



# Nant Hall Road, Prestatyn Flood Consequences Assessment

CPF8152



## Document Control Sheet

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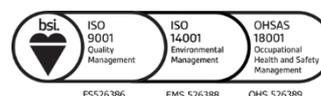
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## 2.2. Existing Use

The existing building is currently a county council office which has been vacant for 5+ years (Figure 2).



Figure 2: Existing building

## 2.3. Development Proposal

The proposal is to renovate and part re-construct the existing commercial building, forming a mixed commercial and residential space. The car park to the south of the existing building will also be redeveloped and form part of the proposed development. The development will retain its commercial use on the ground floor where a commercial area (total 285 m<sup>2</sup>) is proposed – use class E. A residential aspect will also be introduced to the ground floor, with 5 holiday lets proposed, each ranging from 61 m<sup>2</sup>– 74 m<sup>2</sup> in size (Figure 5). On the first floor there will be 18 two bed flats.

It is proposed to demolish a section of the existing building and rebuild with a mirror extension (Figure 3). It is proposed to have a minimum of 5 entrances/exits across the entire development (Figure 6). The Finished Floor Levels (FFL) for the construction element will be the same as that of the existing building, 150 mm above ground level (approx.. 5.50 m).

The proposed development will utilise an existing brownfield site and will occupy a similar footprint to the existing building. The additional extension will be developed on existing impermeable surface and, as such, would be expected to maintain the status quo with respect to site drainage. The local SuDS Approval Body (SAB) should be consulted to ascertain whether a formal application is required for the work; SAB approval is required for developments which consist of construction of >100 m<sup>2</sup>

with 'drainage implications'. Approval of applications to the SAB sits outside the town and country planning process and the surface water drainage from the site is not discussed in detail in this FCA.

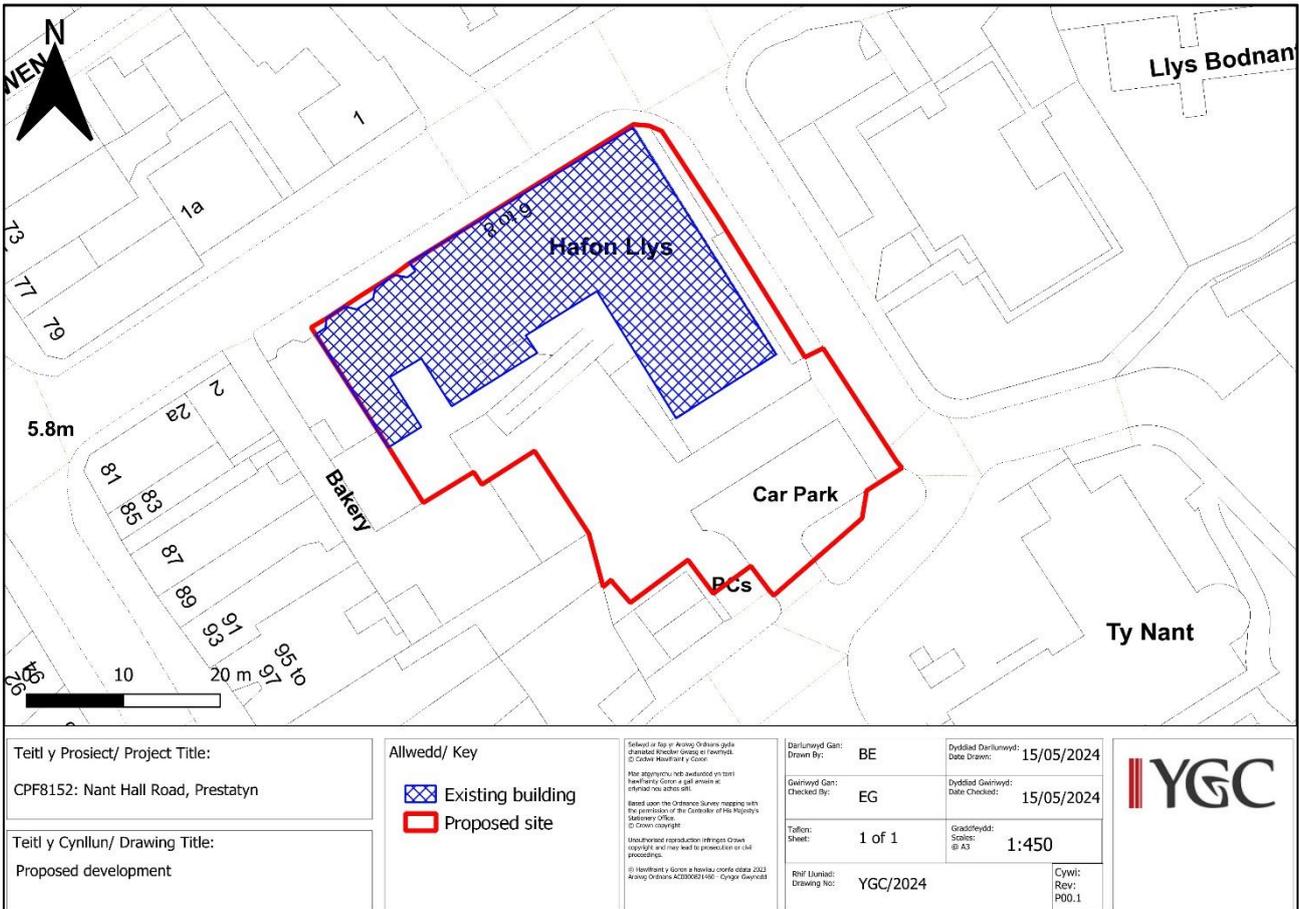


Figure 3: Proposed development outline



Figure 4: Proposed site plan

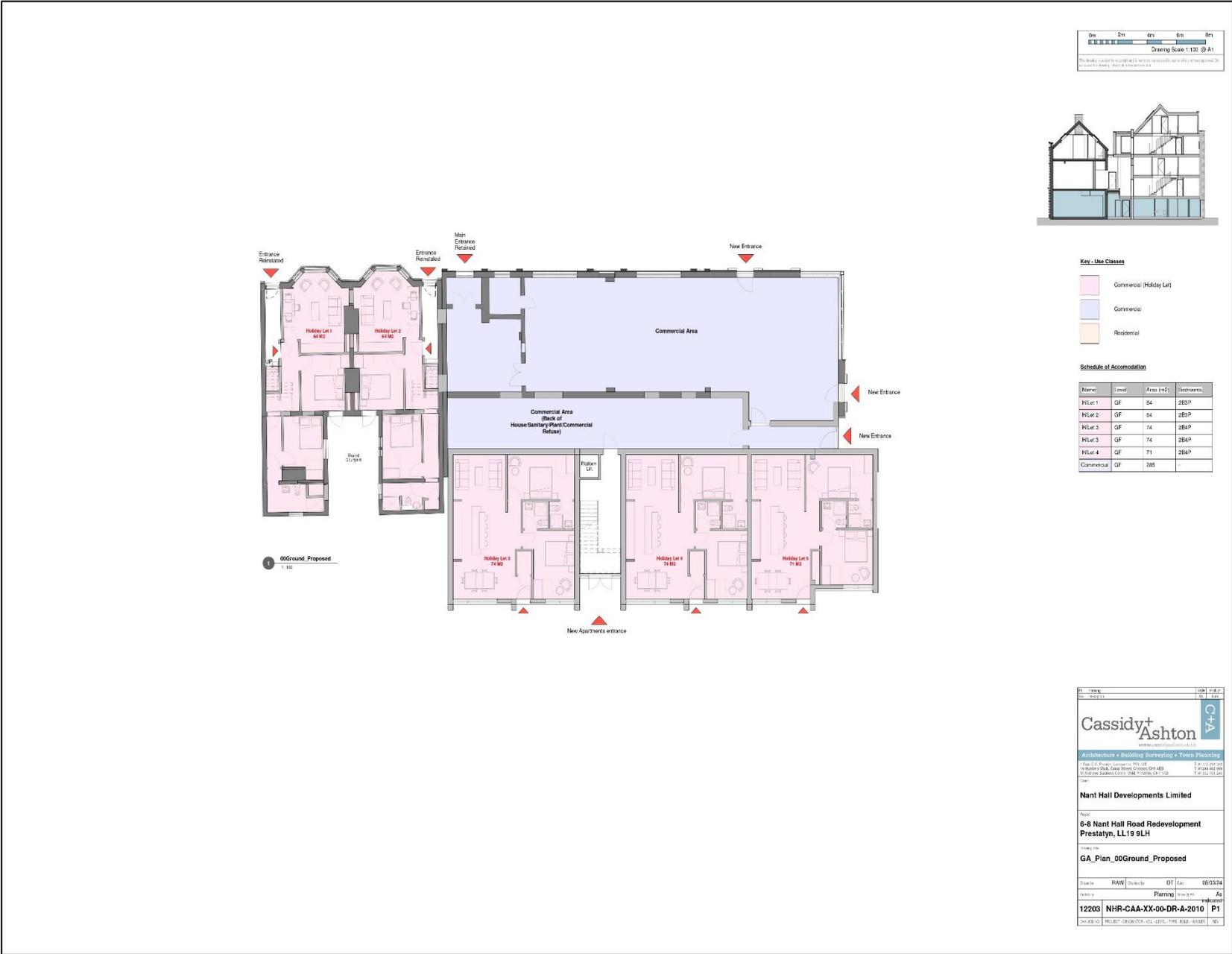


Figure 5: Proposed ground floor layout

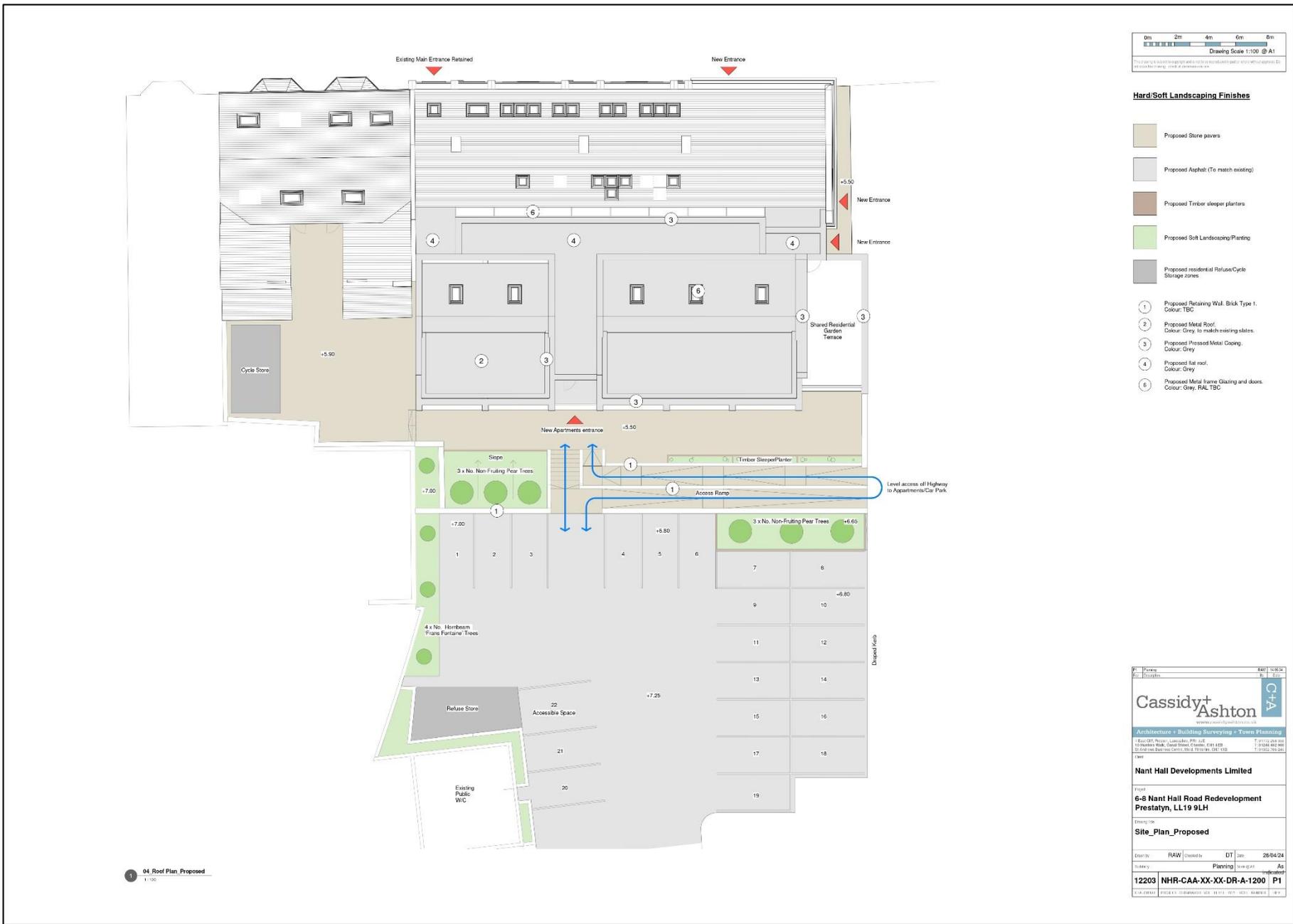


Figure 6: Roof proposed plan



Figure 7: Concept pictures of proposed design



### 3. Flooding Context

#### 3.1. Development Advice Map (DAM)

The site is located partially within flood Zone C1 (**Figure 9**), with the southern section lying within flood zone A. TAN15 defines Zone C1 as “Areas of the floodplain which are developed and served by significant infrastructure, including flood defences”. In this instance, the building and the surrounding area is served by existing coastal defences running between the Afon Clwyd estuary and Talacre to the North, and to the West by levees running along the Afon Clwyd.

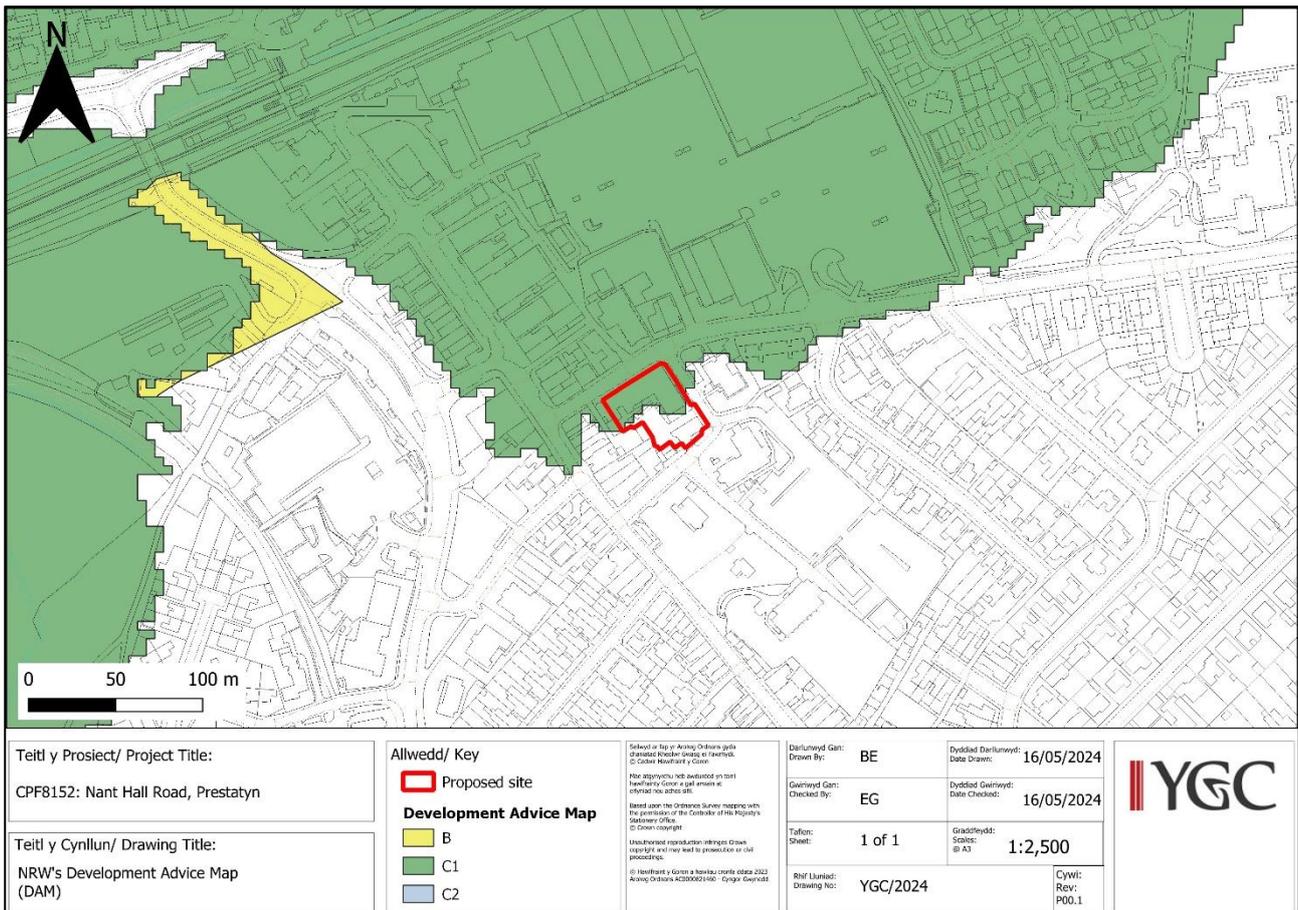


Figure 9: Natural Resources Wales' Development Advice Map

#### 3.2. Flood risk assessment Wales (FRAW) maps

The latest FRAW maps indicate that the building is not within the risk zones of flooding from tidal or fluvial sources (**Figure 10**). However, sections of the proposed development are in contact with the surface water & ordinary watercourse low flood risk outline (1 in 1000-year event).

The impact of climate change is not accounted for in these FRAW maps, nor is the risk posed by a breach of the defences. Breach scenarios are discussed in greater detail in section 4 following an enhanced flood modelling exercise undertaken by Natural Resources Wales.





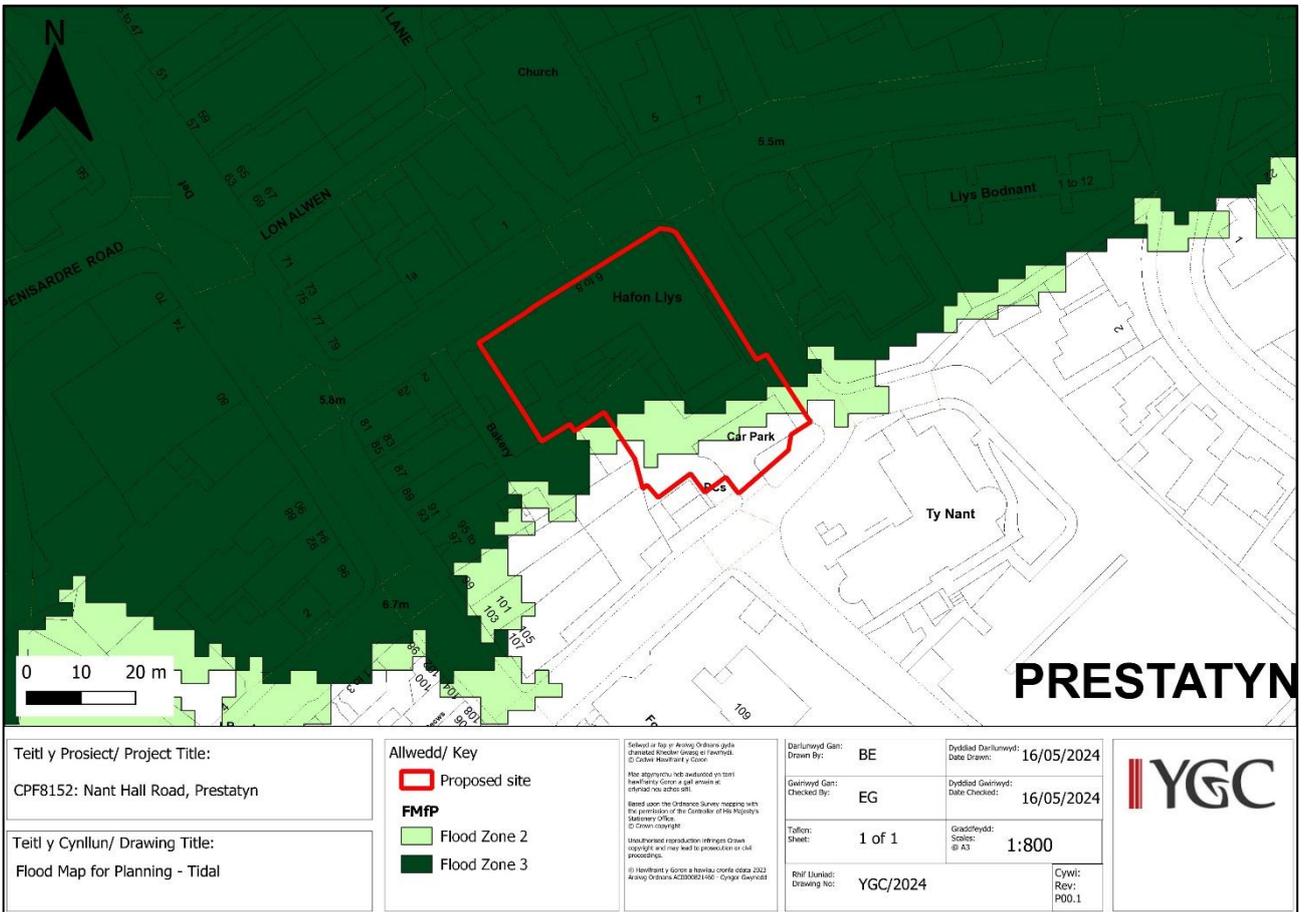


Figure 12: Flood Map for Planning - Tidal

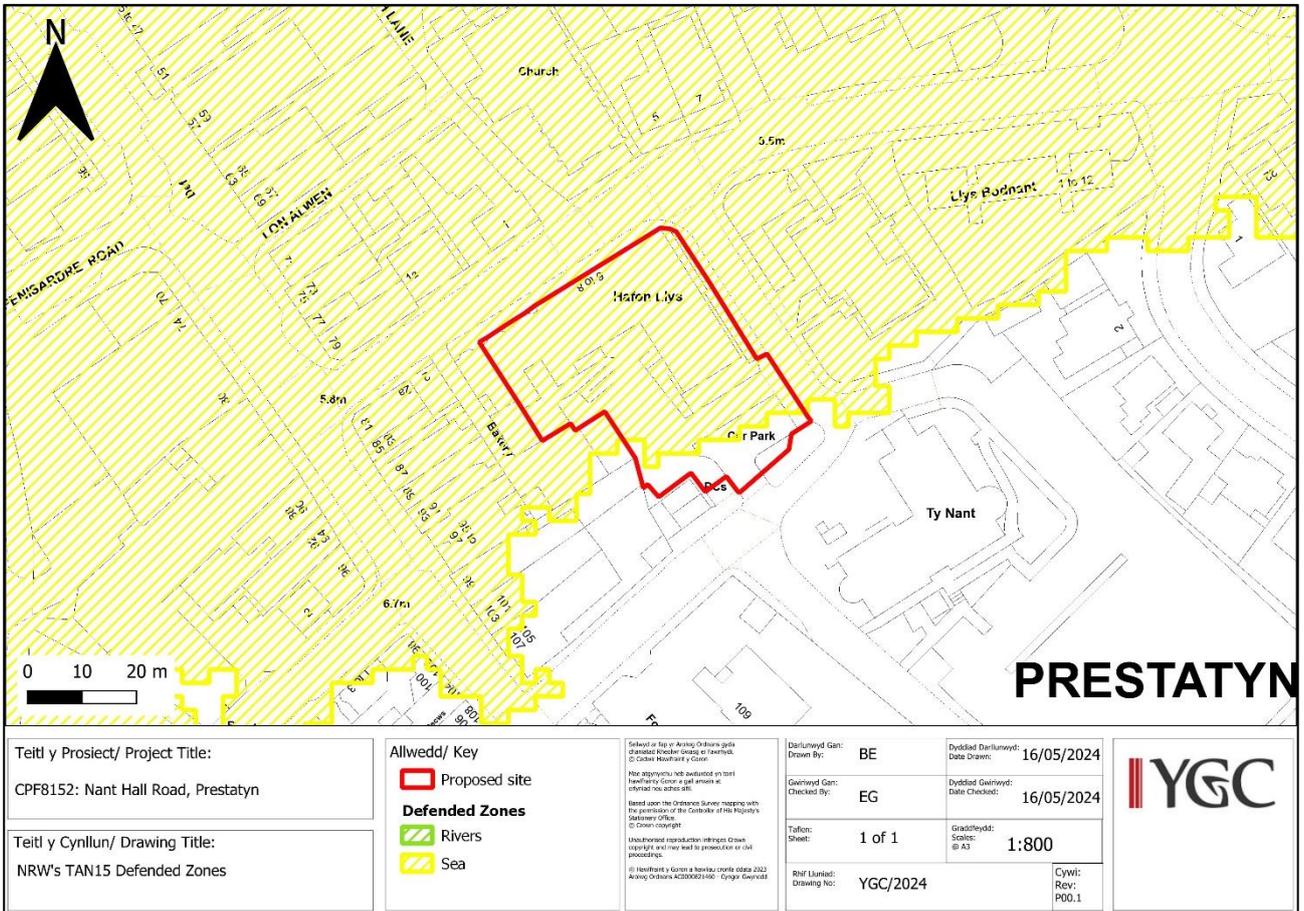


Figure 13: NRW's TAN15 Defended Zones

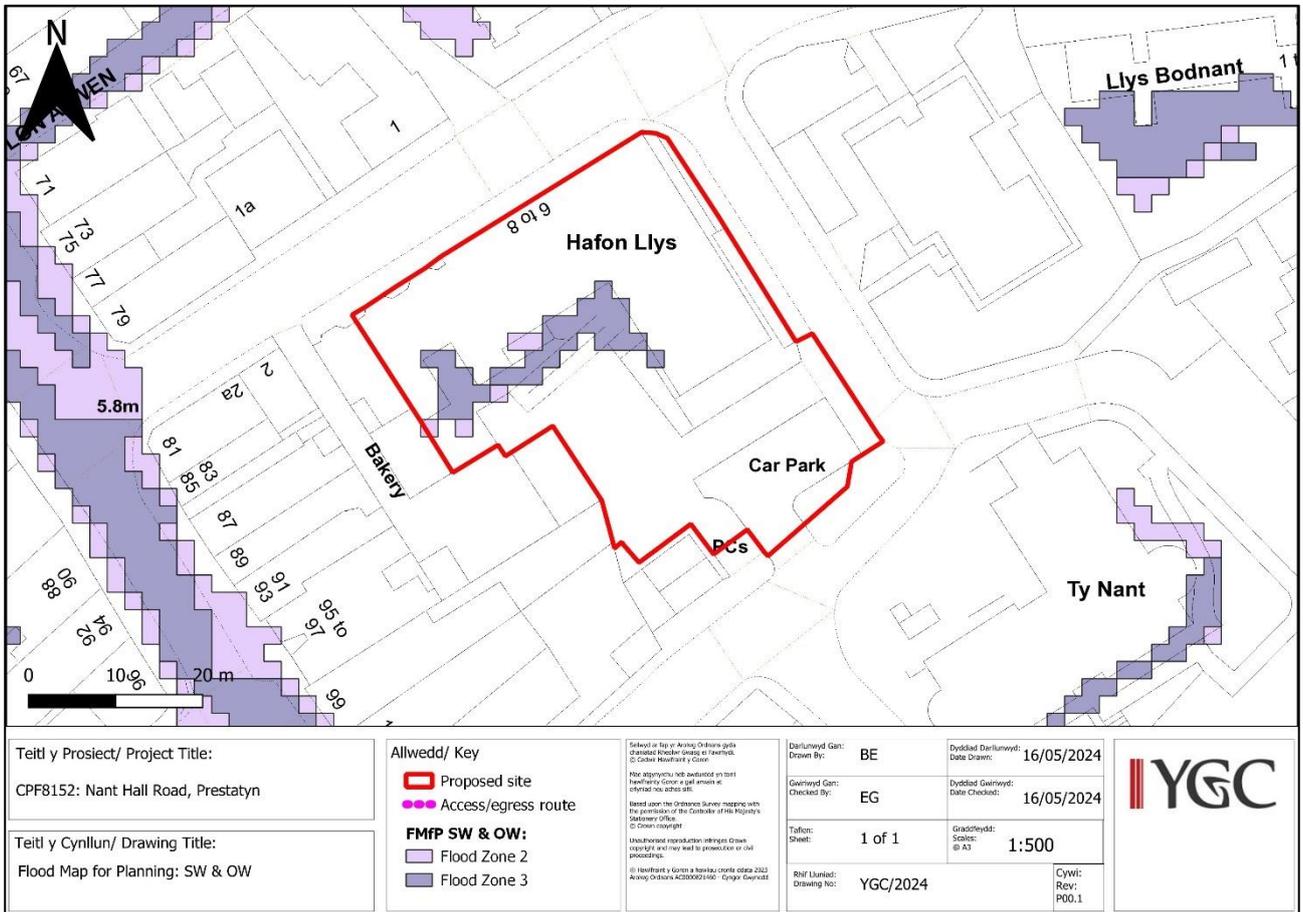


Figure 14: Flood Map for Planning – Surface water & ordinary watercourses

## **4. Flood Risk to the Development**

NRW's latest flood modelling data<sup>1</sup> is considered the most relevant information relating to flood risk at the development site. The results of the Point of Ayr to Pensarn Tidal (PointofAyrtoPensarn\_5\_V1.1\_2018) flood model has been analysed here. The Point of Ayr to Pensarn tidal model includes tidal breaches which have been modelled.

### **4.1. Nature of the development**

TAN15's precautionary framework identifies the vulnerability of different land uses to flooding. Residential developments, such as this development, fall within the 'highly vulnerable development' category. Section 5.2 of TAN15 notes that "the vulnerability attributed to a mixed-use proposal will be defined by the most vulnerable use". Therefore, this constitutes a "change in use" as per TAN15, Section 11.20, as the previous use of the building (offices) was classed as low vulnerability due to the absence of any residential aspect.

### **4.2. Lifetime of the development**

Welsh Government guidance<sup>2</sup> notes that "*lifetime of developments for residential development is 100 years, and for other developments it is considered to be 75 years*". It is important to note that the proposal is residential, therefore this report has considered the development lifetime to be 100 years. It is therefore necessary to take account of the potential impact of climate change over the lifetime of the development, including a tidal flood event which has a 0.5% probability of occurrence (1 in 200-year event). As stated in TAN15, Section A1.14, this is the standard of protection required of developments vulnerable to tidal flooding, which is the main threat to this development.

### **4.3. Present day flood risk – Defended**

The Point of Ayr to Pensarn flood model demonstrates that, currently, both the T200 PD (**Figure 15**) and T1000 PD (**Figure 16**) defended scenarios will not result in flooding of the proposed site with sea levels as they are today.

TAN15, section 11.6 states, "all developments must be designed to be flood free during the 0.5% flood from the sea (i.e., a flood with a 1 in 200 chance of occurring in any year)". These criteria must be met for a development to comply with TAN15.

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<sup>1</sup> Contains Natural Resources Wales information © Natural Resources Wales and database right. All rights reserved

<sup>2</sup> <https://gov.wales/planning-policy-flood-risk-and-insurance-change>

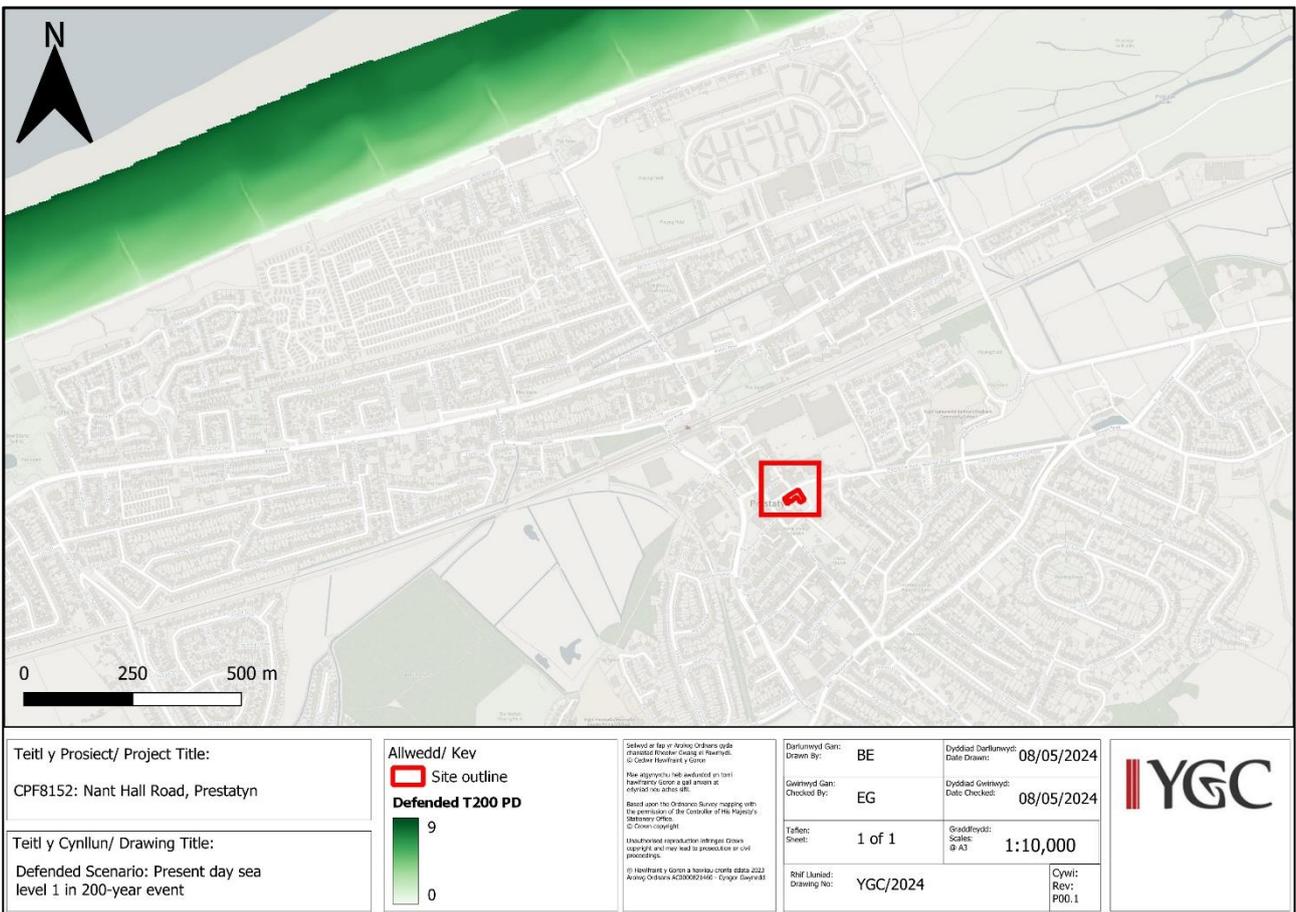


Figure 15: Defended 1 in 200-year event present day scenario

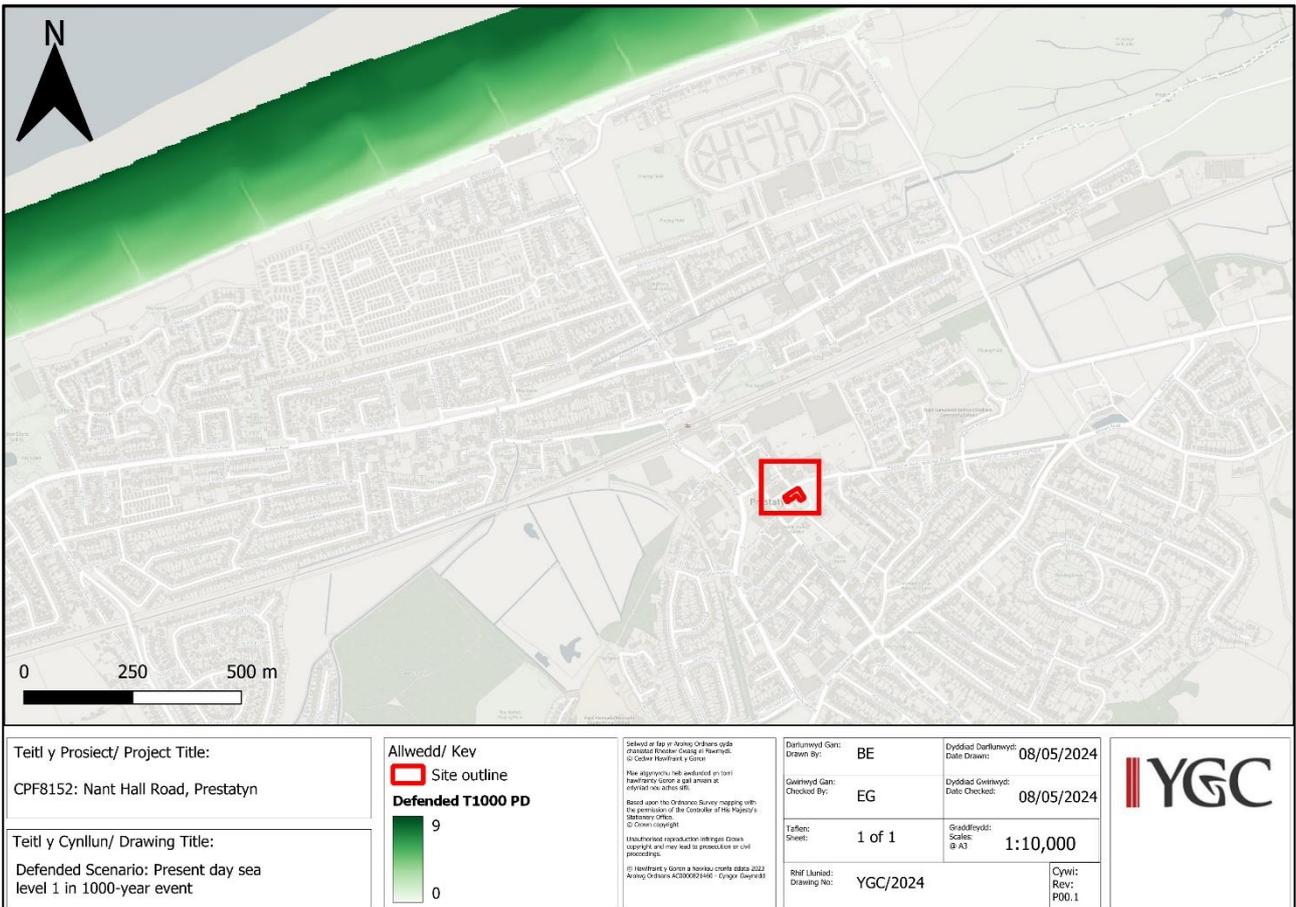


Figure 16: Defended 1 in 1000-year event present day scenario

#### 4.4. Climate change flood risk - Defended

A recent update (2023) to the flood model has considered a wider range of return periods, and new breach locations to reflect the latest climate change guidance published by the Welsh Government (UKCP18 RCP 8.5). The scenario most relevant to the site is the Defended T200 CC 2122. As the model update did not include the T1000 run, the initial publication’s T1000 CC 2117 scenario has been used.

It must also be noted that the T200 CC 2122 output provides only the maximum flood extent, therefore, any flood depth analysis must be extrapolated by intersecting the LiDAR data against the area with the flooding outlines.

Scenarios from the initial publication (2017) use the climate projection guidance FCDPAG3. This guidance has been superseded twice by new guidance (UKCP09 & UKCP18) and is considered out of date in comparison with the current UKCP18 guidance.

The model demonstrates that the T200 CC 2122 tidal defended scenario will not result in the flooding of the proposed site over its 100-year development lifetime (Figure 17). However, **Figure 18** indicates that small sections of the site would flood up to 0.20 m in the extreme T1000 CC 2117 event. With the FFL around 5.65 mAOD, the sections vulnerable to flooding in this event may flood up to 0.05 m.

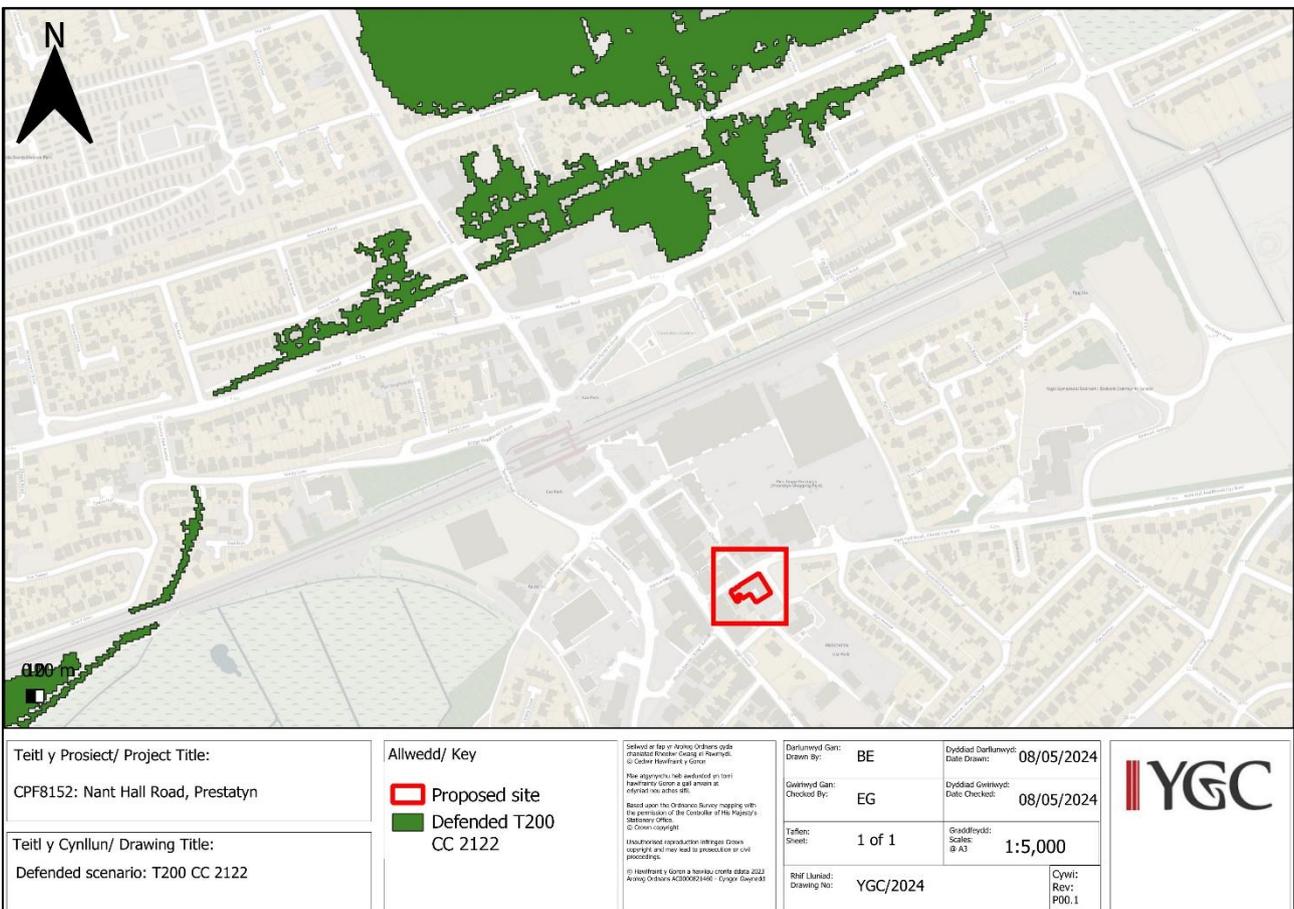


Figure 17: Defended 1 in 200-year event scenario plus climate change for year 2122



- Breach Marine Lake

From all breach scenarios listed above, the model suggested that *Ffrith beach* breach (Breach 4) presented the worst-case flood risk to the site (**Figure 19**). The defences in this area are maintained by NRW and Denbighshire Council with significant investments having been made in recent years to improve these defences. A breach is therefore considered to be unlikely but not impossible.

Although considered the greatest threat to the development, the model demonstrated that the site remains flood free in both the T200 PD and T200 CC 2117 scenarios (**Figure 20 & Figure 21**). The development is therefore compliant with TAN15 as it remains flood free in all 1 in 200-year event + CC over a 100-year development lifetime.

No T1000 equivalent scenarios were available for the 100-year development lifetime.

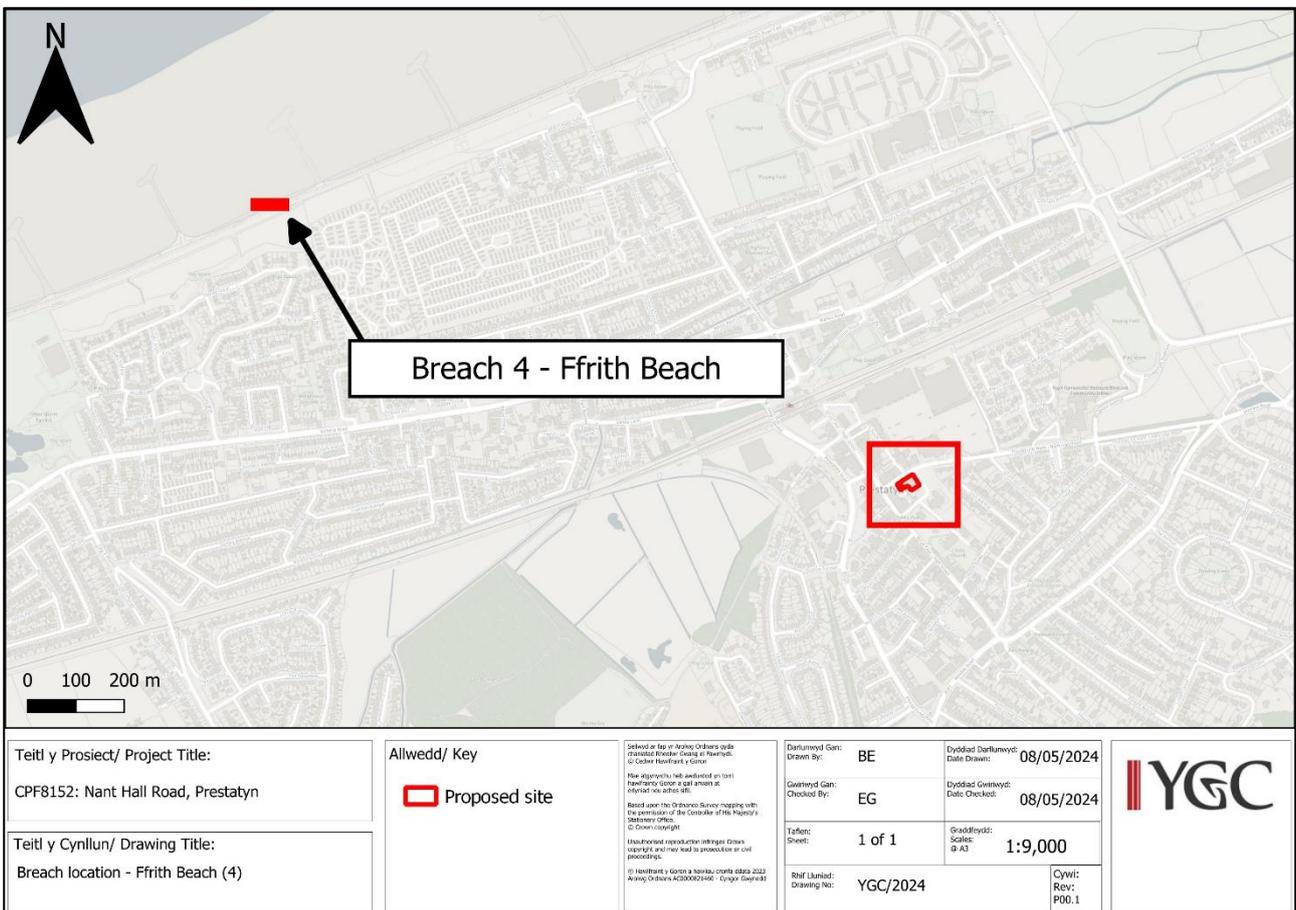


Figure 19: Ffrith beach breach location

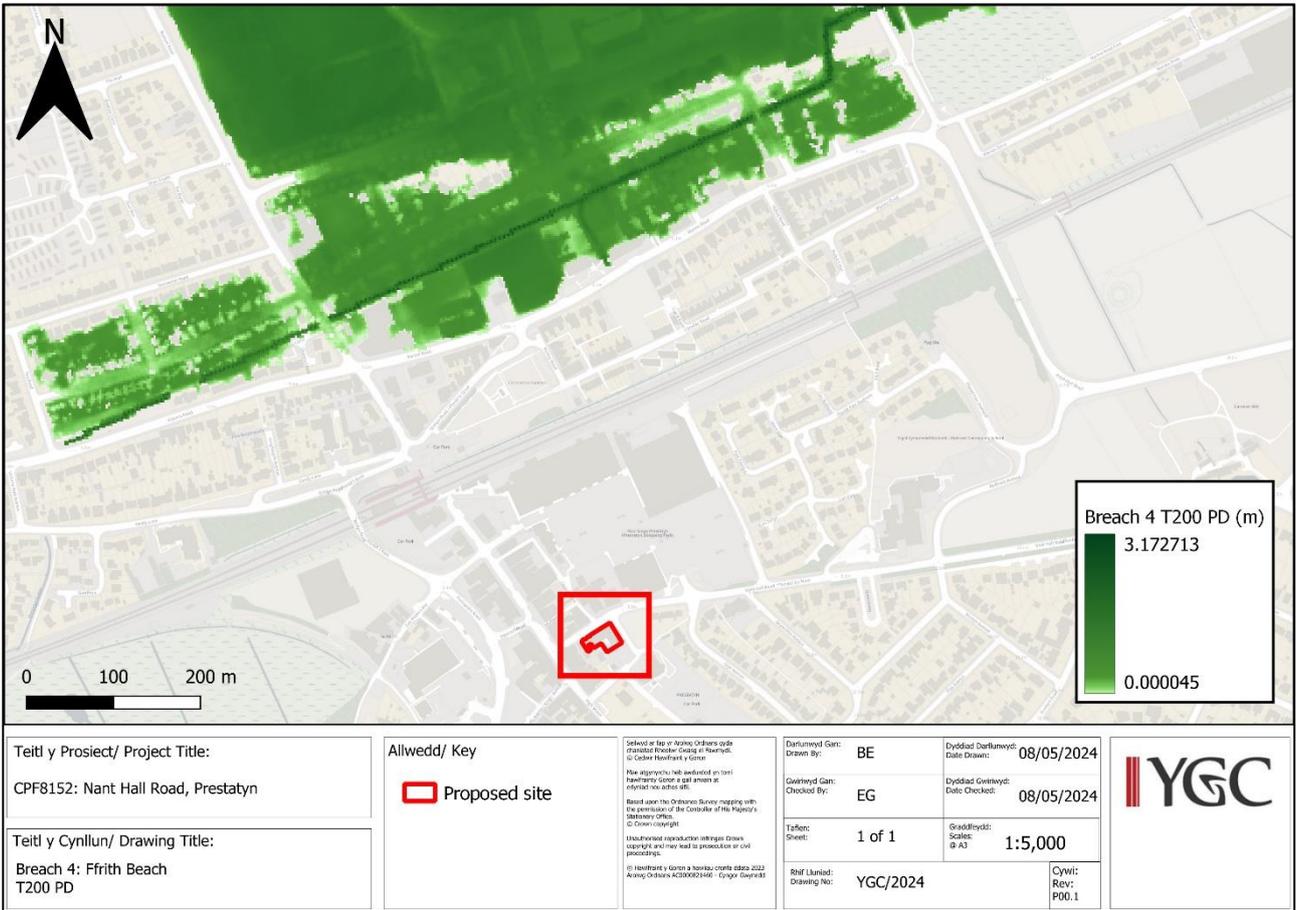


Figure 20: Breach 4 – Ffrith Beach T200 PD scenario

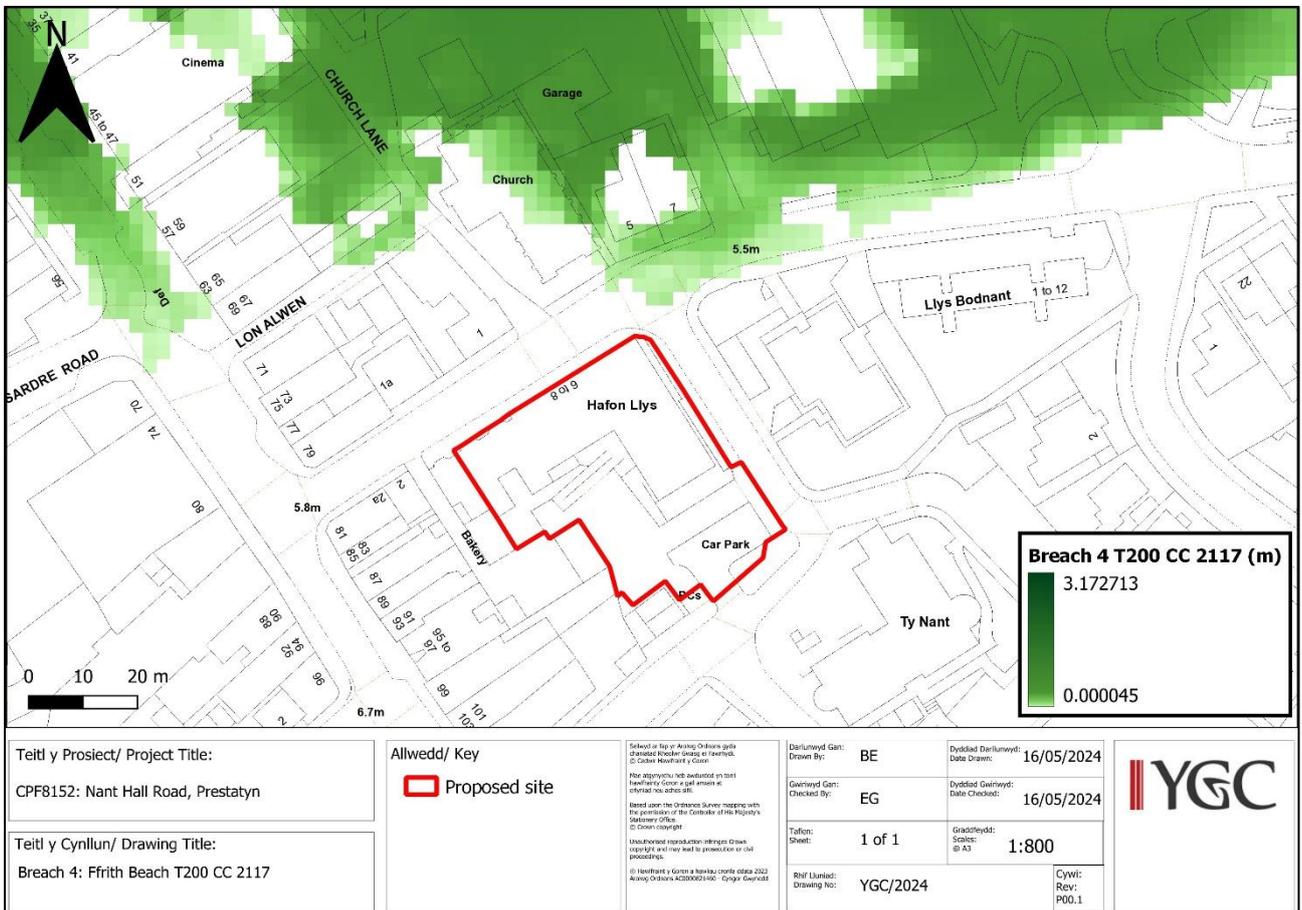


Figure 21: Breach 4 – Ffrith Beach T200 CC 2117 scenario



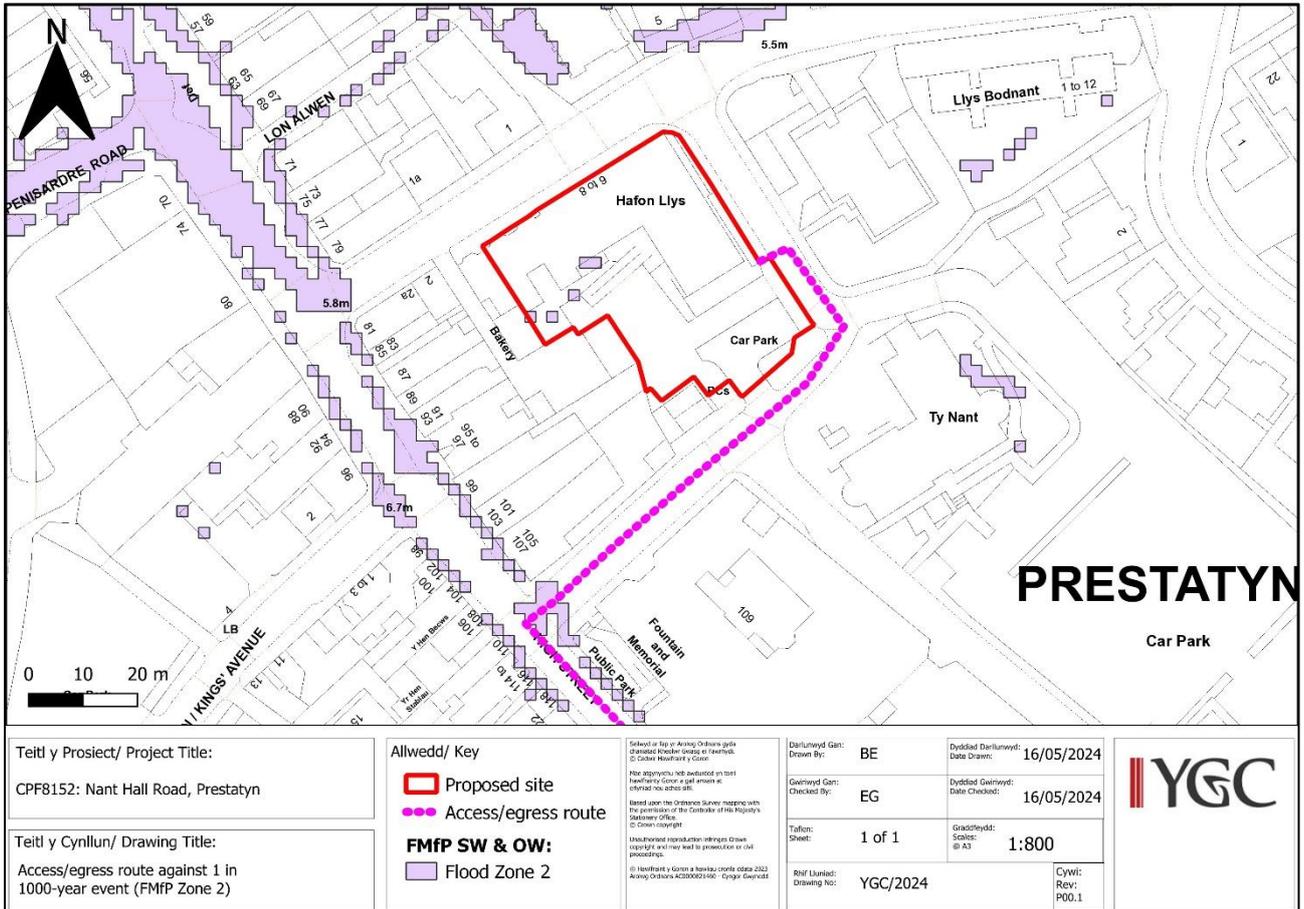


Figure 23: Access/egress route against 1 in 1000-year extreme event (FMfP Zone 2)

#### 4.7. Summary of flooding

To summarise, in the Defended T200 CC 2122 event, the site is shown to be flood free. The worst-case breach scenario (T200 CC 2117) also demonstrates that the site will also remain flood free and will not impair access and egress routes.

However, in the defended T1000 CC 2117 event, the most severe defended scenario, the model suggests that small sections of the site may flood to a maximum of 0.05 m based on the FFL being 150 mm above ground level.

**Table 1: Summary of flooding** - green demonstrating compliance with TAN15 and orange showing the only scenario where flooding occurs.

Scenario	Flood magnitude and sea level	Outcome	Nearest flood outline (m)	Access/Egress implications
Defended: Present day sea level	1 in 200	Dry	991	Clear
	1 in 1000	Dry	985	Clear
Defended: Climate change	1 in 200: 2122 Sea level	Dry	379	Clear
	1 in 1000: 2117 Sea level	0.05 m flood	0	Clear
Breach 4: Ffrith Beach, Prestatyn	1 in 200: PD	Dry	379	Clear
	1 in 200: 2117 Sea level	Dry	6.9	Clear

#### 4.8. Flood risk elsewhere

TAN15 stipulates that new developments should not increase flood risk elsewhere. As previously mentioned, the proposal is for the renovation and part re-construction of an existing development, with the redevelopment of the car park to the south. The additional construction will be constructed on already developed brownfield land (concrete/tarmac). Therefore, given the size of the development site and the relatively small increase in footprint, it is reasonable to conclude that the development would have a negligible impact on flood risk elsewhere.

## **5. Conclusions & Recommendations**

### **5.1. Conclusions**

This FCA has considered NRW's latest flood modelling in assessing the risk to the development; the main conclusions are:

- The proposed development lies almost completely within a tidal TAN15 defended zone
- The Defended T200 PD, T1000 PD & T200 CC 2122 scenarios demonstrate that the proposed development would be unaffected by floodwater. This demonstrates compliance with TAN15, section A1.14.
- For the worst-case breach scenario – Ffrith Beach - which follows NRW's latest breach guidelines (i.e. 50 m breach width), the site would be unaffected by floodwater in the T200 CC 2117 scenario. This demonstrates compliance with TAN15, section A1.14.
- The new development is at a low risk of flooding – with flooding only occurring in the extreme Defended T1000 CC 2117 event – maximum 0.05 m of flood depth at the building with FFL 150 mm above ground level. Section A1.15 of TAN15 notes that flooding up to 0.60m may be allowable during the T1000 event, therefore this demonstrates compliance with TAN15, section A1.15.
- Flood free access/egress is available in all T200 and T1000 tidal scenarios when considering a development lifetime of 100 years. This includes the T200 CC 2117 Ffrith Breach. This demonstrates compliance with TAN15, section A1.15.
- The proposed development will occupy a similar footprint to the existing building, and the additional construction will be developed on an existing impermeable surface. It can therefore be assumed there will be negligible risk of flooding elsewhere. This demonstrates compliance with TAN15, section A1.12.

### **5.2. Recommendations and mitigation measures**

- The building's finished floor levels (FFLs) should be raised as high as possible above ground level – thereby providing betterment and reducing the building's vulnerability to flooding. As a minimum, ensure the FFL's are constructed 150 mm above ground level as proposed, to ensure that the development remains compliant with Section A1.15 during an extreme T1000 CC 2117 event. According to the ESL, the development would flood to a maximum of 0.05 m. Section A1.15 of TAN15 notes flooding up to 0.60m may be allowable during this event.
- It is important that site management, staff and residents are made aware that the building is within a flood risk area. They should familiarise themselves with the evacuation routes from the site in the event of a flood. An evacuation procedure should be put in place in the event of a severe flood warning being issued for the area by NRW. This is of particular importance due to the proposed use as holiday lets, where occupants may not be familiar with the area.
- The site management should regularly review their evacuation procedure and should sign up for NRW's free flood alert service. This can be done via NRW's website. Due to the more predictable nature of tidal flooding, a warning time of 6-12 hours is usually provided, allowing time for contingency measures / evacuation.

- As part of the redevelopment of the building, where possible the opportunity should be taken to increase resilience to flooding. For instance:
  - Raised electrical sockets (minimum 600 mm above FFL)
  - Waterproof rendering, plaster, and flooring
  - Seals to all incoming services
  - Fit non-return valves on drains and pipes.
  - Replace wooden floors and carpets with tiled or flood-resilient flooring
  - Water-resistant air bricks
  - The use of PPL (Property Level Protection) measures such as door flood gates