Bear Consulting
Civil and Structural Engineers

CELTIC HOUSE, LANGLAND WAY

FLOOD CONSEQUENCES ASSESSMENT

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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

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)

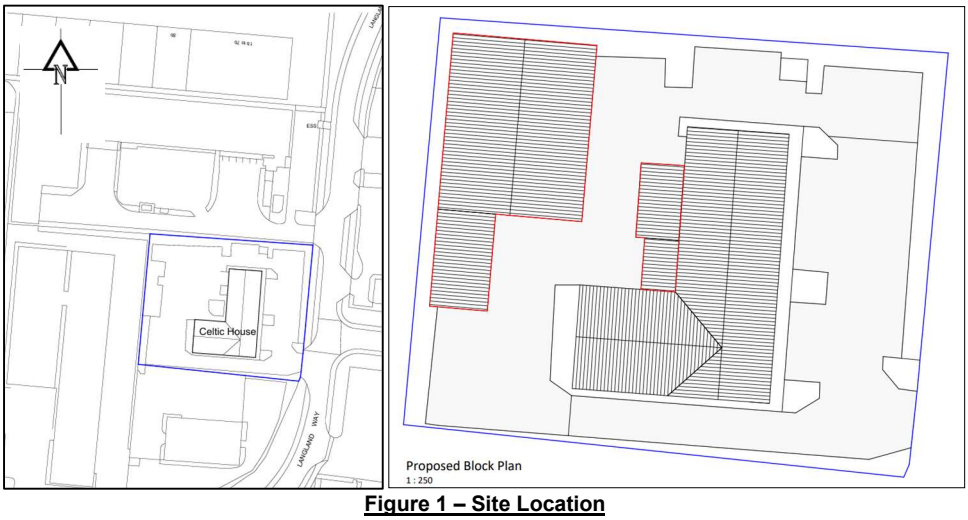


Figure 1 – Site Location

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 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 rather than new stand-alone developments.

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).

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)

According to the JBA model data received, the site experiences a flood depth of up to 628 mm in a '1 in 200-year coastal flooding event with climate change (year 2115 horizon year) and breached flood defence scenario. It should be noted that the flood depth of 628mm is shown at the western boundary of the site, and the existing flood depth is generally 0.3m to 0.6m in the proposed units' area.

The flood water level for the 1 in 200-year coastal flooding event with climate change (year 2115 horizon year) and breached flood defence scenario has also been analysed. The flood model data result shows that the flood water level in a 1 in 200-year coastal flooding event with climate change (year 2115 horizon year) and a breached flood defence scenario is below 8.220 mAOD in the area of all 4 no. proposed units. The FFL of all 4 of the proposed units shall be set as 8.370 mAOD to match the existing building FFL, as later mentioned in section 6.2 of this report. Therefore, it is considered that all 4 of the proposed units are expected to be flood-free during a 1 in 200-year coastal flooding event with climate change and a breached flood defence scenario.

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(mm)	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)	8.220	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) - breached

5.2 Tolerable Conditions

Table 6 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 6 – Tolerable conditions in an extreme flood event extracted from TAN15 (March 2025)

It is acknowledged that, according to the JBA flood modelling data, in a '1 in 1,000 years' event with climate change (year 2115 horizon year) and flood defence, the site may experience flood depths up to 798 mm and flood velocities up to 0.79 m/s.

For a conservative approach, the 95% confidence interval has also been analysed, indicating a higher expected flood level. The flood model data shows that in a '1 in 1,000 years' event with climate change (year 2115 horizon year with 95% confidence interval) and flood defence, the site may experience flood depths up to 2152 mm and flood velocities up to 0.94 m/s.

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, rather than new development, 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 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 4 proposed units will have finished floor levels set at 8.370 mAOD to match the existing building's FFL, and to 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 Storage Features

A detailed SAB-compliant surface water drainage system is proposed to serve the development. The surface water drainage system will incorporate appropriate attenuation measures to manage surface water runoff rates and volumes effectively. The inclusion of a non-return valve will also be considered within the surface water drainage system to prevent backflow during a tidal flooding event.

These measures will ensure that flood risk, both to and from the development, is mitigated in accordance with the acceptability criteria set out in Technical Advice Note 15 (2025) and the Welsh Government's National SuDS Standards. The surface water drainage system will be based on sustainable principles, ensuring compliance with current legislation while promoting long-term drainage and flood resilience.

6.4 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.

6.5 Evacuation Plans, Safe Refuge Areas and Warnings

Flood Warning

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.

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.

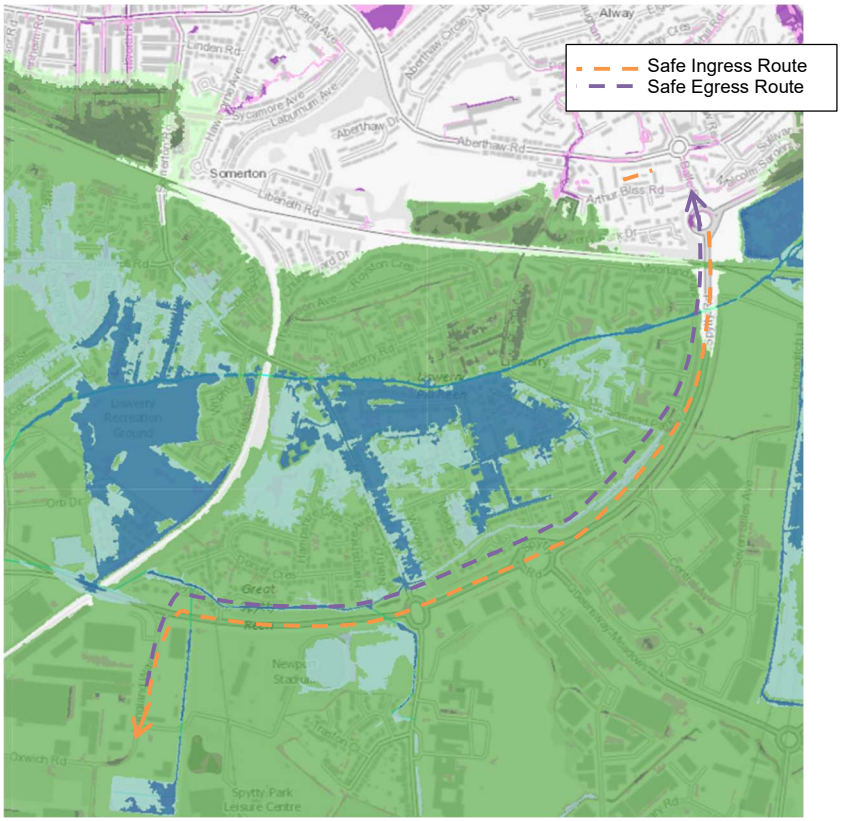


Figure 3 – Safe Access and Egress Route

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.

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 planning application (NCC planning ref: 25/0476) and was requested by NRW as additional information to enable further consideration of the 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 (Ref: CaldicotAndWentlooge_5_V1.0_2016_Product6, flood model carried out by JBA consulting) to assess the various flooding scenarios. The flood modelling data 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).

All proposed commercial/industrial developments should be considered 'extensions' to the existing site use.

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. The adjacent ground levels shall fall away from any buildings on site.

When assessing the proposed FFL against the '1 in 200-year coastal flooding event with climate change (year 2115 horizon year) and a breached flood defence' scenario, the building is expected to be flood-free.

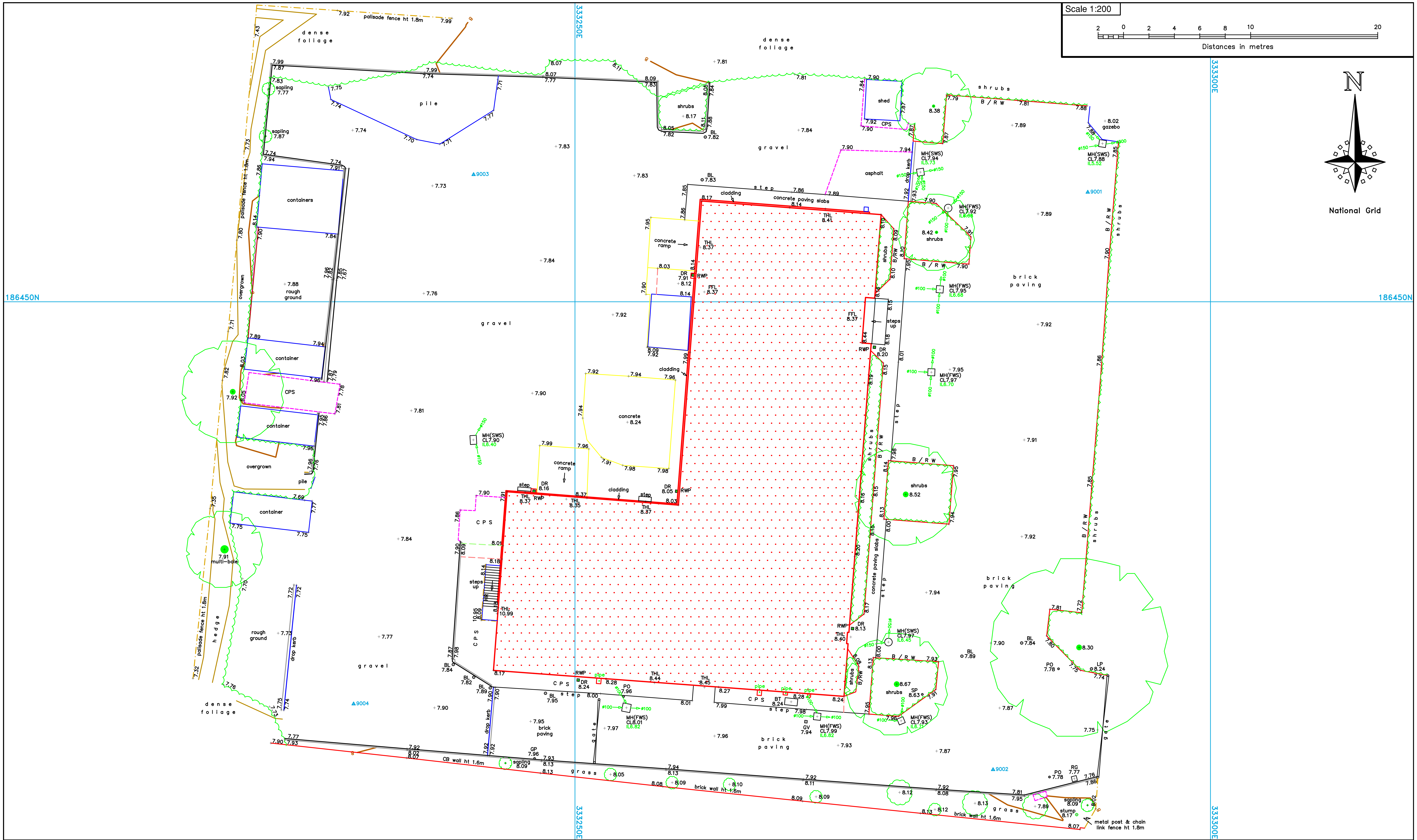
It is also acknowledged that the flood depth and flood velocity exceeded the tolerable condition as set out in TAN 15 (2025). It should be noted that all proposed building units for this development are considered to be extensions to the existing site use, rather than new development. TAN15 states that "each site, however, must be considered individually, and a judgement taken in the context of the circumstances which could prevail at that site." 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.

The development will incorporate flood-resilient measures, including elevated floor levels and appropriate structural provisions. Furthermore, a SuDS Approving Body (SAB)-compliant surface water drainage system will be implemented, incorporating flow control and attenuation measures to effectively manage surface water while enhancing the amenity and biodiversity of the site. Precautionary measures, such as non-return valves, will also be considered to mitigate potential backflow. The SAB-compliant surface water drainage system will ensure that off-site flood impacts are effectively managed.

The identified safe access and egress routes will form part of a site-specific 'Flood Warning and Evacuation Plan', to be prepared by the site occupier/agent, ensuring that all occupants are aware of flood risks and procedures for safe evacuation.

With these flood mitigation and resilience measures, the development is expected to meet the acceptability criteria for flooding consequences.

Appendix A



Abbreviations:

BB	Belisha beacon
BI	Bollard (illuminated)
BL	Bollard
BT	telecom inspection cover
CATV	cable television cover
CPS	conc. paving slabs
DC	drainage channel
DK	drop kerb
DR	drain
EP	electricity pole
ER	earth rod
FB	flower bed
FFL	finished floor level
FS	flag staff
GP	gate post
GV	gas valve
HR	handrail
HY	fire hydrant
IC	inspection cover (general)
JB	junction box
KO	kerb outlet
LP	lamp post
MH	man hole
MK	marker post
MP	mile post
NB	name board
O/H	overhead
OHC	overhead cable/wire
PO	post
RE	rodding eye
RP	reflector post
RS	road sign
RSJ	rolled steel joist
RWP	rain water pipe
Sap.	sapling
SP	sign post
SPS	stone paving slabs
stay	stay wire
SV	stop valve
SVP	soil vent pipe
tact.	tactile paving
THL	threshold level
TL	traffic light
TP	telephone pole
TV	cable TV
VP	vent pipe
WM	water meter
ht	height (of feature)
→	arrow indicates up (unless otherwise stated)
▲9002	survey control point

Fences

BW	barbed wire
C	chain
CB	close boarded
CL	chain link
CM	corrugated metal panel
CP	concrete panel
CW	chicken wire
IR	metal rail
IWN	interwoven wooden slat
MM	metal mesh
OB	open boarded
PA	paling
PAL	pallisade
R	wooden rail
W	wire
Wlap	wood lap
CP	concrete post (e.g.: CP/CL)
WP	wooden post (e.g.: WP/BW)

Walls

B	brick
C	concrete
CB	concrete block
G	gabion backets
S	stone
RW	retaining wall (e.g.: S/RW)
W	free-standing wall (e.g.: SW)

Drainage Features

CL	cover level
ID	invert depth
IL	invert level
FWS	foul water sewer
SWS	storm water sewer
CWS	combined water sewer
UTD	unable to determine
UTL	unable to lift
pipe	diameter (mm)
SL	soffit level
→	arrow indicates direction of flow

Notes:

Revisions:

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

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

Celtic House, Langland Way,
Newport, NP19 4PT

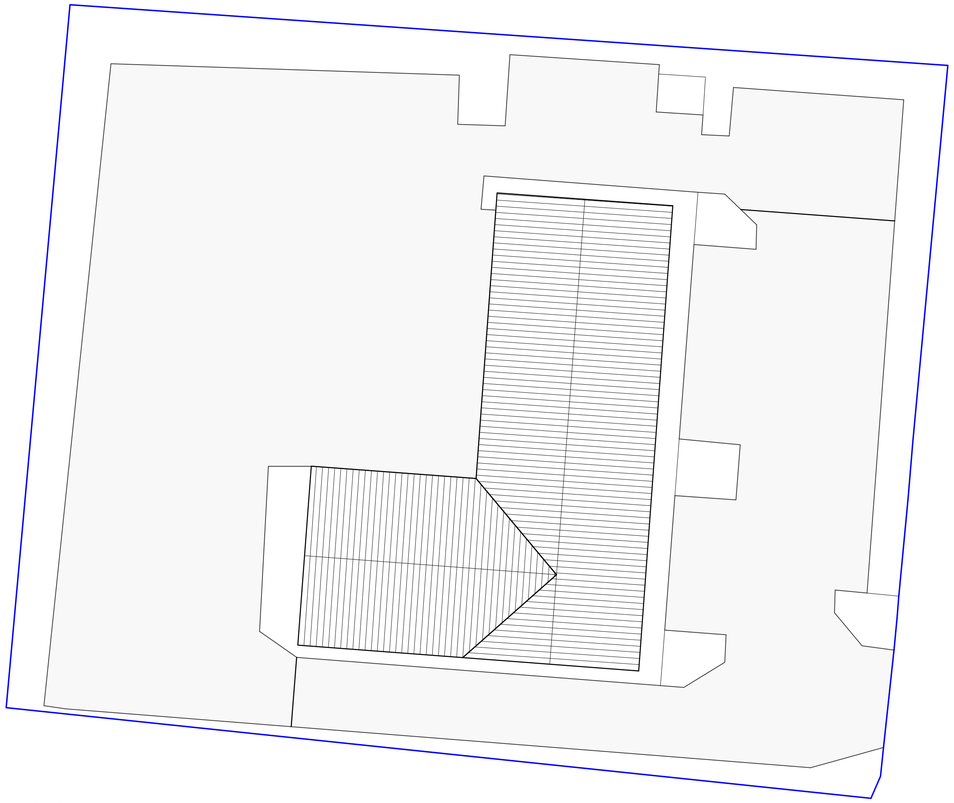
Topographical Survey

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

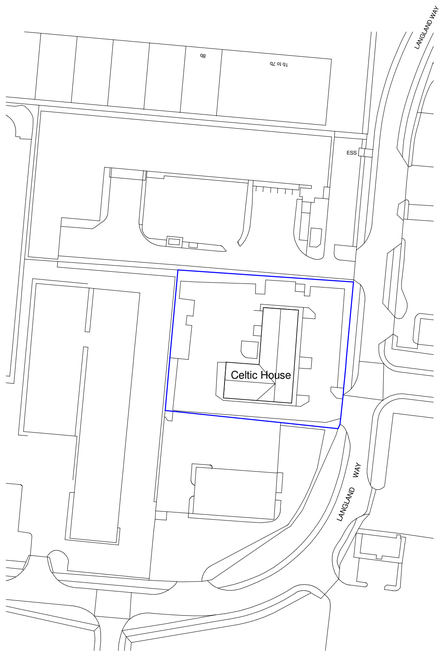
Site Boundary

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

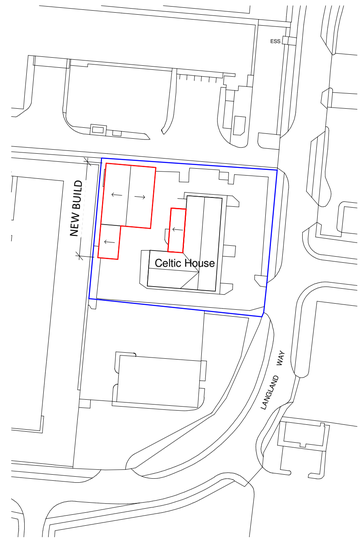
1 : 100

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
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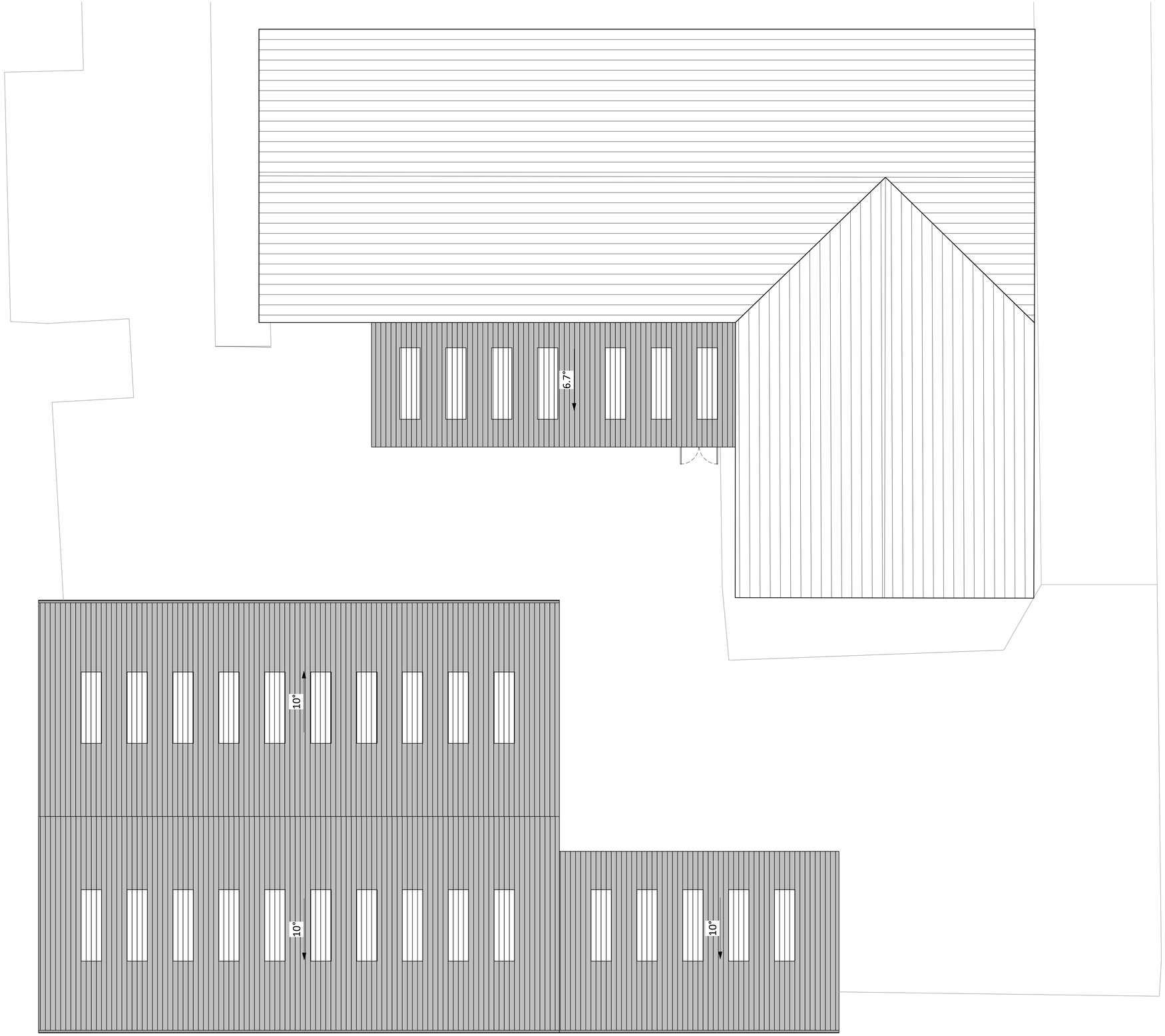
www.sustainablestudio.co.uk

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

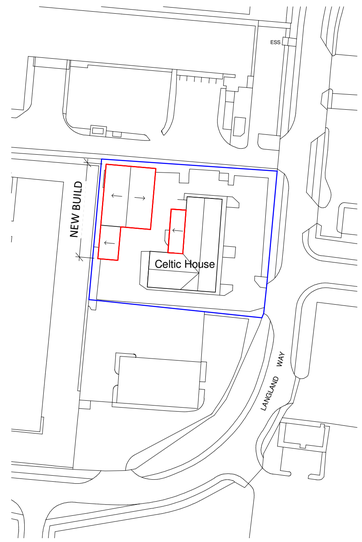


Proposed Roof Plan
1 : 100

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

Soilscape 21:

Loamy and clayey soils of coastal flats with naturally high groundwater

Texture:
Loamy and clayey

Coverage:
England: 3.7%,**Wales:** 1.3%,**England & Wales:**3.4%

Drainage:
Naturally wet

Fertility:
Lime-rich to moderate

Landcover:
Arable some grassland

Habitats:
Wet brackish coastal flood meadows

Carbon:
Medium

Drains to:
Local groundwater

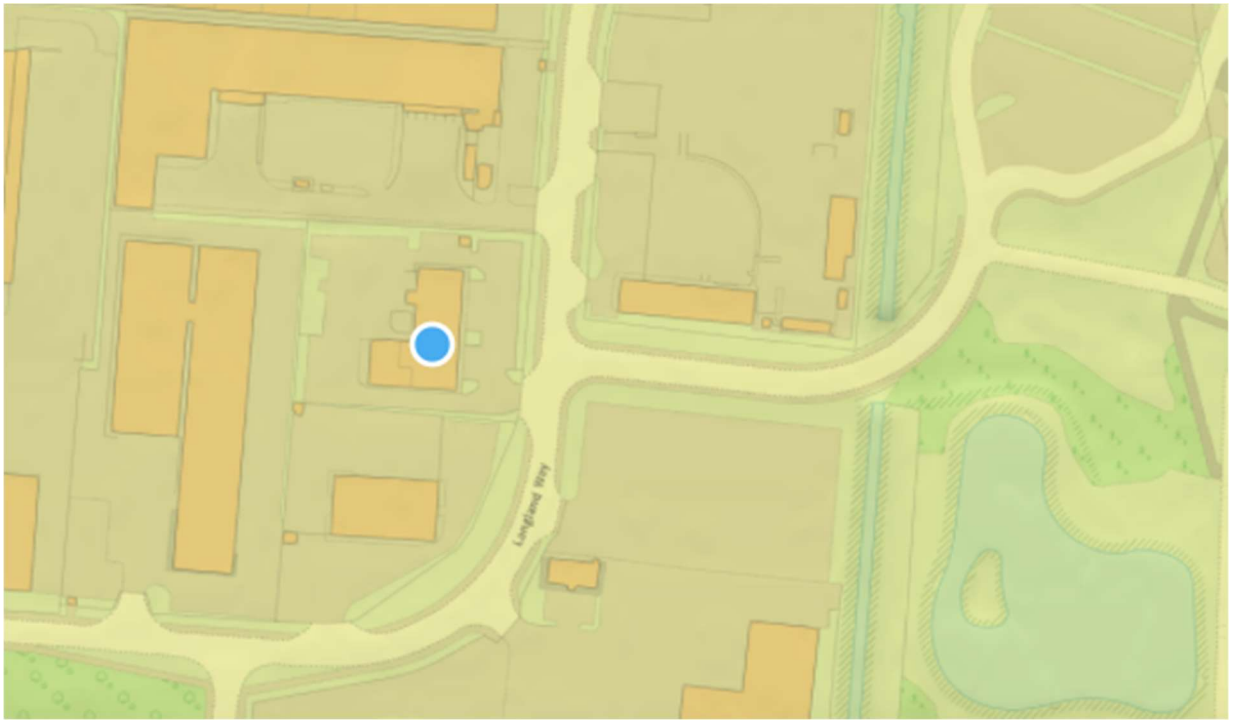
Water protection:
Soils are mostly drained. Shallow groundwater and marginal ditches to most fields mean that the water resource is vulnerable to pollution from nutrients, pesticides and wastes applied to the land

General cropping:
Lighter soils support a wide range of crops and are highly productive as they contain much available water and are stoneless and flat. Heavier soils are less easily worked and favour grass

Cranfield Soil and AgriFood Institute Soilscapes Mapping

Appendix D

Bear Consulting
Civil and Structural Engineers



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

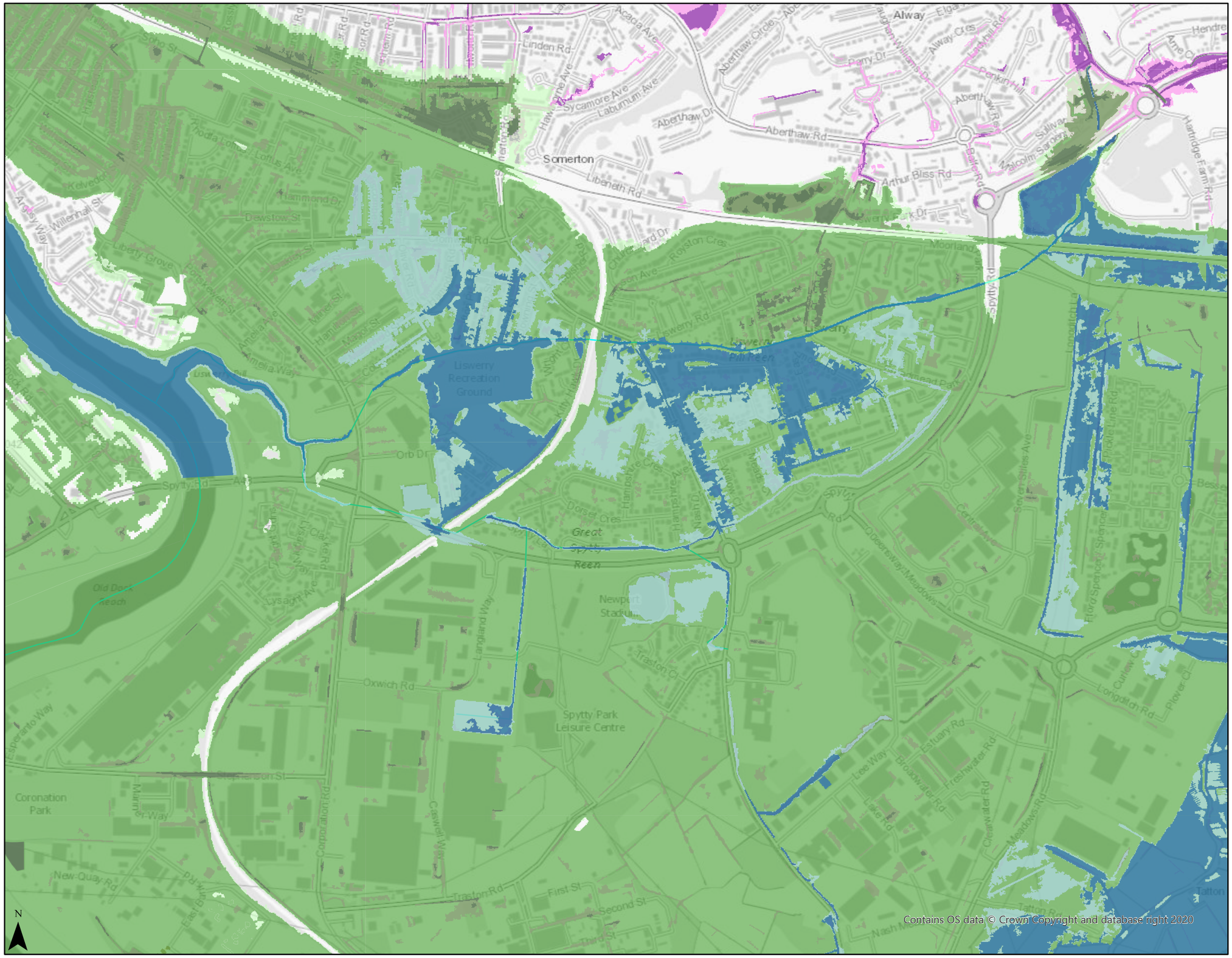
Disclaimer

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

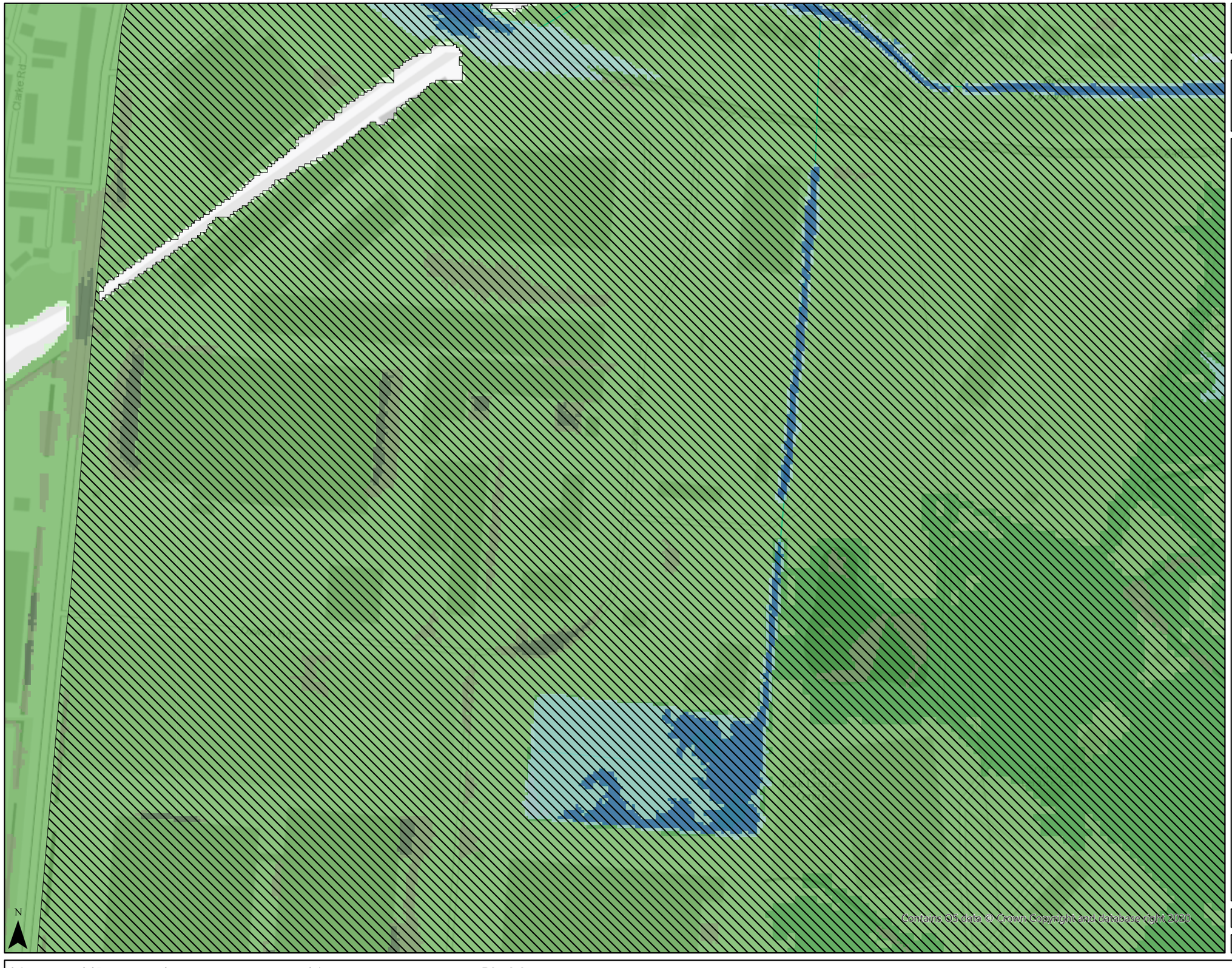
Disclaimer

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

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

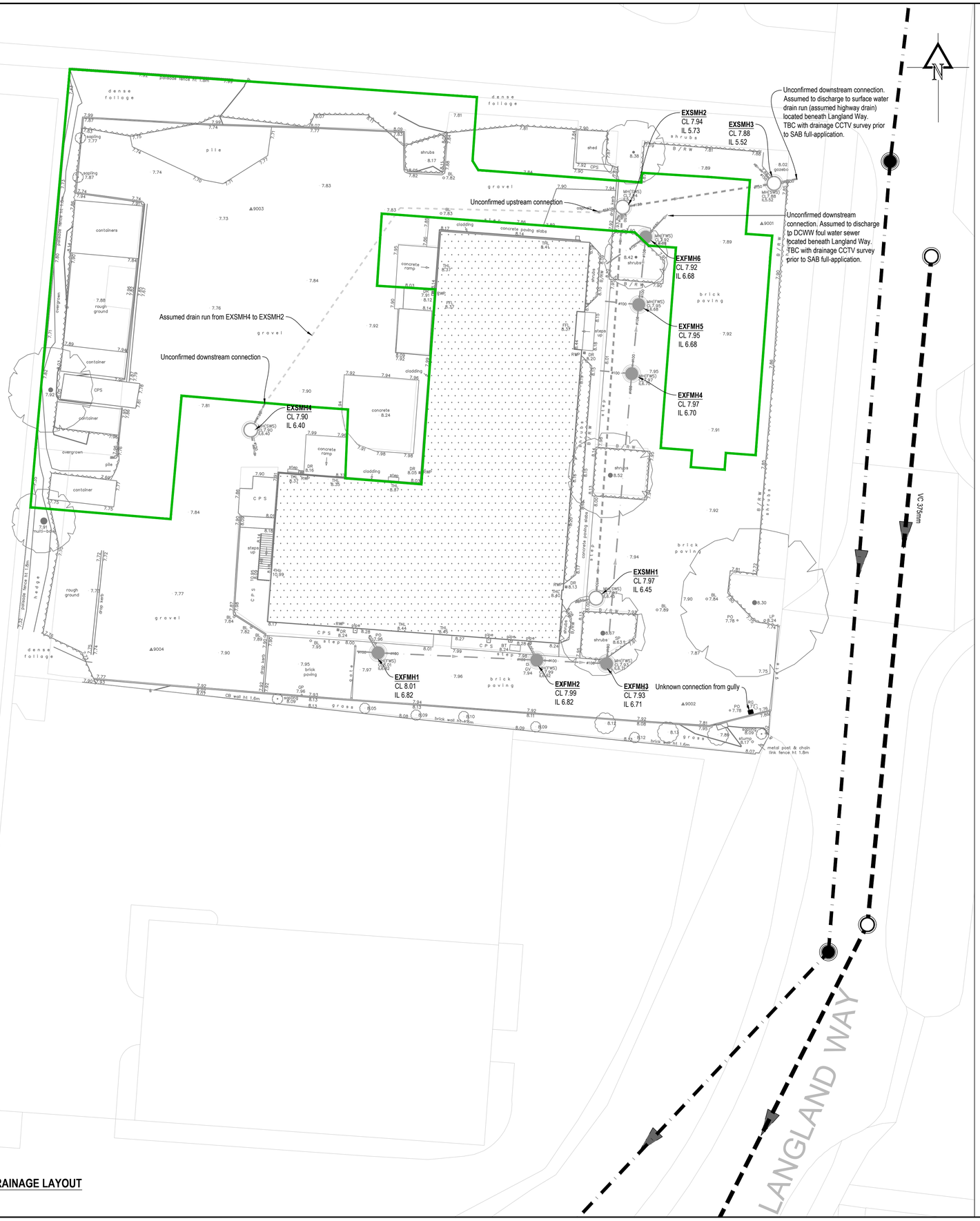
NB: Sewer symbol colour indicates the type.

RED - Combined
GREEN - Surface Water
BROWN - Foul
Purple - Former 524 sewers (for indicative purposes only)

Notes:

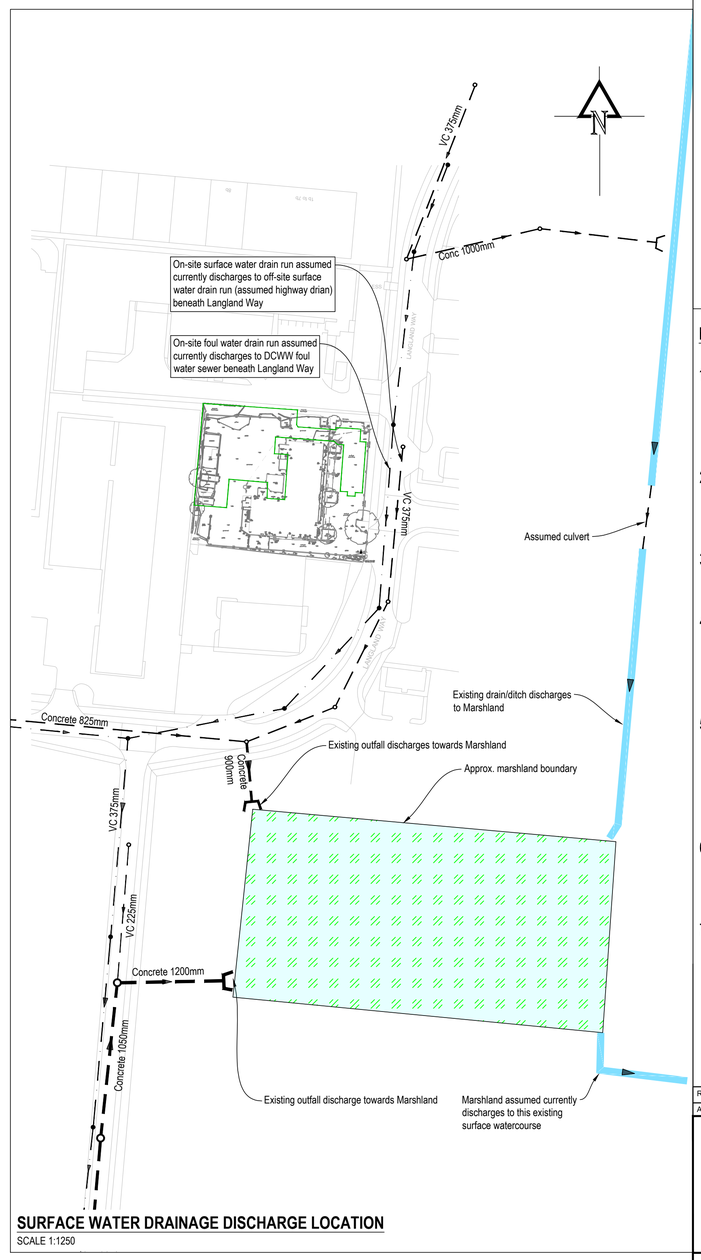
Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases, pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF) . It is therefore advisable that the possible 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

Flood Depth

- <= 0.30m
- 0.30 - 0.60m
- 0.60 - 0.80m
- 0.80 - 1.00m
- > 1.00m

Site Boundary

1 In 200 Year Flood Event Flood Depth (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

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

Band 1

- <= 0.30m
- 0.30 - 0.60m
- 0.60 - 0.80m
- 0.80 - 1.00m
- > 1.00m

Model Used:
Caldicot_T0200CC_WD_
stability_001_d_g005_Max

1 In 200 Year Flood Event Flood Depth (with 2115 Climate Change Horizon Year with 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

Flood Depth

- <= 0.10m
- 0.10 - 0.20m
- 0.20 - 0.40m
- 0.40 - 0.60m
- > 0.60m

1 In 1000 Year Flood Event Flood Depth (with 2115 Climate Change Horizon Year with 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