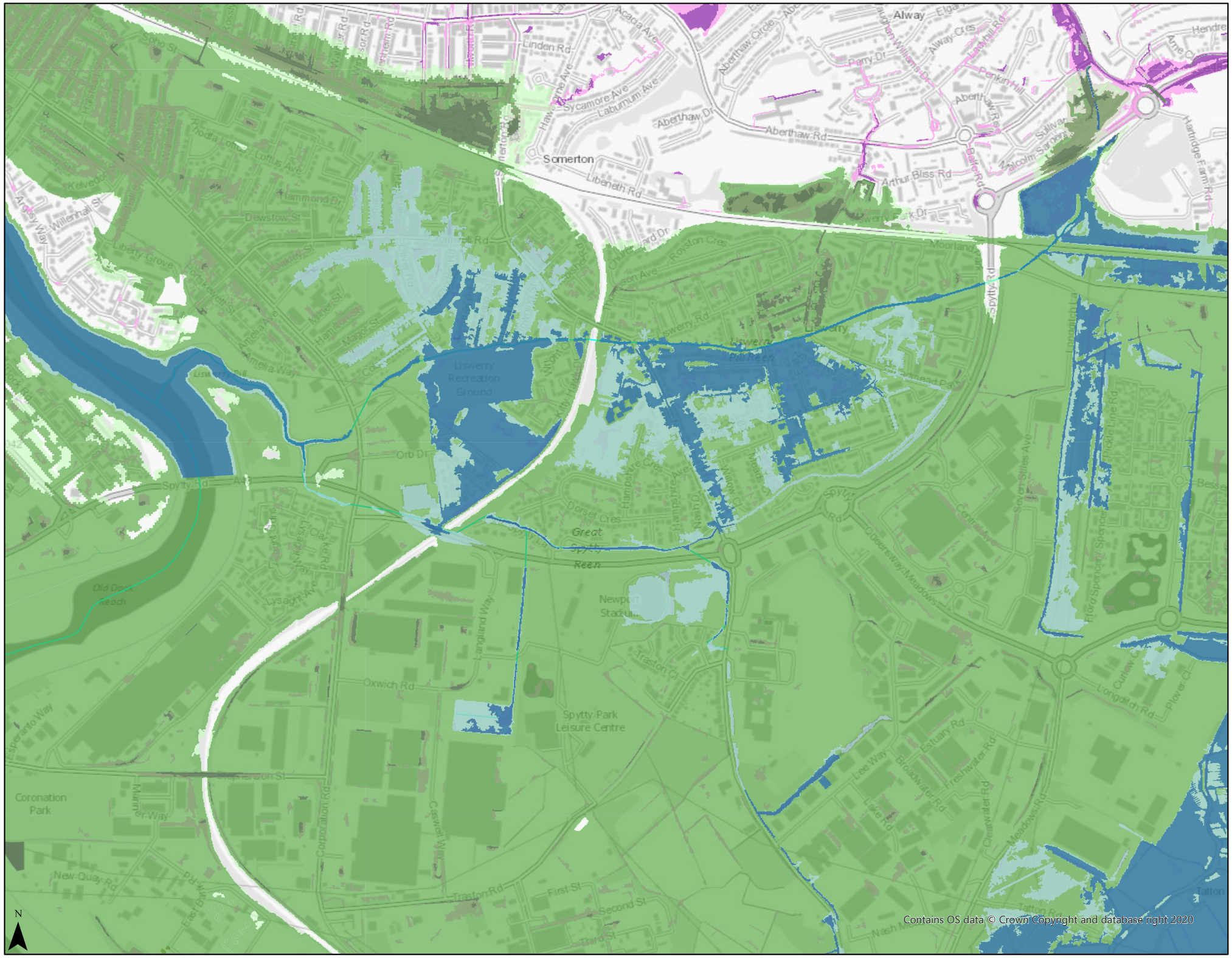
Disclaimer

https://naturalresources.wales/flooding/disclaimer-for-our-flood-and-coastal-erosion-risk-maps/?lang=en

Cyfoeth Naturiol Cymru
Natural Resources Wales

Flood Map for Planning - Detail

P0403 NRW Flood Map



Legend

Rivers
- Flood Zone 3
- Flood Zone 2

Sea
- Flood Zone 3
- Flood Zone 2

Surface Water and Small Watercourses
- Flood Zone 3
- Flood Zone 2
- Recorded Flood Extents
- Main Rivers

Scale at A3: 1:10,000

Date: 21/08/2025

0.45 0.23 0 0.45
km

British National Grid

Disclaimer

https://naturalresources.wales/flooding/disclaimer-for-our-flood-and-coastal-erosion-risk-maps/?lang=en

Cyfoeth Naturiol Cymru
Natural Resources Wales

Flood Map for Planning - Detail

P0644

Legend

- Flood Defence Locations

TAN15 Defended Zones

- Rivers
- Sea
- Rivers and Sea

Rivers

- Flood Zone 3
- Flood Zone 2

Sea

- Flood Zone 3
- Flood Zone 2

Surface Water and Small Watercourses

- Flood Zone 3
- Flood Zone 2
- Recorded Flood Extents
- Shoreline Management Plan policies

Coastal Erosion Risk with No Active Intervention scenario

- Short-term (2005-2025)
- Medium-term (2005-2055)
- Long-term (2005-2105)
- Flood Risk from Reservoirs
- Main Rivers

Scale at A3: 1:2,500

Date: 01/07/2025

N

0.1 0.05 0 0.1

km

British National Grid

Disclaimer

https://naturalresources.wales/flooding/disclaimer-for-our-flood-and-coastal-erosion-risk-maps/?lang=en

Appendix F

Dŵr Cymru
Welsh Water

Celtic House Newport NP20 4HF

N
W E
S

LEGEND(Representative of most common features)

Waste network:

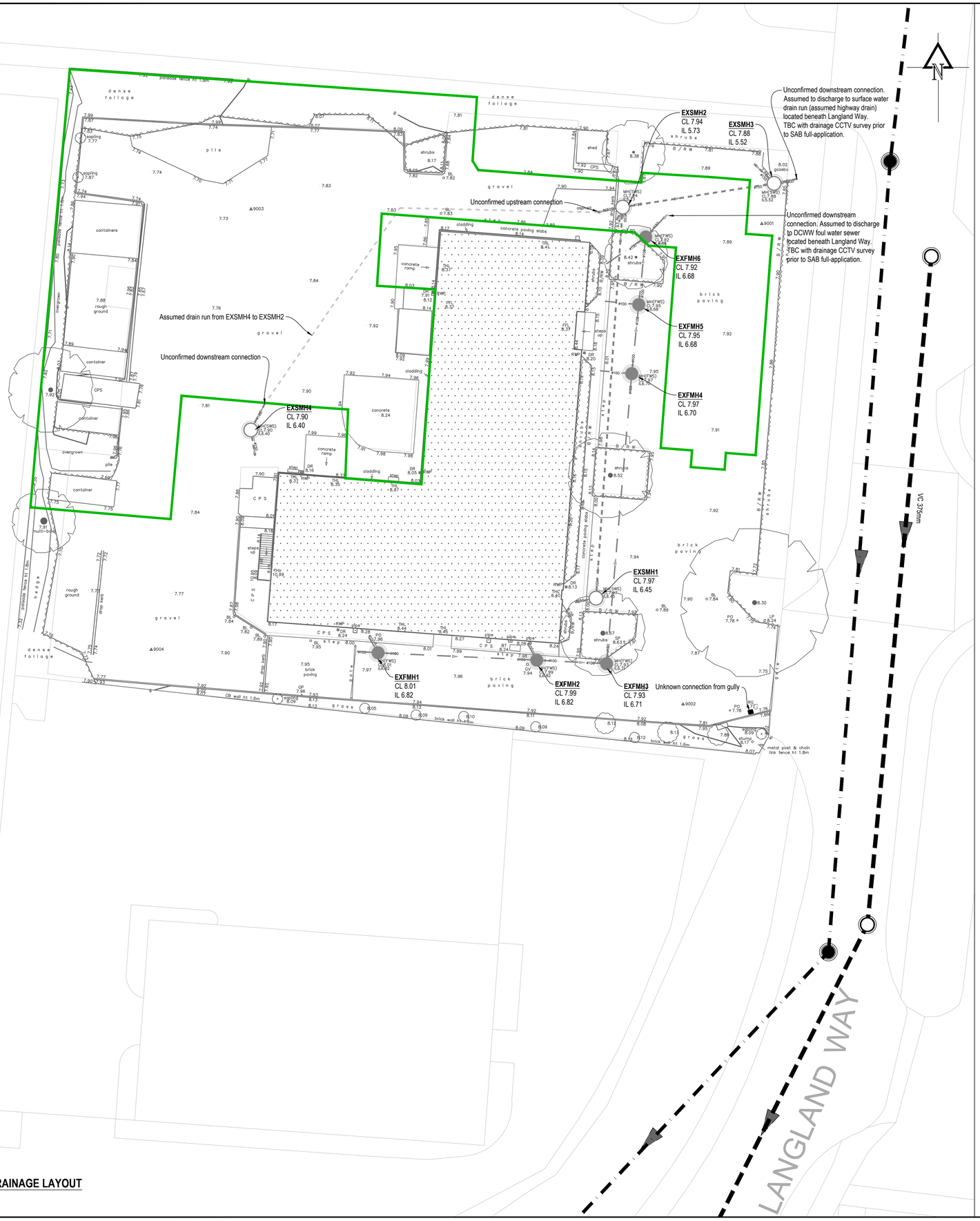
- Foul chamber
- Surface water chamber
- Combined chamber
- Combined sewer overflow
- Special purpose chamber
- Treatment works
- Pumping station
- Outfall
- Lamphole
- Storm Overflow
- Rising main
- Gravity sewer
- Private sewer
- Private sewer subject to Sect. 104 adoption agreement
- Private Sewer Transfer
- Lateral Drain
- Inspection Chamber

NB: Sewer symbol colour indicates the type.
RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former 524 sewers (for indicative purposes only)

Notes:

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases, pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

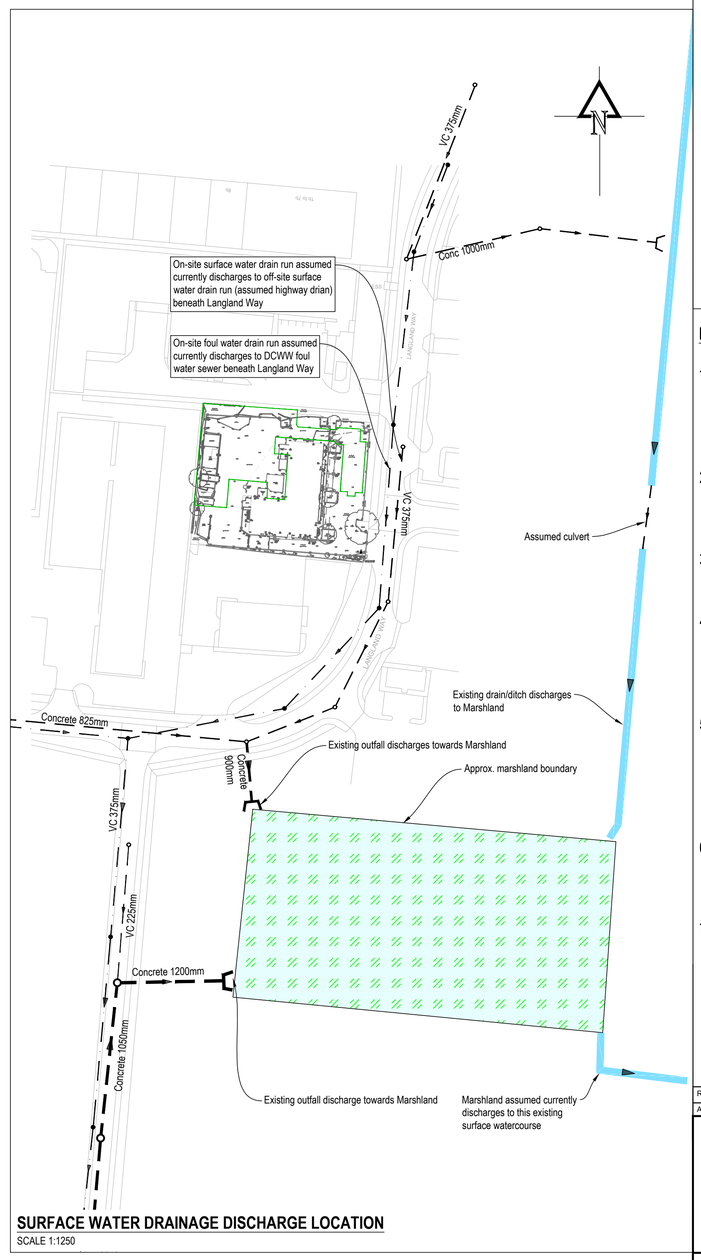
Map Ref:	333261,186437
Map scale:	1:1500
Printed by:	Vefa Fox
Printed on:	08 Jul 2025



EXISTING DRAINAGE LAYOUT

SCALE 1:200

Existing drainage information was based on topographical survey. Drainage CCTV survey to be carried out to confirm existing drainage connection prior to SAB full application.



SURFACE WATER DRAINAGE DISCHARGE LOCATION

SCALE 1:1250

KEY

- SAB Boundary
- Existing On-Site Private Foul Water Chamber
- Existing On-Site Private Surface Water Chamber
- Existing DCWW Public Foul Water Chamber
- Existing Off-Site Private Surface Water Chamber (Assumed Highway Drain Chamber)
- Existing On-Site Private Foul Water Drain
- Existing On-Site Private Surface Water Drain
- Existing DCWW Public Foul Water Sewer
- Existing Off-Site Private Surface Water Drain (Assumed Highway Drain)
- Existing Surface Water Outfall
- Existing Watercourse (Assumed Ditch)
- Existing Watercourse (Assumed Marshland)

Notes:

1. This drawing is to be read in conjunction with all other geotechnical engineer, surveys and Bear Consulting project drawings/specifications.
2. This drawing has been produced for information only and is not to be used for construction.
3. Exact location of all apparatus to be determined on site.
4. Topographical Survey was carried out by AZIMUTH LAND SURVEYS LIMITED (Date: May 2025, Ref: SS4802-01).
5. Existing drainage information was obtained from topographical survey, DataMapWales, and DCWW sewer map. Information shown partially for indicative purposes with assumptions.
6. Existing drainage information TBC with drainage CCTV survey prior to SAB full-application.
7. Other site features may be present.

Rev.	Date.	Details.	By.	Chk.

Amendments

Bear Consulting
Civil and Structural Engineers
Cardiff | Newport | Wales | United Kingdom
www.bear-consult.com | info@bear-consult.com

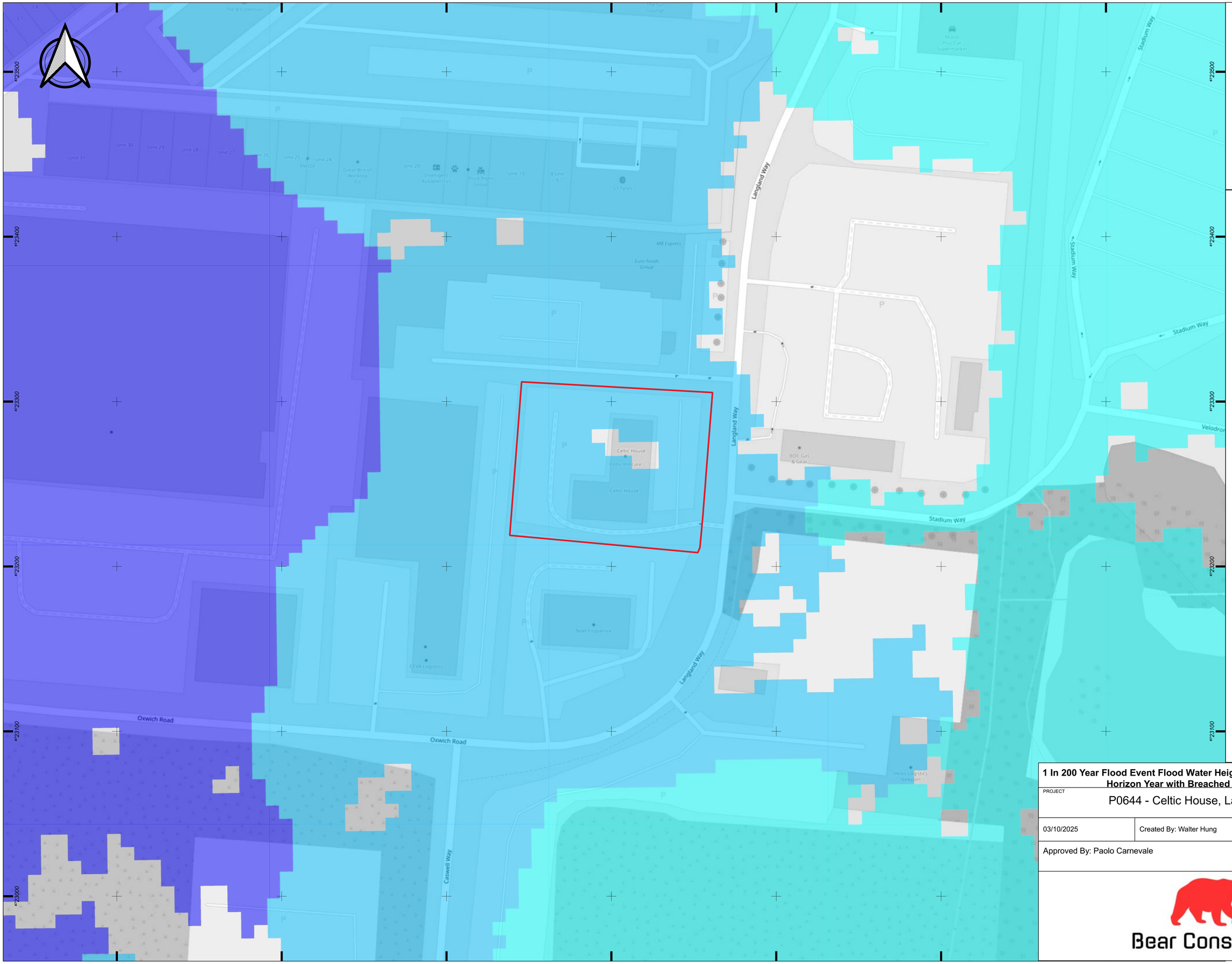
Project:
CELTIC HOUSE, LANGLAND WAY NEWPORT

Title:
EXISTING DRAINAGE LAYOUT

Drawing Status:
FOR INFORMATION

Drawn:	Checked:	Scale(s) at A1:	
WH	PC	AS SHOWN	
Date:	Job No.	Drawing No.	Revision
30/06/2025	**P0644**	**SKc02**	**-**

Appendix G



GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Flood Water Height

- <= 8.00m
- 8.00 - 8.22m
- 8.22 - 8.37m
- 8.37 - 9.00m
- > 9.00m

1 In 200 Year Flood Event Flood Water Height (with 2115 Climate Change Horizon Year with Breached Flood Defence)

PROJECT

P0644 - Celtic House, Langland Way

03/10/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Caldicot_T0200CC_WD_001_h_g005_Max Flood Water Height

- <= 8.00m
- 8.00 - 8.22m
- 8.22 - 8.37m
- 8.37 - 9.00m
- > 9.00m

1 In 200 Year Flood Event Flood Water Height (with 2115 Climate Change Horizon Year with Flood Defence)

PROJECT

P0644 - Celtic House, Langland Way

12/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Caldicot_T0200CCCI_ND_stability

Flood Water Height

- <= 8.00m
- 8.00 - 9.00m
- 9.00 - 10.00m
- 10.00 - 11.00m
- > 11.00m

1 in 200 year event +CCCI without flood defence flood water height

PROJECT

P0644 - Celtic House, Langland Way

Date: 12/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Caldicot_T1000CC_WD
_B6_001_h_g005_Max

- <= 8.22m (AOD)
- 8.22 - 8.37m (AOD)
- 8.37 - 8.97m (AOD)
- > 8.97m (AOD)

1 In 1000 Year Flood Event Flood Water Height (with 2115 Climate Change Horizon Year with Breached Flood Defence)

PROJECT

P0644 - Celtic House, Langland Way

04/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Caldicot_T1000CC_WD_stability_001_h_g005_Max Flood Water Height

- <= 8.00m
- 8.00 - 8.22m
- 8.22 - 8.37m
- 8.37 - 9.00m
- > 9.00m

1 In 1000 Year Flood Event Flood Water Height (with 2115 Climate Change Horizon Year with Flood Defence)

PROJECT

P0644 - Celtic House, Langland Way

12/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Caldicot_T1000CCCI_ND_stability_001_h_g005_Max
Band 1

- <= 8.00m
- 8.00 - 9.00m
- 9.00 - 10.00m
- 10.00 - 11.00m
- > 11.00m

1 in 1000 year event + CCCI without flood defence flood water height

PROJECT

P0644 - Celtic House, Langland Way

12/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

- Site Boundary
- Caldicot_T1000CC_WD_B6_001_v_g005_Max
  - <= 0.10m/s
  - 0.10 - 0.20m/s
  - 0.20 - 0.30m/s
  - 0.30 - 0.45m/s
  - 0.45 - 0.50m/s
  - > 0.50m/s

1 in 1000 Year Flood Event Flood Water Height (with 2115 Climate Change Horizon Year with Breached Flood Defence)

PROJECT

P0644 - Celtic House, Langland Way

04/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Caldicot_T1000CC_WD_stability_001_v_g005_Max

Band 1

- <= 0.10m/s
- 0.10 - 0.20m/s
- 0.20 - 0.30m/s
- 0.30 - 0.45m/s
- 0.45 - 0.50m/s
- > 0.50m/s

1 in 1000 Year Flood Event Flood Water Height (with 2115 Climate Change Horizon Year with Flood Defence)

PROJECT

P0644 - Celtic House, Langland Way

12/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

GENERAL NOTES

DRAWINGS AND SPECIFICATIONS: This drawing is to be read in conjunction with all relevant Architects, Engineers and Specialists drawings together with the specification.

Data obtained from Natural Resources Wales NRW.

To be used for Flood Consequence Assessment (FCA) planning phase only.

NOT FOR CONSTRUCTION.

Key

Site Boundary

Caldicot_T1000CCCI_ND_stability_001_v_g005_Max

Band 1

- <= 0.10m/s
- 0.10 - 0.20m/s
- 0.20 - 0.30m/s
- 0.30 - 0.90m/s
- > 0.90m/s

1 in 1000 year event +CCCI without flood defence flood water velocity

PROJECT

P0644 - Celtic House, Langland Way

12/11/2025	Created By: Walter Hung	Scale 1:1,000

Approved By: Paolo Carnevale

Bear Consulting

Appendix H

Proposed Proposed Northern Storage Unit Roof B RWP to discharge via unlined enhanced swale 01

Assumed existing private surface water drain run

Lined Enhanced Swale 01
Area: 50m²

Existing surface water drain run to be diverted if required. TBC prior to SAB full application with drainage CCTV survey.

Proposed surface water drain to connect to existing on-site surface water drain run. Assumed ultimate discharge to marshland via existing off-site private surface water drain (assumed highway drain). TBC with drainage CCTV survey.

Unconfirmed downstream connection. Assumed to discharge to surface water drain run located beneath Langland Way (assumed highway drain). TBC with drainage CCTV survey prior to SAB full-application.

Lined Filter Drain 02
0.5m width x 38.5m length

Proposed Proposed Northern Storage Unit Roof A RWP to discharge via Lined Filter Drain 02

RWP

ACO

It is understood that no proposed foul drainage runoff/waste is expected as part of this development.

Proposed Flow Control Unit HB01
Proposed maximum discharge rate: 0.14l/s

EXSMH3
CL 7.88
IL 5.52

EXSMH2
CL 7.94
IL 5.73

EXFMH6
CL 7.92
IL 6.68

EXFMH5
CL 7.95
IL 6.68

EXFMH4
CL 7.97
IL 6.70

EXSMH1
CL 7.97
IL 6.45

EXFMH1
CL 8.01
IL 6.82

EXFMH2
CL 7.99
IL 6.82

EXFMH3
CL 7.93
IL 6.71

Unknown connection from gully

Area A

Area B

Proposed Northern Store Unit

Proposed Southern Store Unit

Proposed Plasma Cutting Unit

Proposed Canopy

Unrestricted flow rate from proposed plasma unit. **Discharge rate offsite to be 'compensated'/offset as part of store unit hydraulic calculations**

Unconfirmed downstream connection. Assumed to discharge to DCWW foul water sewer located on Langland Way. TBC with drainage CCTV survey prior to SAB full-application.

Existing surface water drain run from RWP to be diverted. Arrangement TBC.

Proposed Plasma Cutting Building RWP to discharge to adjacent existing private surface water drain run

Proposed Canopy RWP to discharge to adjacent existing private surface water drain run

Existing surface water drain run from RWP to be diverted. Arrangement TBC.

EXSMH4
CL 7.90
IL 6.40

Proposed Southern Store Unit RWP to discharge via Lined Filter Drain 02

Existing gravel ground to be replaced with 'unlined' permeable paving.

Proposed Lined Geocellular Crate
Volume: 94m³
(12m x 11m x 0.75dp x 0.95por.)
Volume TBC prior to SAB full-application

VC 375mm

LANGLAND WAY

Existing drainage information has been based on topographical survey (Ref:SS4802-01). Drainage CCTV survey to be carried out to confirm existing drainage connection prior to SAB full application.

On-site surface water drain run assumed to currently discharge to off-site surface water drain run (assumed highway drain) beneath Langland Way

On-site foul water drain run assumed to currently discharge to DCWW public foul sewer beneath Langland Way

Refer to Proposed Drainage Plan

VC 375mm

Conc 1000mm

Assumed culvert

Existing drain/ditch discharges to Marshland

Concrete 825mm

Existing outfall discharges towards Marshland

Concrete 900mm

Approx. marshland boundary

VC 375mm

VC 225mm

Concrete 1200mm

Concrete 1050mm

Existing outfall discharge towards Marshland

Marshland area assumed to currently discharges to existing surface watercourse (ditch). TBC prior to SAB full application.

SURFACE WATER DRAINAGE DISCHARGE LOCATION

SCALE 1:1250

KEY

- SAB Boundary
- Applicant Ownership Boundary
- Existing On-Site Private Foul Water Chamber
- Existing On-Site Private Surface Water Chamber
- Existing DCWW Public Foul Water Chamber
- Existing Off-Site Private Surface Water Chamber (Assumed Highway Drain Chamber)
- Existing On-Site Private Foul Water Drain
- Existing On-Site Private Surface Water Drain
- Existing DCWW Public Foul Water Sewer
- Existing Off-Site Private Surface Water Drain (Assumed Highway Drain)
- Existing Surface Water Outfall
- Existing Watercourse (Assumed Ditch)
- Existing Watercourse (Assumed Marshland)
- Proposed Lined Filter Drain
- Proposed Private Surface Water Drain
- Proposed Private Perforated Drain
- Proposed ACO Drainage Channel
- Proposed PPIC Type 3 Private Surface Water Chamber
- Proposed Private Hydrobrake/Flow Control Unit
- Proposed RWP
- Proposed Rodding Eye
- Proposed ACO SuDS Swale Inlet (Or Similar Approved Erosion Control)
- Proposed **Lined** Enhanced Swale
- Proposed **Lined** Geocellular Crate System
- Proposed SuDS Planter
- Proposed Structure (Refer to Architect's Plan)
- Proposed **Unlined** Permeable Paving

Notes:

1. This drawing is to be read in conjunction with all other geotechnical engineer, surveys and Bear Consulting project drawings/specifications.
2. This drawing has been produced for information only and is not to be used for construction.
3. Exact location of all apparatus to be determined on site.
4. Topographical Survey was carried out by AZIMUTH LAND SURVEYS LIMITED (Date: May 2025, Ref: SS4802-01).
5. Existing drainage information was obtained from topographical survey, DataMapWales, and DCWW sewer map. Information shown partially for indicative purposes with assumptions.
6. Existing drainage information TBC with drainage CCTV survey prior to SAB full-application.
7. Proposed drainage layout shown indicatively. Final layout TBC in SAB full application.
8. Proposed RWP locations shown indicatively. TBC with Architect prior to SAB full application.

Rev.	Date.	Details.	By.	Chk.
B	18/08/25	Updated following client meeting	WH	PC
A	13/08/25	Updated to suit client's comments	WH	PC

Amendments

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Project:
CELTIC HOUSE, LANGLAND WAY NEWPORT

Title:
PROPOSED DRAINAGE STRATEGY FOR PLANNING

Drawing Status:
FOR INFORMATION

Drawn:	Checked:	Scale(s) at A1:	
WH	PC	AS SHOWN	
Date:	Job No.	Drawing No.	Revision
30/06/2025	**P0644**	**SKc51**	**B**

Surface Water Drainage Strategy:

The proposed surface water network shall adhere to the Welsh Ministers' Statutory Standards for sustainable drainage systems, where possible. Liaison with Newport City Council SAB authority will be required, and a full SAB application will be submitted and approved prior to construction.

The following summarises the Welsh Ministers Standards and the design approach taken:

Statutory Standard S1 Surface Water Destination Overview -

Priority Level 1: The site is situated within an industrial area and has no foreseeable demand for the use of a rainwater harvesting system. DWR Cymru Water Resources Management Plan (October 2024) indicates that the SEWCUS area, of which the site is located, does not expect any potential stresses on water main supplies when considering the planned interventions outlined in DCWW's Final Water Resources Management Plan 2024.

Priority Level 2: The bedrock geology has been identified as Mercia Mudstone Group - Mudstone and the superficial deposit has been identified as Tidal Flat Deposits - Clay and silt from BGS mapping information. Soilscapes has identified the soil as Loamy and clayey soils of coastal flats with naturally high groundwater, with Naturally wet drainage.Due to the indicated soil type from the above information, it is considered that the use of infiltration is not suitable for this site and it is considered that a BRE 365 soakaway testing shall be omitted. This is to be confirmed with SAB.

Priority Level 3: There is a drain/ditch feature located approximately 100m to the east of the site. This drain/ditch feature appears to discharge to an assumed 'marshland' feature located approximately 100m to the south of the site.

Priority Level 4: The DCWW sewer map identifies an existing private off-site surface water drain (assumed to be a highway drain) on Langland Way. It is assumed that the existing private on-site surface water drainage network currently discharges to this highway drain beneath Langland Way. The DCWW sewer map indicates that this highway drain ultimately discharges to the aforementioned 'marshland'. It is likely that the 'marshland' then discharges to a surface watercourse to the south.

It is proposed to discharge the surface water runoff to the existing on-site private surface water chamber. It is assumed that this existing chamber ultimately discharges to a surface watercourse to the south of the marshland via an existing highway drain. A CCTV survey shall be carried out to confirm this connection prior to the SAB full application.

It is assumed that runoff from the development currently discharges in a south-westerly direction before exiting the site boundary, and eventually towards the public road Langland Way with highway gullies. It is therefore considered that the ultimate discharge location from the development area remains unchanged.

Statutory Standard S2 Hydraulic Control Overview -

It is proposed to discharge the runoff from just the proposed plasma unit and canopy roof at an unrestricted rate to the existing onsite private drainage network. As a result, it is proposed to restrict runoff from the remaining areas within the SAB boundary to a maximum flow rate of 0.14 l/s . This value has been calculated by subtracting the QBar flow rate from the 'Plasma Cutting Unit' **(Area B)** from the QBar discharge rate for the 'Storage building(s)' **(Area A)**

Essentially it has been calculated as follows: ***Max. Flow Rate Off Site = Qbar (Area A) - Qbar (Area B).*** The remaining hardstanding areas within the green line boundary shall not be modelled as part of the hydraulic network as it is an existing concrete hardstanding area that is to be replaced with permeable paving. There is no 'point discharge' into the permeable paving system (the area only serves itself) and therefore no positive drainage outfall to the SW drainage system. The permeable paving area will therefore be modelled as a separate infiltration system.

The maximum flow rate and required attenuation storage shall accommodate all rainfall events up to and including the 1 in 100yr +40% climate change and 10% Urban Creep allowance.

Statutory Standard S3 Water Quality Overview -

It is proposed to utilise SuDS features in accordance with the CIRIA C753 Simple Index Approach to provide suitable mitigation measures. SuDS features include lined enhanced swale, and lined filter drain..

Statutory Standard S4 Amenity Overview -

It is proposed to maximise the amenity offered by SuDS components by optimising the location of the lined enhanced swale, The feature have been located such that they are clearly visible to visitors and staff.

Statutory Standard S5 Biodiversity Overview -

It is proposed to maximise the biodiversity offered by the introduction and planting specification of the lined enhanced swale, A planting specification will be submitted in the SAB full application to maximise the biodiversity potential on site.

Statutory Standard S6 Construction & Maintenance Overview -

All proposed drainage components shall be specified such that each feature can be constructed as easily, safely and cost-effectively as practically possible. All of the proposed surface water drainage on site serving the new development shall be privately maintained.

Foul Water Drainage Strategy:

It is understood that no proposed foul drainage runoff/waste is expected as part of this proposed development.

PROPOSED DRAINAGE PLAN

SCALE 1:200