

**RECEIVED**

*By Liv Rickman at 10:31 am, Oct 15, 2024*

**PARKSIDE. THE PARADE.  
HUGH TOWN. ST MARYS.  
ISLES OF SCILLY. TR21 0LP**

**PROPOSED REPLACEMENT OF GARAGE,  
ADDITION OF EXTENSION, INTERNAL  
ALTERATIONS AND REMOVAL OF RENDER  
TO FRONT ELEVATION**

FLOOD RISK ASSESSMENT



**PARKSIDE. THE PARADE.  
HUGH TOWN. ST MARYS.  
ISLES OF SCILLY. TR21 0LP**

**PROPOSED REPLACEMENT OF GARAGE, ADDITION  
OF EXTENSION, INTERNAL ALTERATIONS AND  
REMOVAL OF RENDER TO FRONT ELEVATION**

FLOOD RISK ASSESSMENT

<b>Report No.</b>	<b>Issue Detail</b>	<b>Originator</b>	<b>Date</b>	<b>Checked by</b>	<b>Date</b>
J-3391	01	TS	03/04/2024	JM	03/04/2024

**For:** Mr and Mrs Gannon  
Fiddlers Green  
St Newlyn East  
Newquay  
Cornwall  
TR8 5NJ

**Job No:** J-3391  
**Date:** April 2024  
**Edition:** 01

# CONTENTS

<b>Item</b>	<b>Content</b>	<b>Page No.</b>
1.0	Introduction	1
	1.1 Site Description	2
	1.2 Existing Usage	2
	1.3 Proposed Usage	2
	1.4 Flood Risk Context	3
	1.5 Existing Flood Defences	3
2.0	Flood Mechanisms	5
	2.1 Groundwater Flooding	5
	2.2 Overland Sheet Flow	5
	2.3 Flooding from Reservoirs	8
	2.4 Fluvial Flood Risk	8
	2.5 Flooding from Sewers	8
	2.6 Tidal/Wave Flooding	8
	2.7 Historic Flooding	8
3.0	Detailed Consideration of Tidal and Wave Overtopping Flooding	9
	3.1 Tidal Flood Levels	9
	3.2 Flooding from Wave Overtopping	9
4.0	Access/Egress	12
5.0	Flood Risk Changes as a Result of Development	14
6.0	Mitigation Measures	15
	6.1 General Mitigation Measures	15
	6.2 Flood Evacuation Plan	16
7.0	Flood Risk Policy	18
8.0	Summary	19

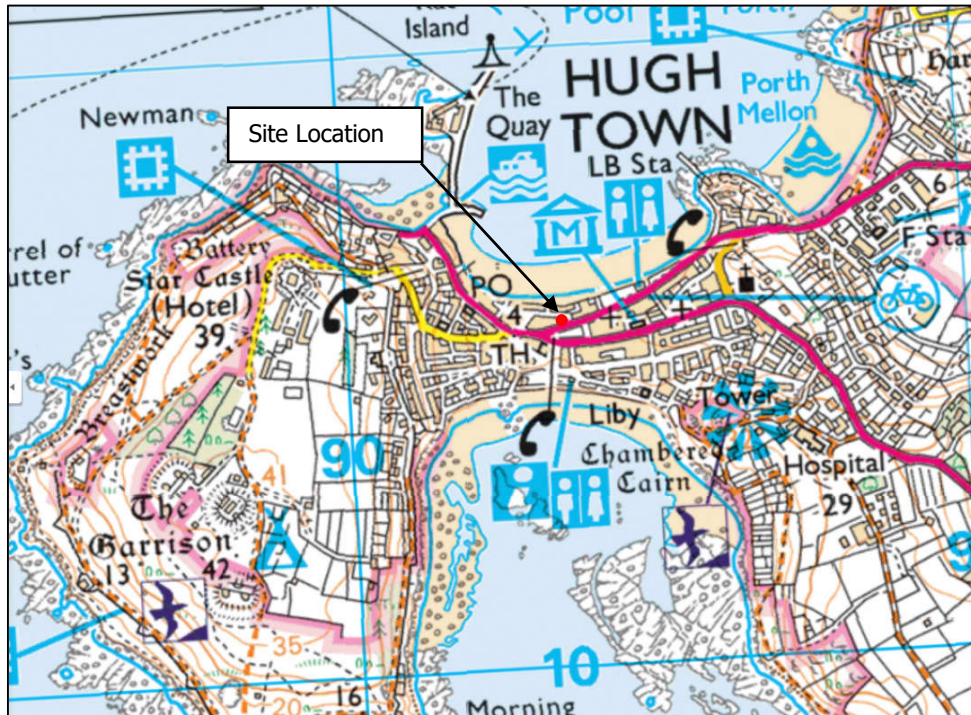
## APPENDICES

Appendix A	Site Topographic Survey and Development Proposals
Appendix B	Environment Agency Information

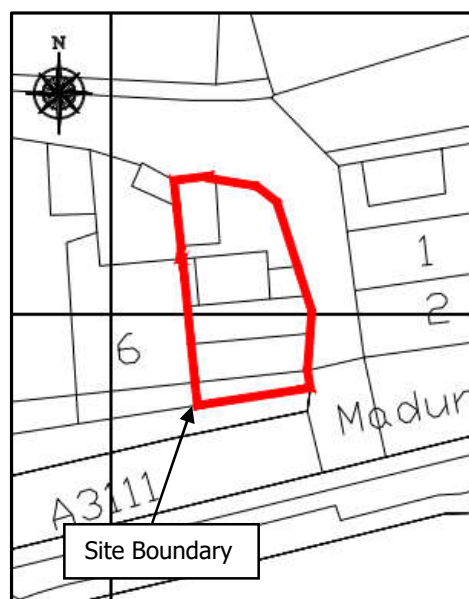
## 1.0 INTRODUCTION

Mr and Mrs Gannon are proposing to undertake a range of works to an existing residential dwelling known as Parkside which is located within the Parade, Hugh Town, St. Marys in the Isles of Scilly (IoS).

The location of the site is shown in **Figures 1 & 2** below.



**Figure 1 – Location Plan**



**Figure 2 – Indicative Site Boundary**

**Engineering and Development Solutions Ltd**

Registered Office: Engineering and Development Solutions, Unit E4, Threemilestone Ind Estate, Truro, Cornwall, TR4 9LD  
 Registered in England and Wales No. 10467487  
 Phone 01872 306311 Mobile 07973816457

The site lies close to/within Flood Zone 3 according to the Environment Agency's "Flood Maps for Planning". Footnote 55 of paragraph 167 of the National Planning Policy Framework requires a site specific flood risk assessment (FRA) to be provided for all development in Flood Zones 2 and 3; therefore, any proposal to redevelop the site will need to be supported by an FRA.

In addition to this, Policy SS7 of the Council of the Isle of Scilly Draft Local Plan ordinarily requires a suitable and proportionate Flood Risk Assessment (FRA) for coastal developments when the level of the development is set at an elevation of 5m AOD or lower. As the site is situated on land below the 5m AOD contour, then an FRA is required.

In order to satisfy this requirement, Engineering and Development Solutions (EDS) have been commissioned by the applicant to undertake an FRA for the site to assess the potential flood risks at the subject site. This report comprises the FRA for the proposed development, in line with Policy SS7 of the IoS Council, National Planning Policy Framework (NPPF) and the Planning Practice Guidance (PPG).

### **1.1 Site Description**

The site comprises an existing end of terrace dwelling known as Parkside which is situated in Hugh Town, St Marys, IoS; the approximate Ordnance Survey Grid Reference for the site is SV 90355 10548. The boundary of the site follows the curtilage of the existing premises. A topographic survey of the site is provided within **Appendix A**.

The building fronts onto Lower Strand road on the south elevation with Parade Park lying beyond. The Thoroughfare access road runs around the east and north boundaries of the site and the west extent is defined by the boundary with the adjacent dwelling at No.6. There is a lean to garage situated to the rear of the building with vehicular access via the Thoroughfare. Pedestrian access into the premises is via the front door facing onto Lower Strand road and there is also a side entrance off the Thoroughfare.

The terraced element of building is two storey with living accommodation on the ground floor and two bedrooms on the first floor. Kitchen and bathroom facilities are accommodated within a rear single storey extension and there is a yard area and single garage to the rear (north) of the main building.

Parkside is set within a predominantly residential area of the town on the isthmus that links the Garrison side of the town with the main part of the island to the east. In view of its location on the isthmus, the site is bounded by Town Beach and St. Marys Pool/Harbour to the north and by Porthcressa Beach to the south.

The ground floor of the premises is set at an elevation of 3.99m AOD and the level of the Lower Strand immediately outside of the house is about 3.91m AOD.

### **1.2 Existing Usage**

The building currently comprises a two bedroom domestic dwelling; a drawing showing the layout of the current accommodation is provided within **Appendix A**.

### **1.3 Proposed Usage**

The development proposal comprises the following principal elements of work: replacement of the rear garage with a single storey extension linking with the kitchen area of the main dwelling; the provision of additional space at first floor level by the implementation of a dormer extension; provision of an additional toilet facility at ground floor level and internal configuration of the terrace section of the property including relocation of the internal staircase.

#### **Engineering and Development Solutions Ltd**

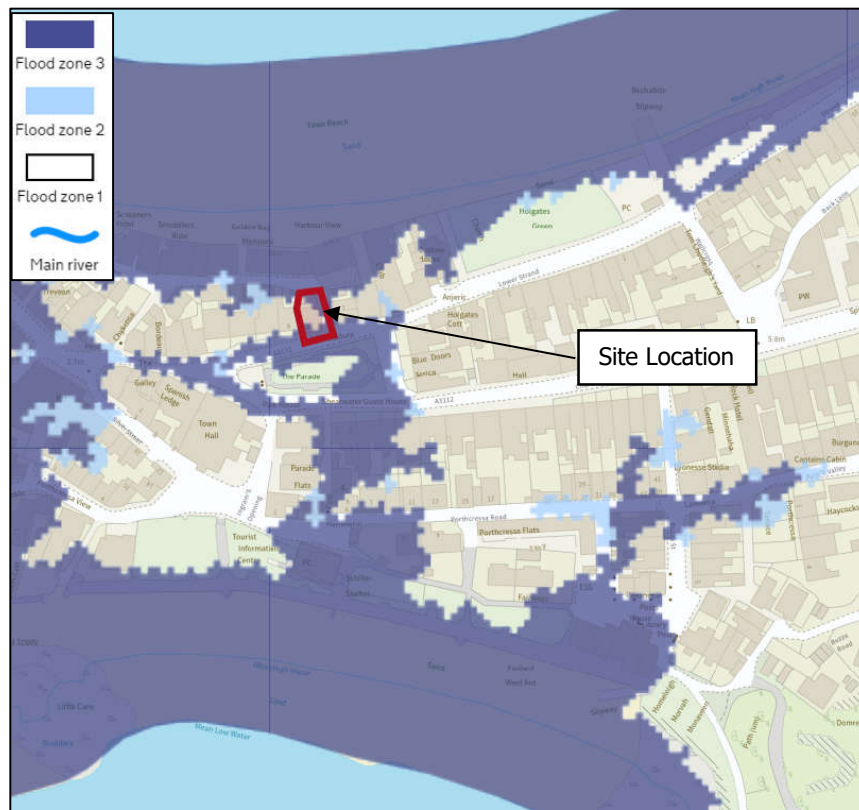
It is also proposed to remove the existing render on the front elevation of the building to reveal the natural stone masonry beneath.

It is noted that the proposed works do not significantly affect the existing sleeping arrangements within the dwelling and the number of bedrooms will remain unchanged. The proposed work will also not act to alter the flood risk vulnerability classification of the premises.

### 1.4 Flood Risk Context

The site is set at relatively low elevation and situated close to tidal waters within St Mary Harbour and Porthcressa Bay; as such there is potential for the site to be effected by tidal inundation.

Reference to the Environment Agency (EA) indicative flood map in **Figure 3**, below and in **Appendix B**, shows that the site is located close to/within Flood Zone 3.



**Figure 3 – Environment Agency Flood Map for Planning**

It is evident that the site may be at risk of flooding from tidal/wave overtopping effects and this is considered further within **Sections 2** and **3** of the report.

### 1.5 Existing Flood Defences

Product 4 information provided by the EA does not indicate the presence of any flood defences benefitting the site. In addition reference to flood extent mapping provided by the EA shows minimal difference between the defended and undefended flood extents indicating that only limited benefit is derived from flood defences.

Notwithstanding the lack of flood defence information provided by the EA, it is recognised that coast protection works have been undertaken along Porthcressa Beach comprising a flood

defence wall and revetment with raised ground levels behind to provide a minimum level of protection of about 6.25m AOD. It is understood that this level of protection may be improved in the future with the planned introduction of demountable flood defence structures in low lying flow routes in this area.

These defences will act to protect the site from tidal/wave overtopping water approaching the site from the direction of Porthcressa Bay, however, they will be of no benefit to the situation where the sea approaches the site from St Marys Pool/Harbour, which is the most direct route for tidal inundation. It is not apparent if the future flood defence structures will also be installed within the flow routes connecting the site with St Marys Pool ; they are not known to be in place at the time of writing this report. Due to the absence of any meaningful existing defences between the site and St Marys Pool then flood defences are not considered to play a significant role in protecting the subject site and as such an undefended flood case is considered within this assessment.

## 2.0 FLOOD MECHANISMS

Several possible flooding mechanisms have been considered at the site and are discussed below.

### 2.1 Groundwater Flooding

Groundwater flooding is linked to the presence of aquifers and the ability of the underlying geological strata to bear water. Flooding occurs when water levels in the ground rise above surface elevations. The Environment Agency/BGS maps have been consulted to establish the aquifer designations of bedrock and superficial deposits underlying the site; the aquifer designation is classified as a **Secondary A** aquifer.

This type of aquifer is defined as a permeable layer capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

It is unlikely that groundwater would issue to the surface at this site as it is located in close proximity to the sea which will allow groundwater to drain down to the local sea levels. In addition, the nearby ground levels are similar to that of the site and provide limited opportunity for excessive water to build up and create high groundwater levels. As such, flooding from groundwater is not considered to represent a meaningful risk to the site and this form of flooding is discounted from further consideration.

### 2.2 Overland Sheet Flow

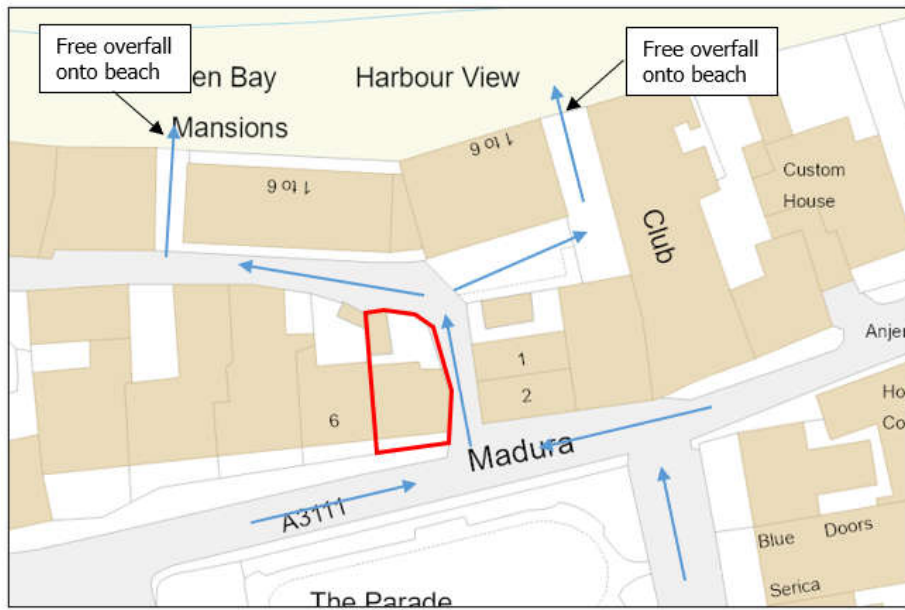
The site is situated on a relatively flat isthmus area with the local topography falling to the north towards Town Beach; the ground profile rises in all other directions. The immediate catchment is primarily urban and impermeable in nature becoming more permeable in the upper catchment. There is potential for surface water running off these areas to move towards the site if the capacity of the intervening surface water drainage system is exceeded.

It is anticipated that the local road system will act as a surface water conveyance system for exceedance flows and as such flow would approach site along The Parade and Lower Strand from the west, and along Church Street and Lower Strand from the east. Church Street would also act to intercept overland flows from the higher area to the south along Porthcressa Road.

Flow would move down the Thoroughfare along the east boundary of the site and then discharge onto Town Beach through several clear openings between the buildings that front onto the beach. By way of example there is a flow route onto the beach to the west side of Golden Bay Mansions and to the east of 1 to 6 Harbour View ; see **Figure 4** below. These routes provide a clear and uninterrupted discharge onto the beach with a free overfall. As such the water depth at the site arising from overland flow is likely to be set by backwater effects at the discharge onto the beach and the depth of flow in the alleyways between the buildings.

There would be no “tidal locking” of the system as there is a free overall available onto the beach. At times of extreme high tide when the seawater level exceeded the elevation of the overfall onto the beach, then the water level at the site would be set by the level of the tide and the flood mechanism would in effect become tidal after this point rather than surface water related, however, there potentially could be a miniscule raising in localized seawater levels as the surface water disperses and spreads out over the seawater.





**Figure 4 – Plan Showing Predicted Overland Flow Routes**

The GOV.UK map for the risk of surface water flooding has also been consulted to further assess the risk of flooding from overland sources; an extract is produced in **Figure 5** below. The mapping confirms the predicted flood route along the road system with a discharge onto Town Beach through the alleyways between the buildings facing the beach.



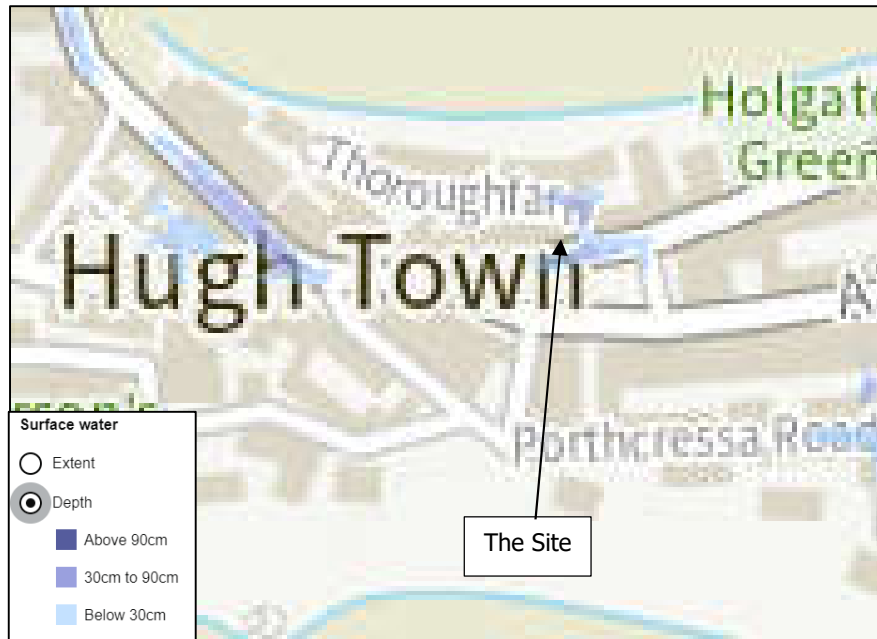
**Figure 5 – Extract From GOV.UK Risk of Surface Water Flooding Map**

Considering the Medium Risk Event (1% Annual Event Probability (AEP)) in **Figure 6**, the depth of flooding in the road outside of the site is predicted to be between 0.3m and 0.9m. Taking a mean water depth of 0.6m and a typical road level of 3.90m AOD, then this equates to a water surface elevation of 4.50m AOD for the surface water flooding at the site. This is considered to

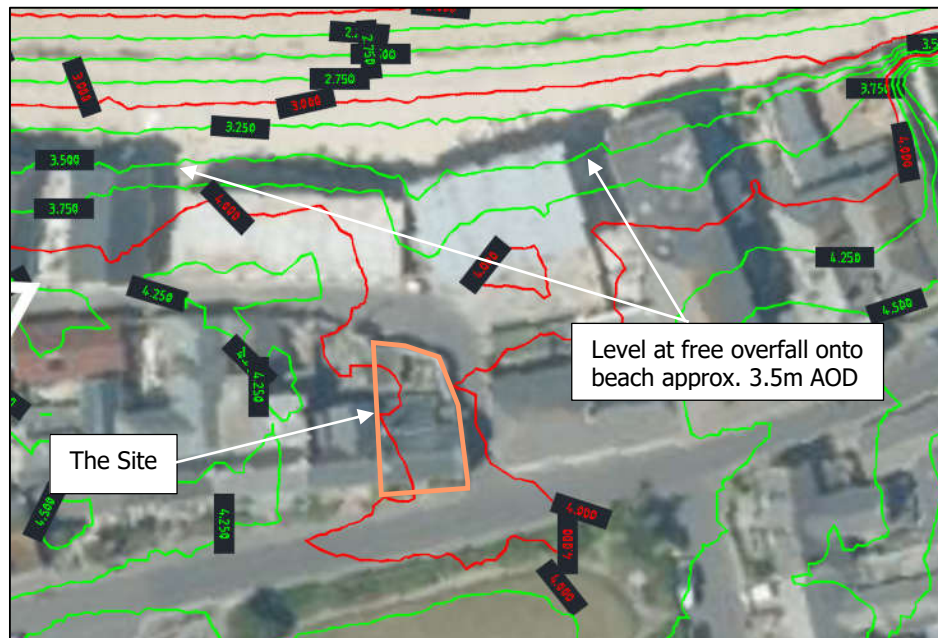
**Engineering and Development Solutions Ltd**

Registered Office: Engineering and Development Solutions, Unit E4, Threemilestone Ind Estate, Truro, Cornwall, TR4 9LD  
 Registered in England and Wales No. 10467487  
 Phone 01872 306311 Mobile 07973816457

be an onerous assessment given that the level of the free overfall onto the beach just downstream of the site is about 3.50m AOD. Notwithstanding this, a surface water flood level of 4.50m AOD is adopted for the purposes of this assessment on a precautionary basis. The GOV.UK map show flow velocities to be generally less than 0.25m/s for this event.



**Figure 6 – Extract From GOV.UK Risk of Surface Water Flooding Map for 1%AEP Event**



**Figure 7 – Plan Shopping LIDAR Contour Levels in Vicinity of Site**

**Engineering and Development Solutions Ltd**

Registered Office: Engineering and Development Solutions, Unit E4, Threemilestone Ind Estate, Truro, Cornwall, TR4 9LD  
 Registered in England and Wales No. 10467487  
 Phone 01872 306311 Mobile 07973816457

### **2.3 Flooding from Reservoirs**

The GOV.UK map for risk of flooding from reservoirs has also been consulted to assess risks from this form of flooding. The map shows no risk of flooding from such features.

### **2.4 Fluvial Flood Risk**

There are no significant watercourses near or upslope of the site. In consideration of this, flooding from fluvial sources is not considered to represent a meaningful risk to the site and this form of flooding is discounted from further consideration.

### **2.5 Flooding from Sewers**

There is potential for combined sewage effluent to be issued to the surface from manhole covers in the road if the system became blocked or hydraulically overloaded for any reason.

Should combined sewage effluent be issued to the surface for any reason then the subsequent flow regime would be similar to the overland flow situation as outlined above in **Section 2.2**, however, flow depths are likely to be substantially less and flow would be retained within the kerb height on the road.

In consideration of this, it is concluded that the site is at low risk of flooding from sewerage.

### **2.6 Tidal/Wave Flooding**

The site is located in close proximity to the tidal waters of St Marys Pool and Porthcressa Bay. Due to the relatively low-lying elevation of the site and the proximity to the sea, there is a risk to the site from tidal/wave overtopping flooding. This potential form of flooding is therefore considered in more detail in **Section 3** of the report.

### **2.7 Historic Flooding**

The Environment Agency have provided information regarding historic events of flooding within the area as part of the Product 4 data request.

Historic flooding is shown to have occurred in the vicinity of the site; specifically it is noted that the site was subject to flooding from the sea by overtopping of defences on 15<sup>th</sup> November 2020 though no further details are given. Presumably this was overtopping of the Porthcressa beach defences.

Other flooding is mentioned in the general area in the EA records and flooding of the Throughfare is recorded due to wave overtopping on 3<sup>rd</sup> January 2018.

The Isle of Scilly Preliminary Flood Risk Assessment Report May 2011 records no evidence of past flooding to the site from surface water or ground water sources. The IoS Local Flood Risk Management Strategy March 2017 does not include any records of property flooding for the site locality. The Defra Isles of Scilly Water Interests Survey Report on Flood Defences produced by ARUP in 2011 does note there have been instances of flood water ponding in the Throughfare to the north of the site following high tides. Although only one instance of property flooding has been recorded at a property fronting Town Beach due to the installation of a basement window located at a low level. The report notes the north side of Hugh Town, where the site is located, is less susceptible to storm flooding than the Porthcressa side of the isthmus. This is due to the sheltered nature of the Town Beach. High tides coinciding with a storm surge pose the highest risk to the site.

Overall it is concluded that the site has most likely been subject to some minor historic flooding due to tidal/wave overtopping effects but exact details are not known

**Engineering and Development Solutions Ltd**

### 3.0 DETAILED CONSIDERATION OF TIDAL AND WAVE OVERTOPPING FLOODING

The EA have provided flood information for the area based upon their Isles of Scilly St Mary's Model (2019) which assesses the risk of flood inundation from extreme sea levels and wave overtopping. The EA have also provided information on extreme tidal level at St Marys in connection with previous projects undertaken by EDS in Hugh Town.

A copy of the information recently received from the EA is provided in **Appendix B**.

#### 3.1 Tidal Flood Levels

Considering tidal sea levels, the EA have previously provided present day still water tidal levels for St Mary's , as outlined below:

- 1 in 200-year tidal level – **3.84m AOD**
- 1 in 1,000-year tidal level – **3.96m AOD**

The EA tidal flood levels do not account for sea level rise due to climate change; an allowance for climate change over the lifetime of the development (100 years for a residential property) should be undertaken. Information on climate change allowances has been outlined by the Environment Agency in the guidance entitled 'DCIS Climate Change Allowances- Strategic and Development Planning'. When accounting for climate change over the lifetime of a residential development the net sea level rise is taken to be 1.45m over the next 100 years. Therefore, the undefended 1 in 200-year still water tidal level with an allowance for climate change is taken to be **5.29m AOD**.

Comparing this to existing site levels taken from the topographic survey (**Appendix A**), the elevation of the ground floor of the building at **3.99m AOD** and the minimum level on the road outside of the site is about **3.90m AOD**. It is therefore apparent that the ground floor of the building is set at an elevation above the present day 1 in 200 year still water tidal level and just above the 1 in 1,000 year still water tidal level.

On this basis, it is evident that the dwelling itself is not at risk of flooding from tidal water during still water conditions and on this basis would be classified as being in Flood Zone 1; this is largely in accordance with **Figure 3**. Notwithstanding this, sea levels can be elevated above still conditions by surge effects, wave action and other environmental and physical effects, so seawater flooding in the form of wave overtopping is considered further below in **Section 3.2**.

#### 3.2 Flooding from Wave Overtopping

The Isles of Scilly Model (2019) provides information on flood inundation resulting from extreme sea levels and wave overtopping. This information has been consulted to assess risks from this source. Both undefended and defended flood cases are provided but only the undefended case is considered here as it produces slightly more onerous flood depths than the defended case and therefore accords with the precautionary approach. The difference in water levels between the defended and undefended cases is typically only about 30mm in the present day case and there is no change in the climate change case.

Flood information is provided for a number of node points on the site as described in **Figure 8** below.



**Figure 8 – Environment Agency Model Node Points**

Considering the 1 in 200 (0.5% AEP) year present day undefended case, water depths and levels provided by the EA at key node points are as shown below in **Table 1**;

Reference Point	Water Depth (m)	Water Surface Elevation (m AOD)
Node 6	0.29	4.32
Node 7	0.29	4.32
Node 12	0.17	4.33
Node 13	0.31	4.30
Node 18	NoData	NoData
Node 19	0.10	4.14
Node 24	0.02	4.10
Node 25	0.09	4.11

**Table 1 – Summary of EA Flood Depths and Heights from IoS 2019 Model for Undefended 1 in 200 Year Case**

Note: 'NoData' for a scenario shows that the return period has been modelled but there is no flood risk for that return period for that location.

**Engineering and Development Solutions Ltd**

Registered Office: Engineering and Development Solutions, Unit E4, Threemilestone Ind Estate, Truro, Cornwall, TR4 9LD  
 Registered in England and Wales No. 10467487  
 Phone 01872 306311 Mobile 07973816457

With reference to **Table 1** above, the EA data suggests some flooding would occur on the site due to surge/wave topping effects. The maximum water surface elevation across the footprint of the site is 4.33m AOD indicating that still water conditions are elevated by up to about 0.49m due to surge/wave overtopping effects.

The maximum depth of flooding over the ground floor of the premises in this case would be about 0.34m and the maximum depth of flooding in the Lower Strand outside of the site would be 0.42m.

Considering the 1 in 200 (0.5% AEP) year undefended case with allowance for climate change, predicted water depths and levels at the node points are as shown below in **Table 2**. It is noted that the predicted water surface elevation (WSE) shown in **Table 2** have been modified from the EA values as the EA model allows for a 1.037m rise in sea level for climate change, while the current prediction is 1.45m.

The predicted water level at the site (Node 19) increases from 4.14m AOD to 5.13m AOD (0.99m) according to the EA's model arising from a 1.037m rise in the general sea level. Pro-rating this 0.99m rise in the ratio of 1.45m to 1.037m increases the predicted sea level under the climate change event to 5.52m AOD at node 19, or a rise of 0.39m. This increase in water surface elevation has been applied to all the EA climate change node points levels to determine the climate change situation for a 1.45m rise in sea level.

Reference Point	Water Depth (m)	Water Surface Elevation (m AOD)
Node 6	1.49	5.52
Node 7	1.49	5.52
Node 12	1.31	5.52
Node 13	1.54	5.52
Node 18	1.09	5.52
Node 19	1.40	5.52
Node 24	1.20	5.52
Node 25	1.51	5.52

**Table 2 – Summary of EA Flood Depths and Heights from IoS 2019 Model for Undefended 1 in 200 Year Case with Climate Change.**

Note: WSE based on EA value AOD plus 0.39m

The maximum depth of flooding over the ground floor of the premises in this case would be about 1.53m and the maximum depth of flooding in the Lower Strand outside of the site would be 1.62m.

Flow velocities are likely to be low in all cases due to the tidal nature of the flooding and pedestrians would be protected by direct wave effects by the action of the surrounding buildings.

**Engineering and Development Solutions Ltd**

Registered Office: Engineering and Development Solutions, Unit E4, Threemilestone Ind Estate, Truro, Cornwall, TR4 9LD  
 Registered in England and Wales No. 10467487  
 Phone 01872 306311 Mobile 07973816457

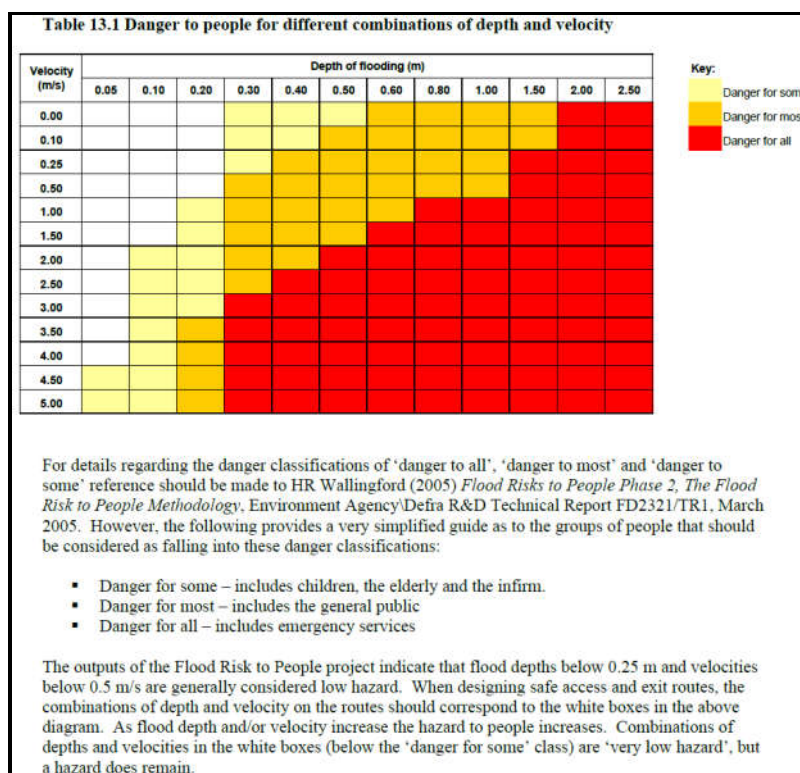
#### 4.0 ACCESS/EGRESS

Access and egress to the site is ordinary along the Lower Strand to the east or west depending upon the direction of travel.

Consideration of extreme seawater levels indicates that the Lower Strand could be flooded to a depth of 0.42m during a present day extreme event with surge and wave overtopping, increasing to a depth of 1.62m with the predicted effects of climate change.

In all cases the upper floor of the premises would be at least a metre above any flood level and would act as a safe haven. Tidal flooding would be of a finite duration and would subside after about 4 hours in the worst case.

Residents should avoid moving through flood water unless this is absolutely necessary, however, where this cannot be avoided, risks can be assessed by reference to Table 13.1 of Defra/EA R&D Technical Report FD2320/TR2, reproduced below as **Figure 9** below.



**Figure 9 Extract from Defra/EA R&D Technical Report FD2320/TR2 – Table 13.1**

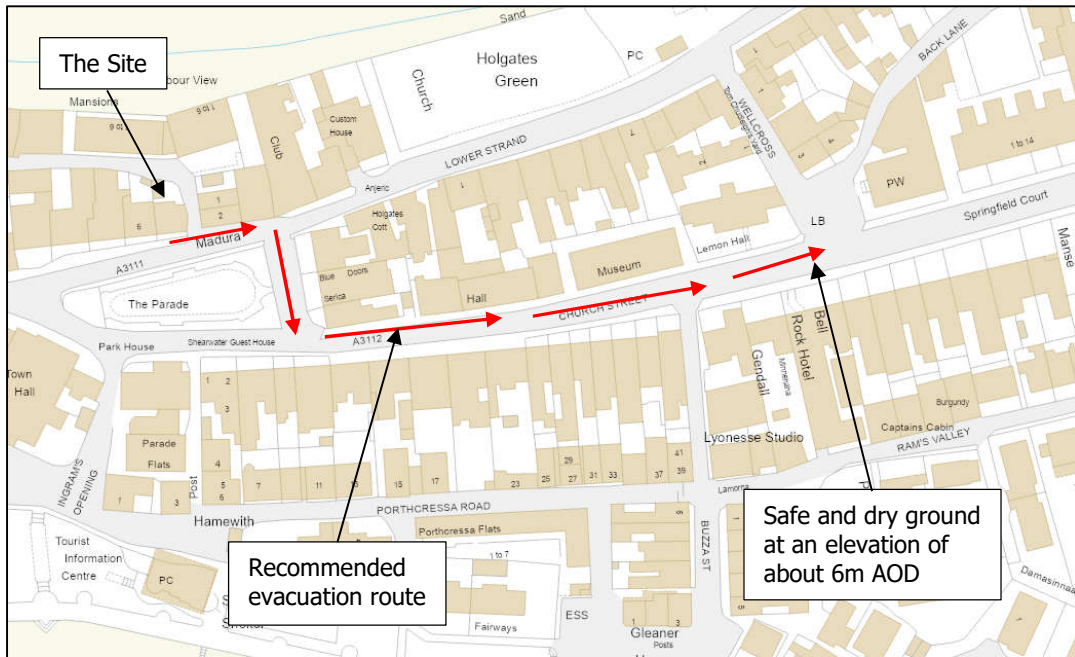
The hazard classification for moving through the flood water in a present day extreme event with surge and wave overtopping would be *danger for some* which includes children, the elderly and the infirm.

In the long term scenario with the predicted effects of climate change the hazard classification for moving through the flood water would be *danger for all* which includes the general public and emergency services.

Should persons wish to evacuate the site in the event of flooding, then an evacuation route across Lower Strand onto Church Street and then east along Church Street is recommended. Safe and dry conditions will be available when the ground reaches an elevation of about 6m

**Engineering and Development Solutions Ltd**

AOD . This is approximately at the junction with Wells Cross, which is at a distance of about 190m from the site over relatively flat ground.



**Figure 10 Plan Showing Recommended Site Evacuation Route**

It is noted that tidal flooding of this nature is readily predictable and thus should give residents adequate time to prepare for/undertake an evacuation of the premises



## **5.0 FLOOD RISK CHANGES AS A RESULT OF DEVELOPMENT**

Developments have the potential to increase flood risk to properties down slope of the site through the introduction of impermeable areas on previously permeable areas. In this case, no additional impermeable area is proposed within the development so there would be no increase in runoff rates or volumes. As such, existing surface water drainage arrangements may be retained as for the current scenario with no increase in flood risk.

The proposed development will not act to redirect present day flow routes or act to infill the flood plain as the footprint of the current built development at ground level is largely retained.

The proposed development does not act to increase occupancy levels within the property or alter the elevation or risk to sleeping accommodation within the house. The current ground floor level of the premises will not be altered and the flood risk vulnerability classification for the site will not be affected by the proposed works.

The proposed development does not alter access and egress routes to the site.

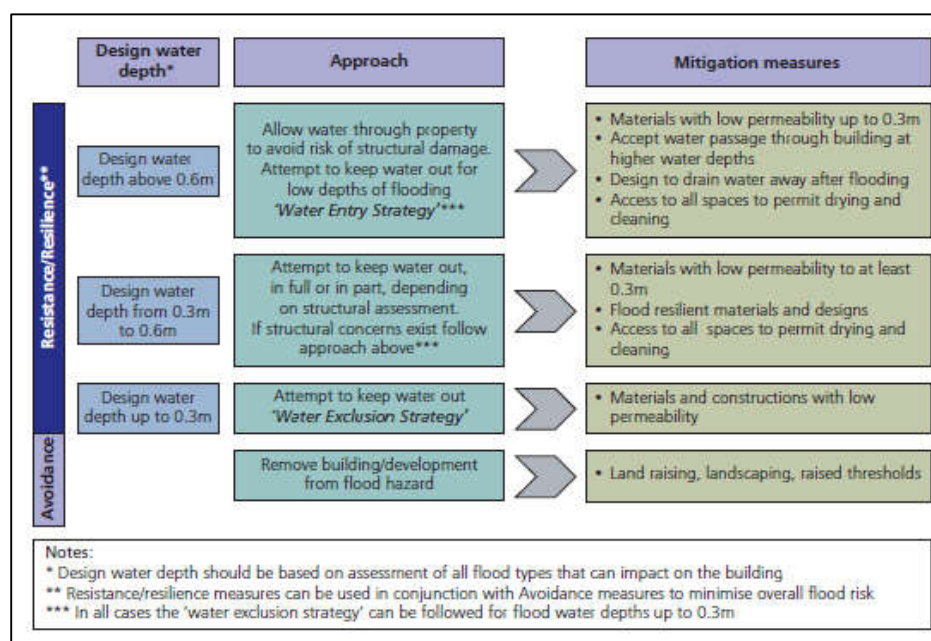
In consideration of the above it is concluded that the proposed development will not increase flood risks within the property or elsewhere.

## 6.0 MITIGATION MEASURES

### 6.1 General Mitigation Measures

The following measures should be adopted within the development to offer the best degree of mitigation to the site in flood risk terms within the constraints of the current site.

- Where practicable all new elements of the building structure to height of 2.13m above ground floor slab level (6.12m AOD) should be made flood resilient. This is the approach laid out in *Improving the Flood Performance of New Buildings* published by the government. An extract from this document is reproduced in **Figure 2** below.



**Figure 11 – Design Flow Chart For Flood Strategy**

- Flood resilience measures should be undertaken in accordance with BS 85500:2015 *Flood resistant and resilient construction. Guide to improving the flood performance of buildings*. Measures to be undertaken in this regard will comprise the below.
- Ensure that the finished floor level of any new ground floor is now lower than th existing floor level of the main terrace (3.99m AOD)

#### Passive Features

- Wall construction –Structural masonry walls to be left undisturbed.
- Floor finishes – The ground floor of the building to be provided with a hard floor finish to allow easy drying out and clearance following a flood event. No new wood or chipboard to be used in the flooring.
- New wall finishes – internally will be Parex acrylic render which is resistant to flood damage.
- Electrics – Where practicable electrical circuits to be elevated at 2.13m above floor level and fed from above. Alternatively ground based electrical installations should be designed to withstand flooding.

#### Engineering and Development Solutions Ltd

- Service entry points – Entry points are to be installed as high as reasonably practical. Where entry points are provided at low level these will be fully sealed.
- Woodwork – Door frames, timber studs, skirting etc. to be appropriately treated for resistance to decay and swelling in accordance with BS5268: Part 5:1989 for structural timber and BS1186 Part 1:1991 for joinery.
- Insulation – Wall insulation in cavities (where used) to be closed cell insulation material.

### Active Features

- Demountable Flood Barriers – fitted to ground floor access doors. These barriers/doors provide protection to a height of 600mm and as such will prevent water entry for flood events over the medium term.
- Flood barriers can be stored in the ground floor storage area and should be deployed if a flood warning is received from the Environment Agency/Council/Emergency Services.

## **6.2 Flood Evacuation Plan**

A detailed Flood Evacuation Plan should be prepared as part of the development; this will become particularly relevant with the onset of sea level rise arising from climate change. This plan should describe how residents at the property will be managed when tidal flooding is expected. As a minimum it should address the following items:

- Describe how tide levels and sea conditions will be monitored and when action will be triggered; predicted water levels of 3.4m and 3.7m AOD are suggested as early trigger thresholds . The plan should include proposals for monitoring local radio, monitoring the EA's website and keeping in contact with the IoS Council. In this regard the IoS Local Flood Risk Management Strategy notes that flood warning information will be disseminated by the Council by the following means:
  - Council website.
  - Community Message Board.
  - Tourist Information Office.
  - Town Hall.
  - Radio Scilly.
  - Posters in various locations.
  - Where deemed appropriate – door knocking in specific vulnerable areas.
  - Direct to IOS Fire and Rescue Service.
  - General flooding advice is provided on the Council website and Z-Cards have been produced and distributed to all households giving information
- Describe proposals as to how residents will be informed about flooding risks, mitigation measures and emergency access routes and how they will be informed when the Plan is in place.
- Describe how and when any vehicles associated with the premises will be moved to higher ground
- Describe how and when flood barriers will be deployed
- Describe how the risks will be deemed to have subsided to normal levels and how this will be communicated to residents

### **Engineering and Development Solutions Ltd**

Registered Office: Engineering and Development Solutions, Unit E4, Threemilestone Ind Estate, Truro, Cornwall, TR4 9LD  
 Registered in England and Wales No. 10467487  
 Phone 01872 306311 Mobile 07973816457

- f. Register with the Environment Agency’s countrywide flood warning system in as far as it covers the Isle of Scilly. Flood warnings are issued by phone, text or email. Registration to receive warnings can either be by phone on 0345 988 1188 or online at [www.gov.uk/sign-up-for-flood-warnings](http://www.gov.uk/sign-up-for-flood-warnings)



**FLOOD ALERT**

**Amber Alert – Significant tidal overtopping is possible.  
(3.4m AOD)**

- Monitor flood warnings and advice issued by the Environment Agency, IoS Council, the Emergency Services and local radio
- Monitor sea conditions in the Pool
- Prepare to implement Flood Evacuation Plan



**FLOOD WARNING**

**Warning - Significant tidal overtopping is expected.  
(3.7m AOD)**

- Continue to monitor flood warnings and weather/tide conditions
- Put Flood Evacuation Plan into action
- Deploy flood barriers
- Inform affected persons that flood contingency plan is in force



**SEVERE FLOOD WARNING**

**Severe - Dangerous level of tidal overtopping is expected  
(3.9m AOD)**

- Continue to monitor flood warnings and weather/tide conditions
- Continue to enforce Flood Evacuation Plan and monitor effectiveness
- Advise persons when tide/weather conditions have subsided to safe levels and that normal operation is resumed
- Advise persons of Flood Contingency Plan being implemented again during next tidal cycle

If a Flood Alert is issued then the egress and access route outlined in **Section 4.0** of the report should be adopted until the Flood Alert is withdrawn.

## 7.0 FLOOD RISK POLICY

It has been demonstrated that the site is located within Flood Zone 1 on the basis of present day still water tidal levels but would be regarded to be within Flood Zone 3 when considering the effects of storm surge and climate change. With reference to Annex 3 of the National Planning Policy Framework (NPPF) the development would be classified as “More Vulnerable” in terms of its flood vulnerability classification. However it is noted that a “More Vulnerable” form of use already applies to the site and that the flood risk vulnerability classification or flood risk elsewhere will not be altered by the proposed works.

Referring to Table 3 of the NPPF technical guidance document, **Figure 12**, below, a ‘More Vulnerable’ development within Flood Zone 3 would be classified as appropriate development in Flood Zone 3 subject to the Exception Test being applied. However, the application would not be subject to a sequential test or an exception test as it is a minor development associated with an existing building with no change in its flood vulnerability classification.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	x	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	x	x	x	✓*

**Key:**  
 ✓ Development is appropriate  
 x Development should not be permitted.

**Figure 12 – Planning Practice Guidance (PPG) Table 3**

The application should still meet the requirements of a site-specific flood risk assessment as is presented here.

Advice given for minor developments states ‘Make sure the floor levels are either no lower than existing floor levels or 300 millimetres (mm) above the estimated flood level.’ If they are not, ask your local planning authority if you also need to consider extra flood resistance and resilience measures.’ As stated within the guidance for flood risk assessments standing advice.

## 8.0 SUMMARY

This development proposal at Parkside comprises a range of works including replacement of the rear garage with a single storey extension ,the provision of additional space at first floor level by the implementation of a dormer extension, provision of an additional toilet facility at ground floor level and internal configuration of the terraced section of the property.

The proposed work will not introduce any further sleeping accommodation into the dwelling nor encourage additional people to live at the property compared to the existing situation. The flood risk vulnerability classification of the premises will therefore not be effected. It has also been demonstrated that the proposed works will not increase flood risk elsewhere.

The flood risk assessment has confirmed that the site is currently in Flood Zone 1 on the basis of still water tidal levels ,however, it would be considered to be partly with Flood Zone 3 when the effects of storm surge and wave overtopping are considered. The site will also move into Flood Zone 3 over the lifetime of the development with the predicted effects of climate change. Current flood defence measures provide very limited benefit to the site and would provide no benefit over the longer term.

In addition to tidal flooding, there is also a risk of surface water flooding from exceedance flow running past the site and onto Town Beach .

A summary of predicted flood level and depths for the site is provided below in **Table 3**.

Event	Ground Floor (3.99m AOD)		Lower Strand Road (3.90m AOD)	
	Water Depth (m)	Water Surface Elevation (m AOD)	Water Depth (m)	Water Surface Elevation (m AOD)
<b>1 in 200 Yr. Tidal Still Water</b>				
Undefended	Nil	3.84	Nil	3.84
<b>1 in 200yr. Tidal Storm Surge</b>				
Undefended	0.34	4.33	0.43	4.33
Undefended CC	1.53	5.52	1.62	5.52
<b>Surface Water</b>				
	0.51	4.50	0.60	4.50

**Table 3 – Summary of EA Flood Depths and Heights from IoS 2019 Model**

Access/egress to the site is ordinary along the Lower Strand to the east or west depending upon the direction of travel. Consideration of extreme seawater levels indicates that the Lower Strand could be flooded to a depth of 0.43m during a present day extreme event with surge and wave overtopping, increasing to a depth of 1.62m with the predicted effects of climate change.

In all cases the upper floor of the premises would be at least a metre above any flood level and would act as a safe haven. Tidal flooding would be of a finite duration and would subside after about 4 hours in the worst case. Should persons wish to evacuate the site in the event of flooding, then an evacuation route across Lower Strand onto Church Street and then east along Church Street is recommended. The hazard classification for moving through the flood water in a present day extreme event with surge and wave overtopping would be *danger for some*, rising to *danger for all* over the lifetime of the development.

Flood mitigation measures have been presented in this report to ensure that the development is constructed to mitigate risks arising from flooding as far as practicable within the constraints of the existing site. The development of a Flood Evacuation Plan is recommended and preliminary details have been provided within **Section 6.0** of the report.

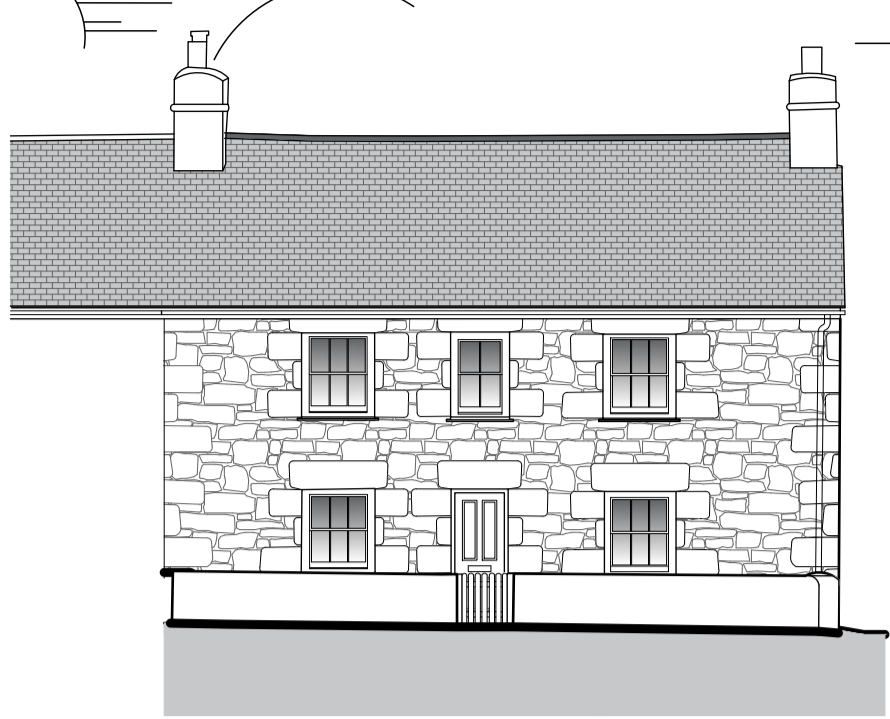
With respect to flood risk planning policy, the application would be considered to be appropriate. The building is already in use as a domestic dwelling and therefore the proposed development will not alter the flood risk vulnerability of the premises. The proposed works will not increase flood risk with the property or elsewhere. The application would not be subject to a sequential test nor an exception tests as it is a minor development within the curtilage of an existing dwelling.

**APPENDIX A**

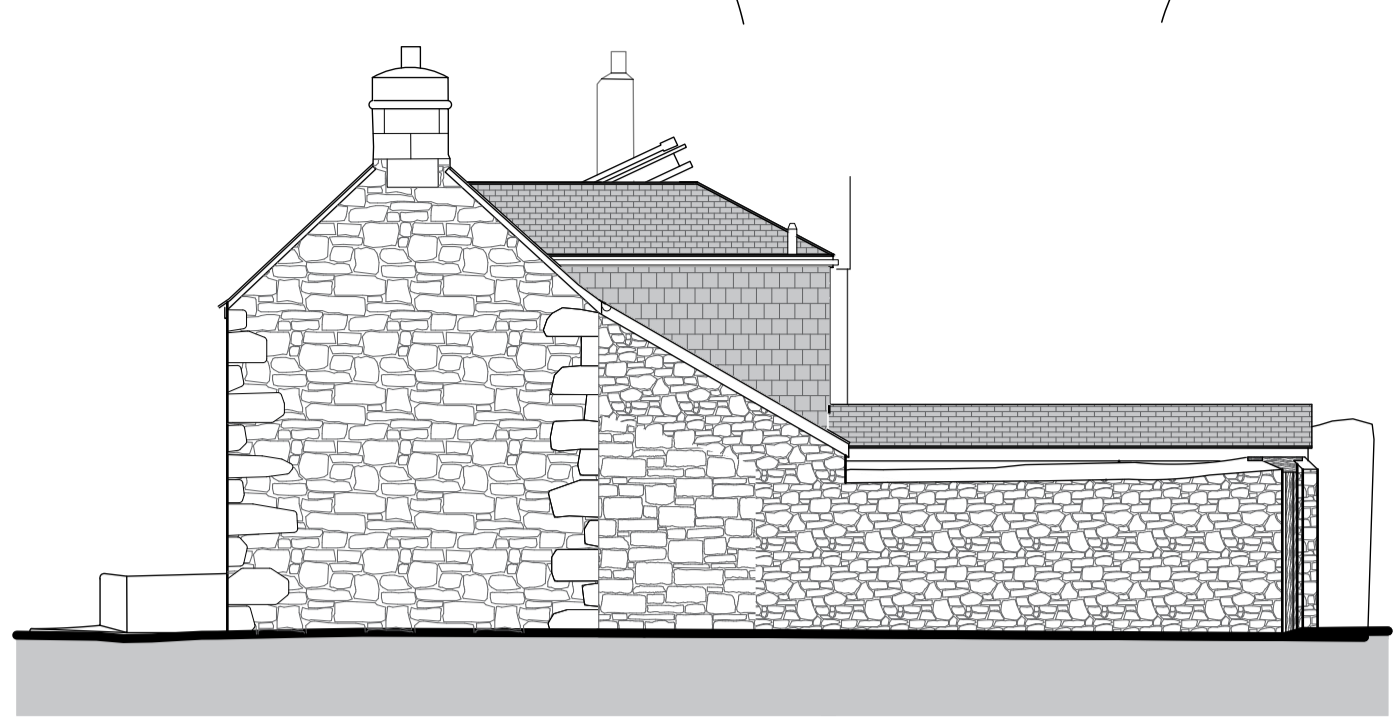
**SITE TOPOGRAPHIC SURVEY  
AND DEVELOPMENT  
PROPOSALS**



PROPOSED FINISHES:  
 Roof - Slate  
 Walls - Painted Render, Stone, and slate hanging  
 Windows/ doors - Timber



PROPOSED SOUTH ELEVATION 1:100



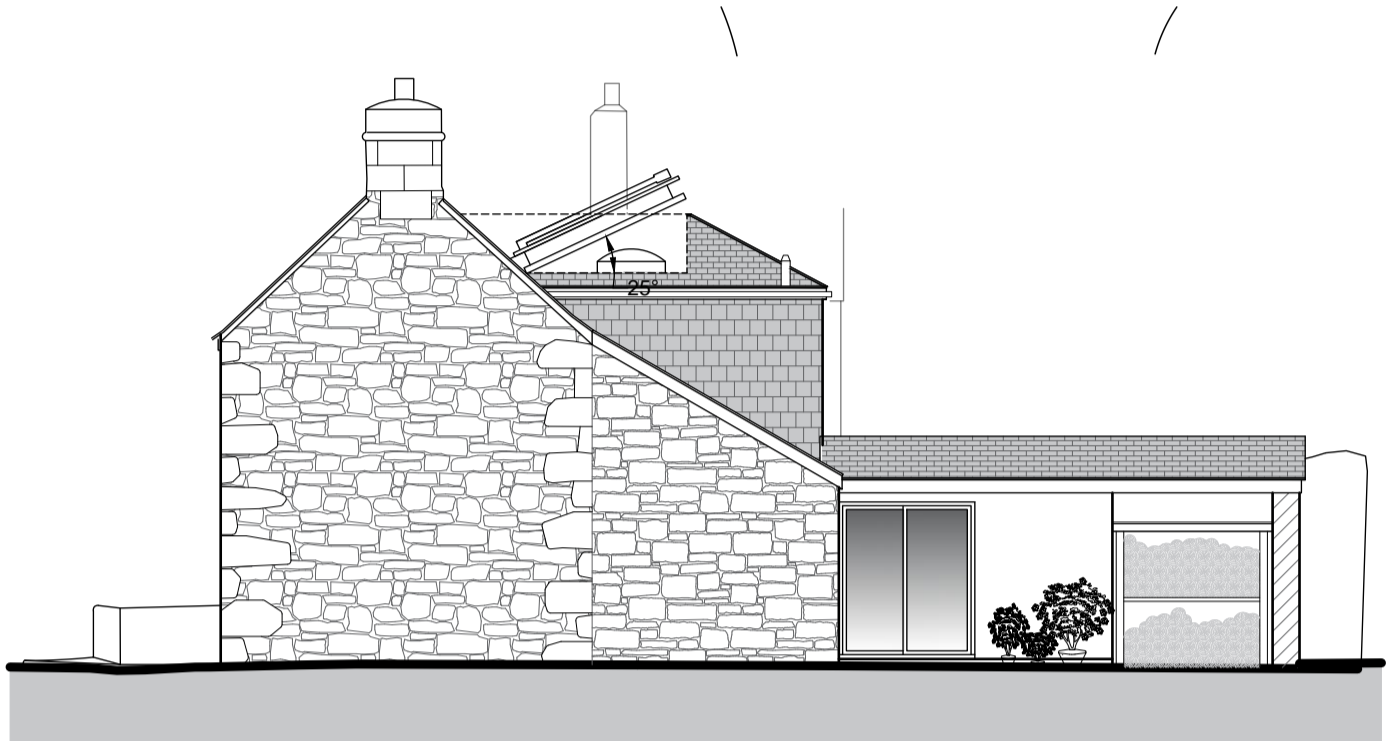
PROPOSED EAST ELEVATION 1:100



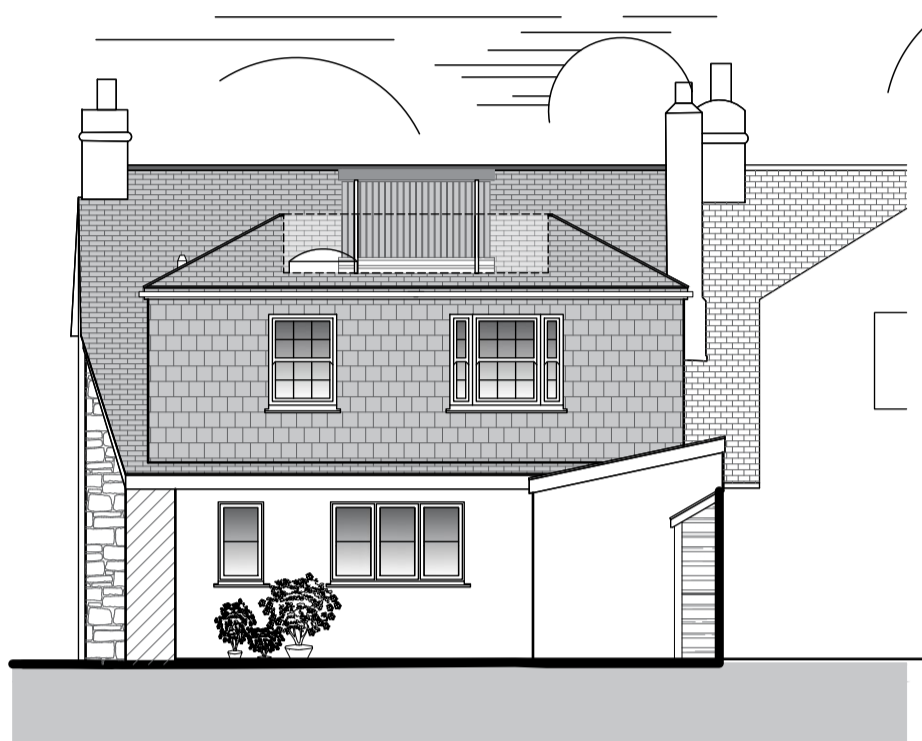
PROPOSED NORTH ELEVATION 1:100



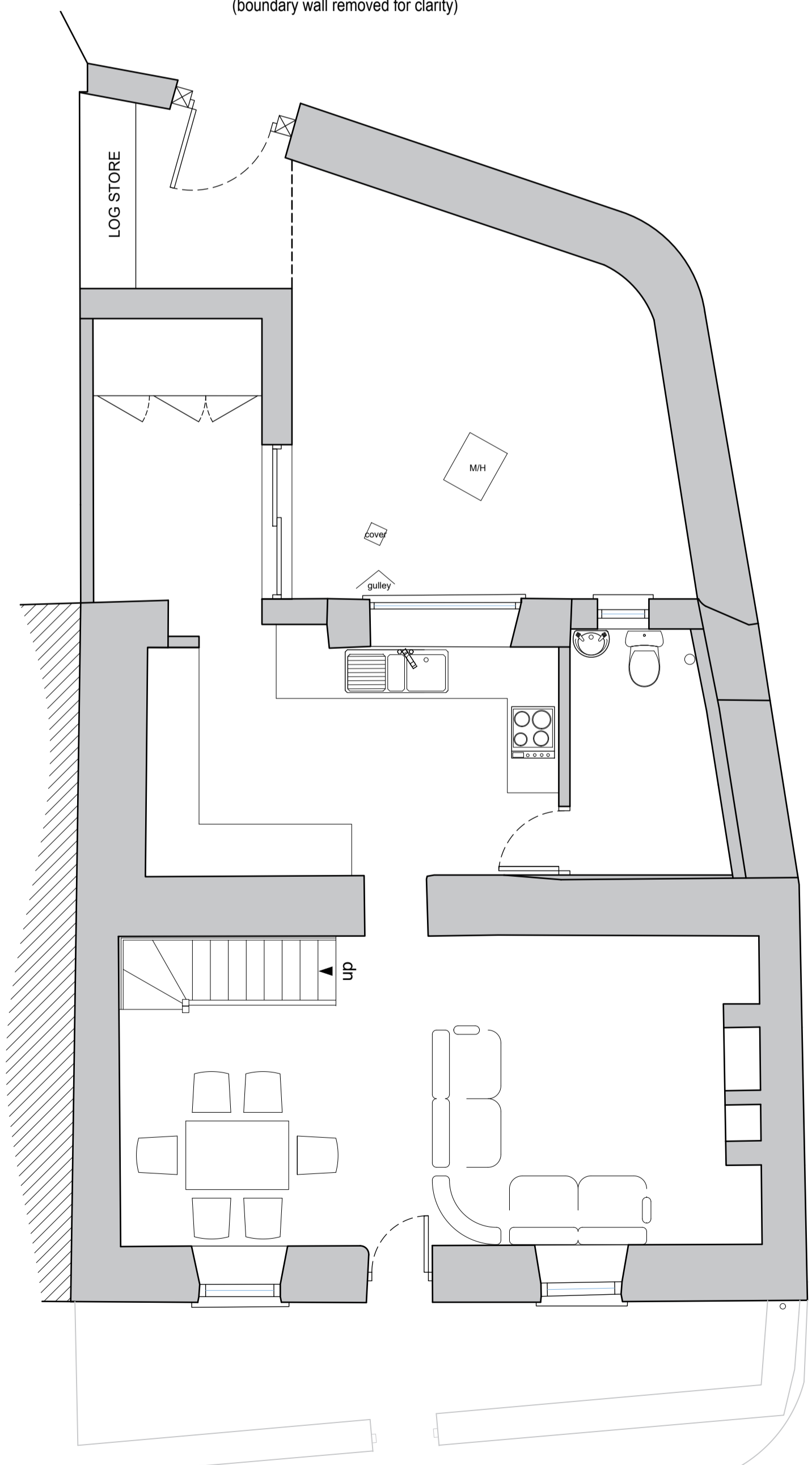
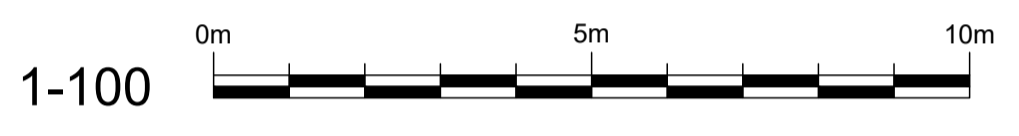
PROPOSED SOUTH ELEVATION 1:100  
(boundary wall removed for clarity)



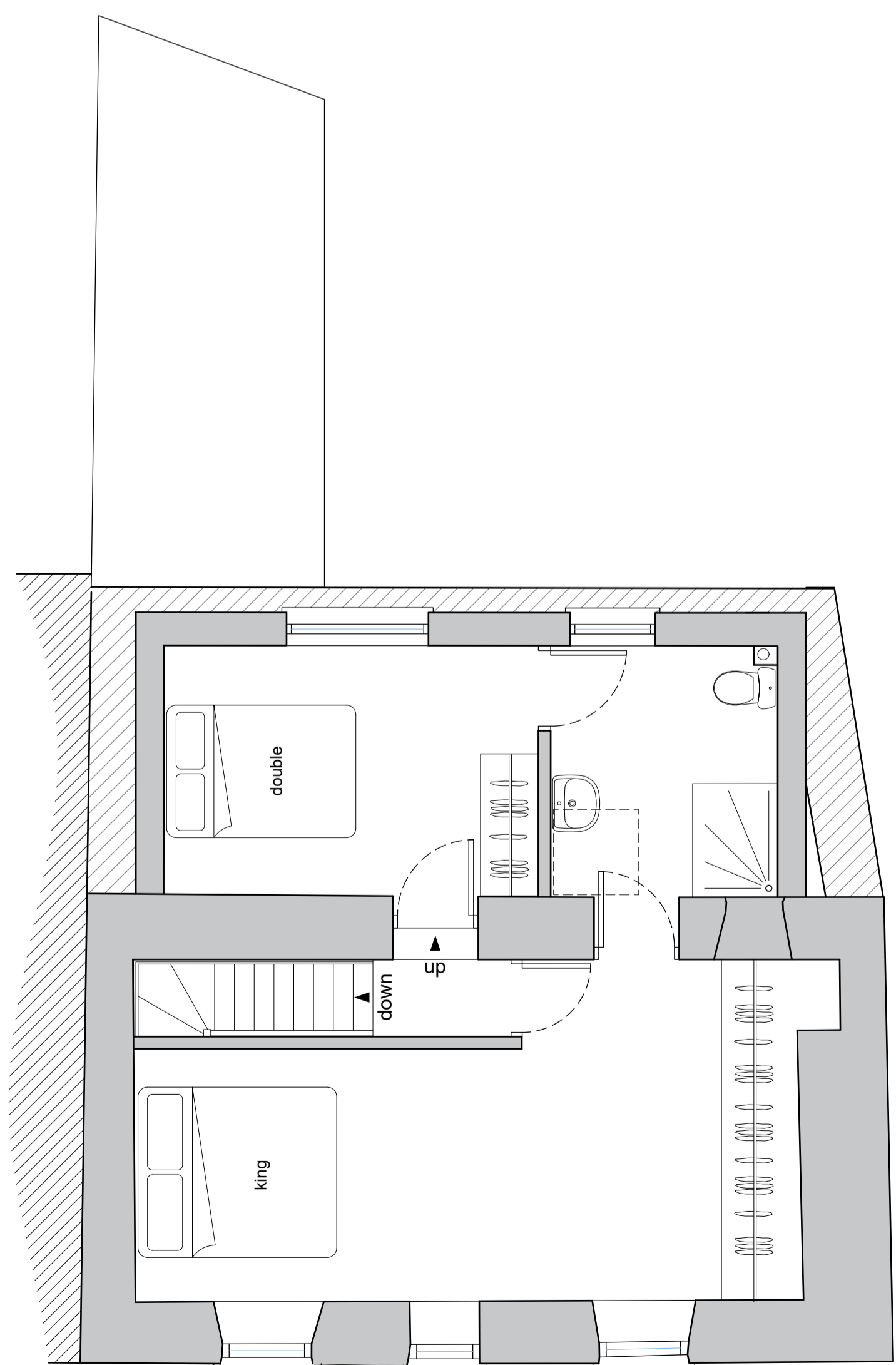
PROPOSED EAST ELEVATION 1:100  
(boundary wall removed for clarity)



PROPOSED NORTH ELEVATION 1:100  
(boundary wall removed for clarity)

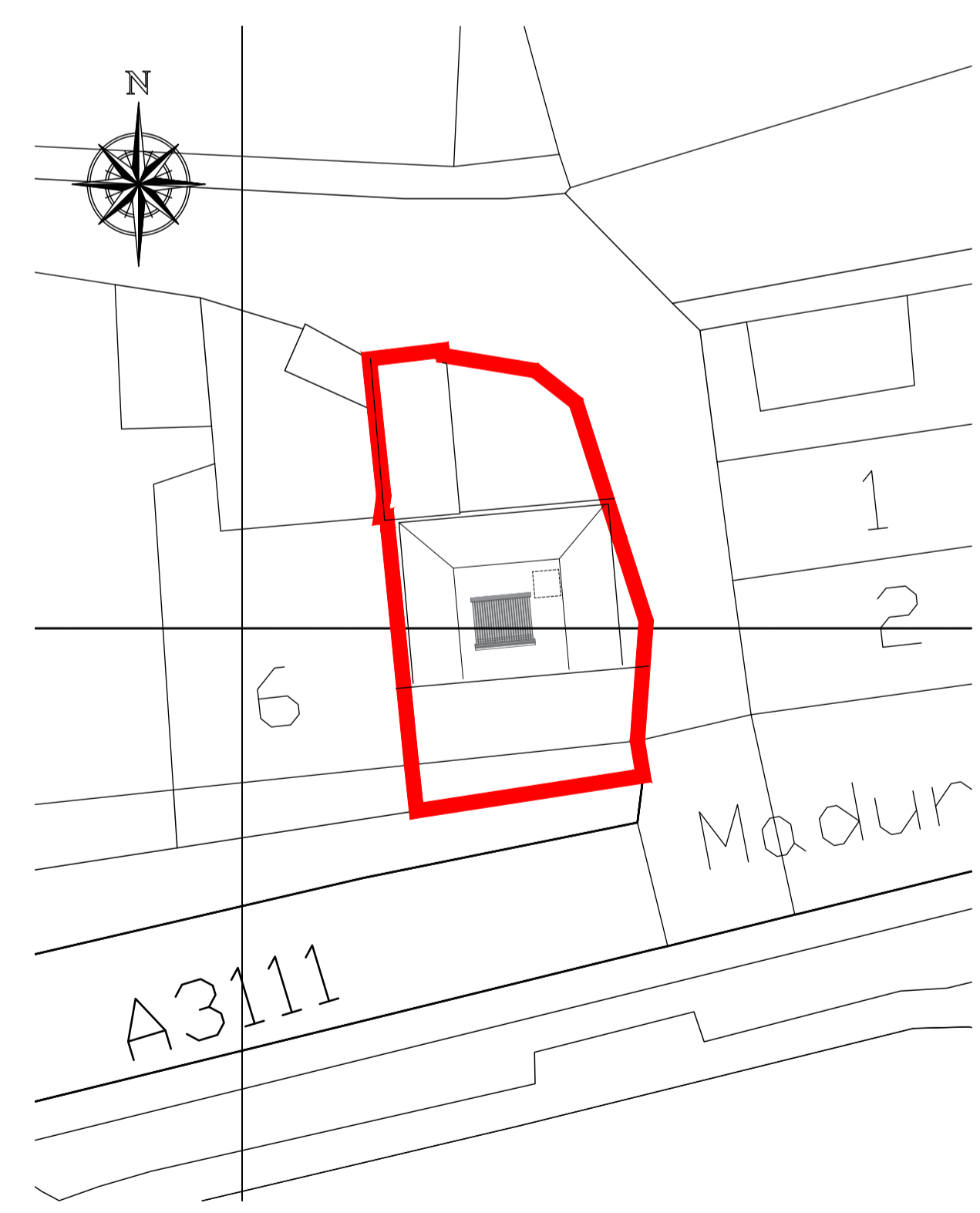


PROPOSED GROUND FLOOR PLAN 1:50



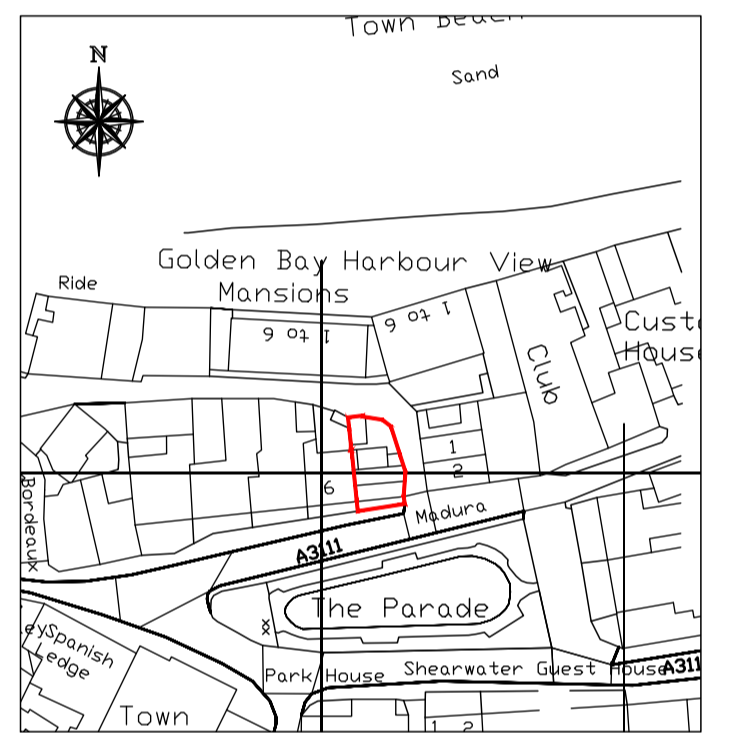
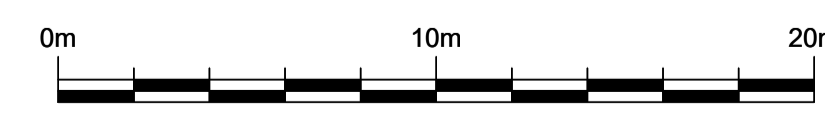
PROPOSED FIRST FLOOR PLAN 1:50

1-50



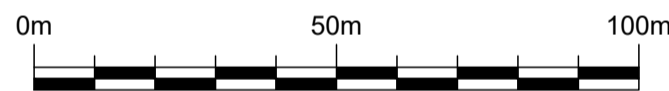
PROPOSED SITE PLAN 1:200

1-200



LOCATION PLAN 1:1250

1-1250



- NOTES.** THIS DRAWING IS COPYRIGHT
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWINGS, DETAILS AND SPECIFICATIONS ISSUED FOR CONSTRUCTION PURPOSES BY OTHERS.
  - THIS DRAWING HAS BEEN PREPARED TO OBTAIN PLANNING AND BUILDING REGULATION DECISIONS ONLY. ALL CONTRACTORS MUST VISIT THE SITE FOR THEIR OWN ASSESSMENT WHEN PRICING.
  - THE CONTRACTOR IS RESPONSIBLE FOR ALL DIMENSIONS AND FOR THE CORRECT SETTING OUT OF THE WORK ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE USED. ANY DISCREPANCIES ARE TO BE REPORTED BEFORE PROCEEDING. DO NOT SCALE FOR CONSTRUCTION PURPOSES - IF IN DOUBT ASK!
  - ALL MATERIALS AND WORKMANSHIP TO COMPLY WITH CURRENT BRITISH STANDARDS AND CODES OF PRACTICE.

rev B		
rev A	Design amendments	04-03-24

ISSUE **PLANNING APPLICATION**

CLIENT / SITE  
 Mr & Mrs Gannon  
 Parkside, The Parade  
 St Marys  
 TR21 0LP

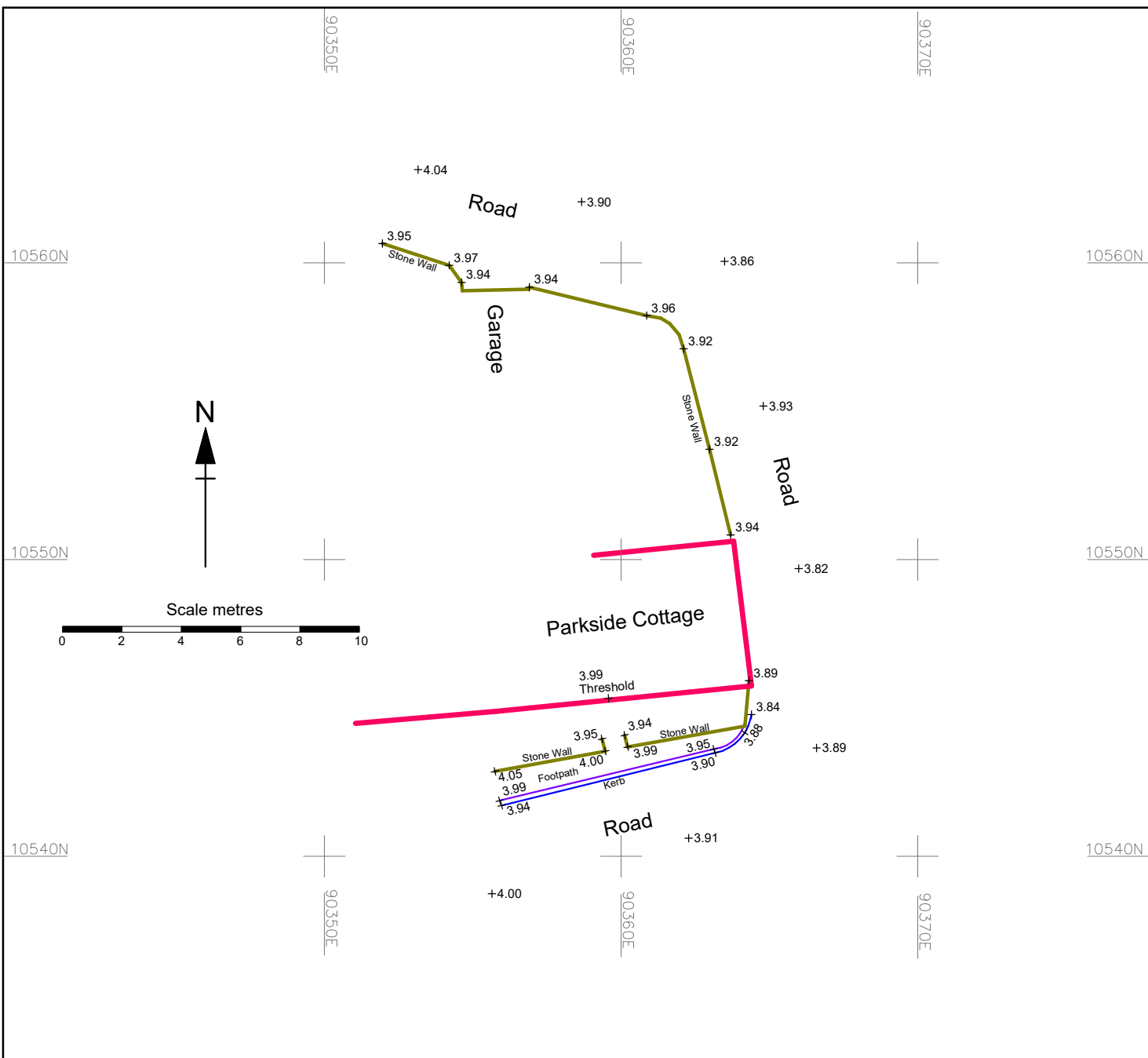
PROJECT  
 Proposed replacement of lean-to garage with two storey extension, internal alterations and removal of render to reveal stone on front elevation.

DETAILS  
 Proposed Plans, Elevations, Site Plan and Location Plan

PLAN N°	02	SCALES	1:50, 1:100, 1:200 & 1:1250 @ A1
4337	A	DATE	July 2023
		DRAWN	DN

**NB ARCHITECTURAL SERVICES LTD**

St Marys House, Pointe Mills, Bissac, Nr Truro, TR4 8DZ  
 e-mail: enquiries@nb-arch.co.uk  
 telephone: 01872 870888 / faxsimile: 01872 870500  
 www.nbarchitecturalservices.co.uk



**Notes**

1. Survey set to OS national grid and level datum  
Datum ETRS89  
Projection OSTN15  
Geoid OSGM15  
Scale Factor applied to ground measurements 1.0
2. Dimensions and elevations in metres.



**PRESTON ENGINEERING SURVEY**  
 Site Engineering Land Surveying Measured Building Surveys  
 Trelydia House Lewannick Launceston  
 Cornwall PL15 7QD  
 Tel: 01566 782 149  
 Mob: 07791 889 823  
 email: prestonengsurv@yahoo.co.uk  
 web: www.prestonengsurv.co.uk

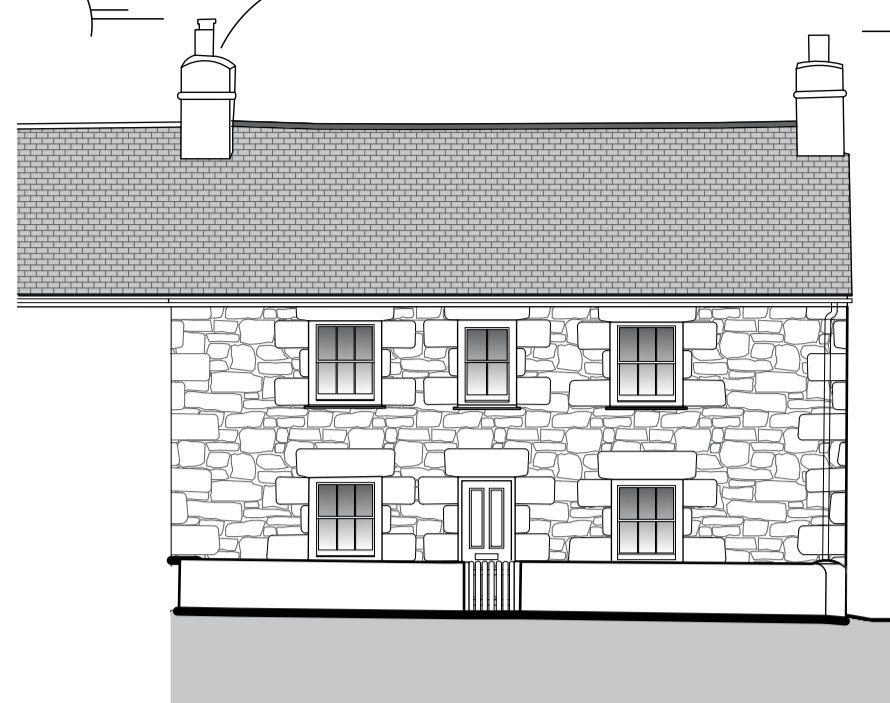
01	First Issue	JP	-
Issue	Description	Drwn	Chk Date

Client  
**Teignmouth  
 Maritime  
 Services**

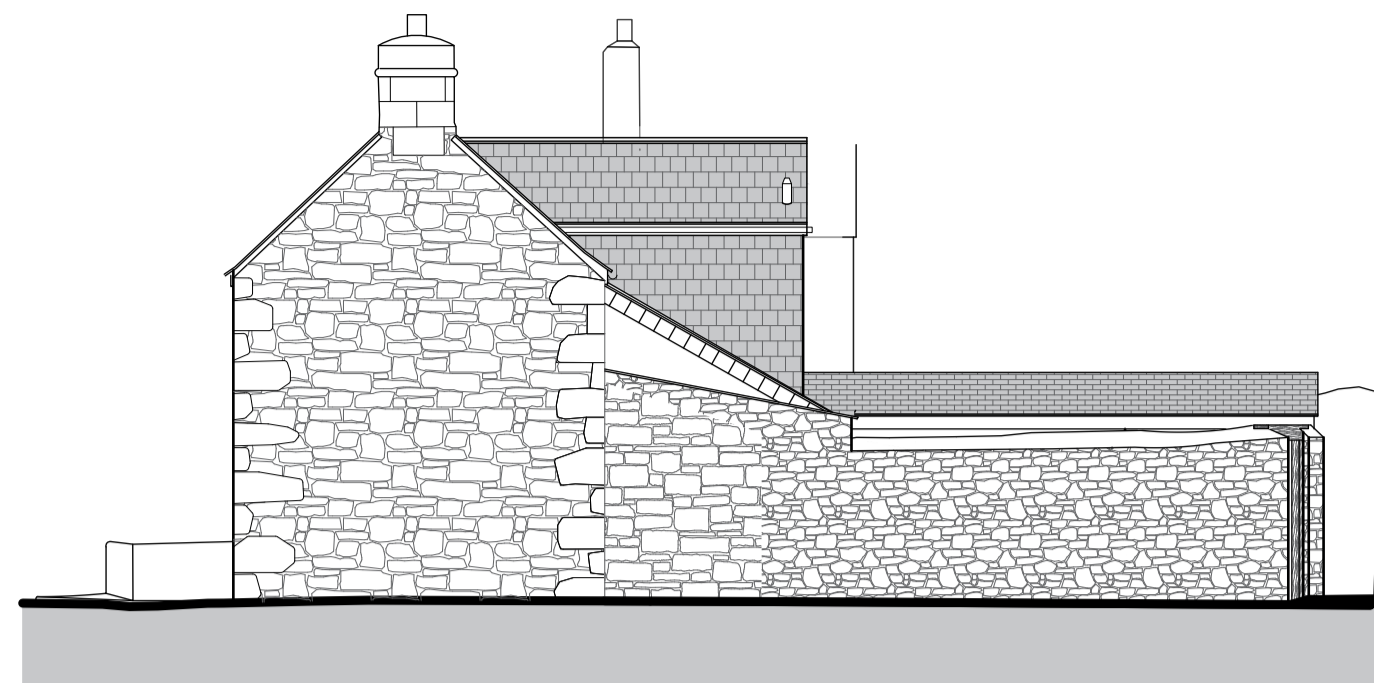
Project  
**Parkside Cottage  
 Hugh Town  
 St Marys  
 Isles of Scilly**

Title  
**Measured Survey**

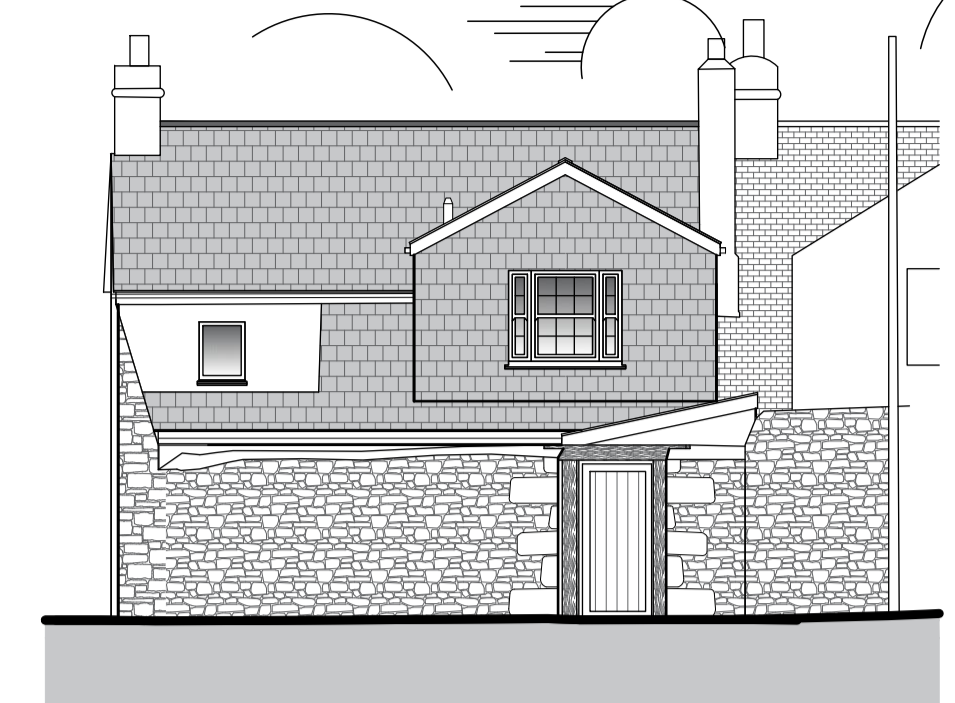
Datum	OSGB
Date	18-04-24
Scale (A4)	1-200
Job Code	1315b
Drawing No.	0001
Issue	1st



PROPOSED SOUTH ELEVATION 1:100



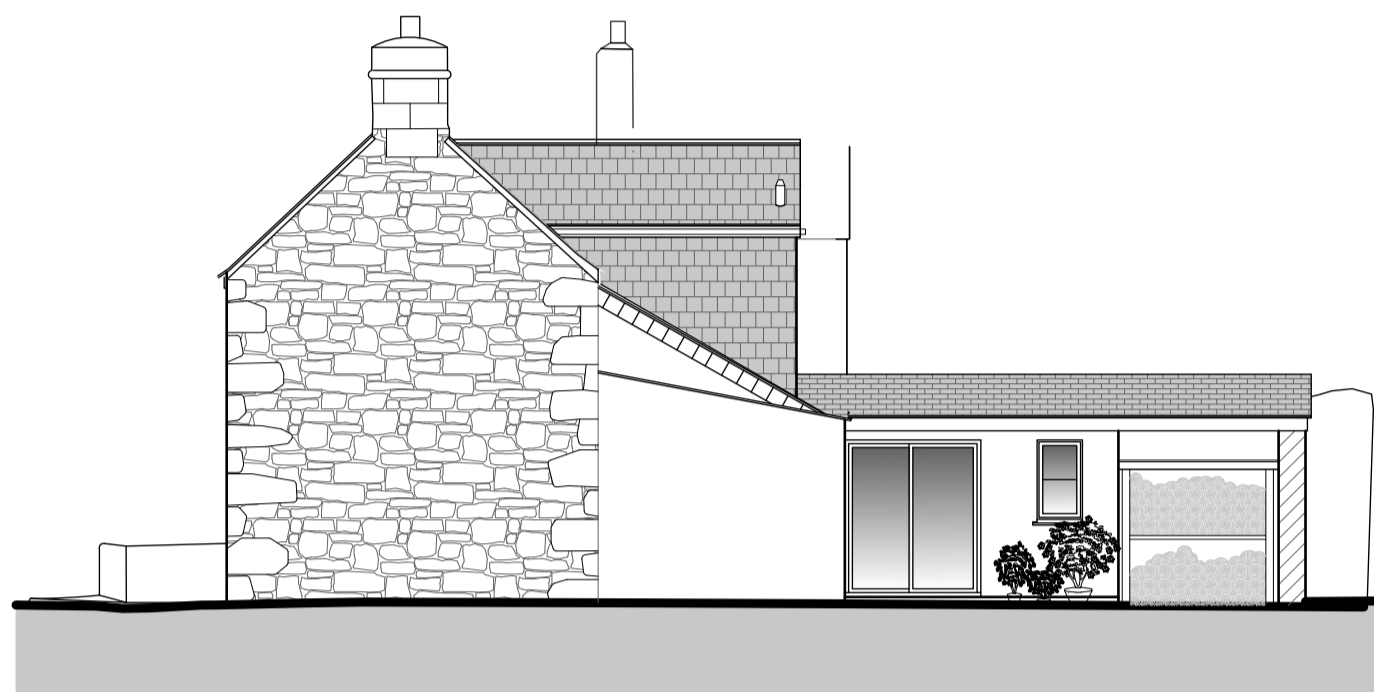
PROPOSED EAST ELEVATION 1:100



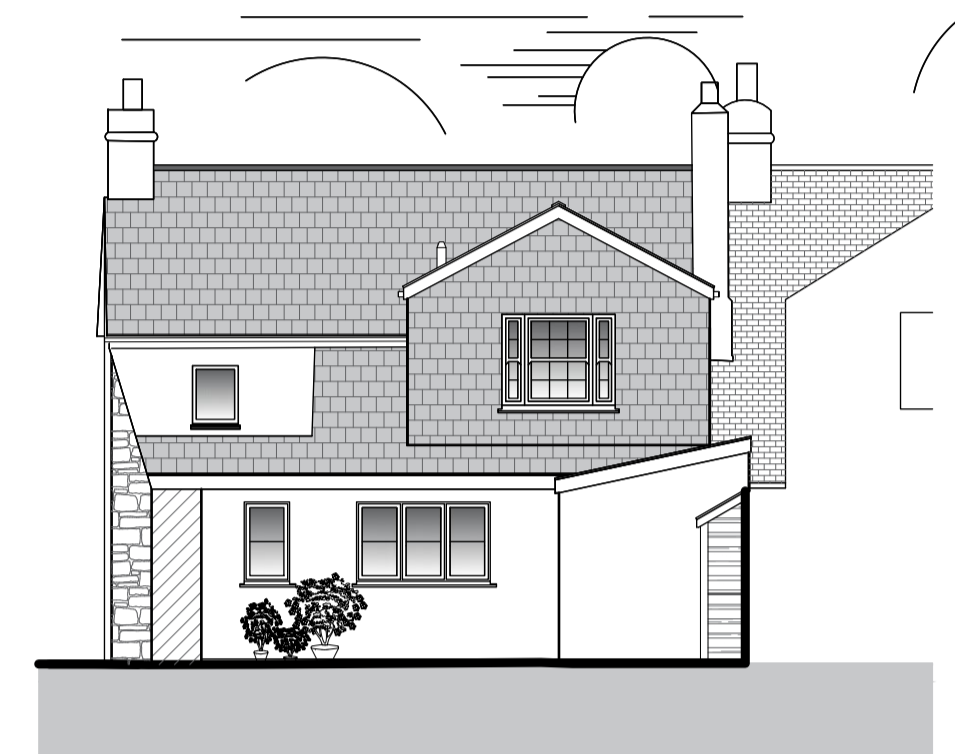
PROPOSED NORTH ELEVATION 1:100



PROPOSED SOUTH ELEVATION 1:100  
(boundary wall removed for clarity)



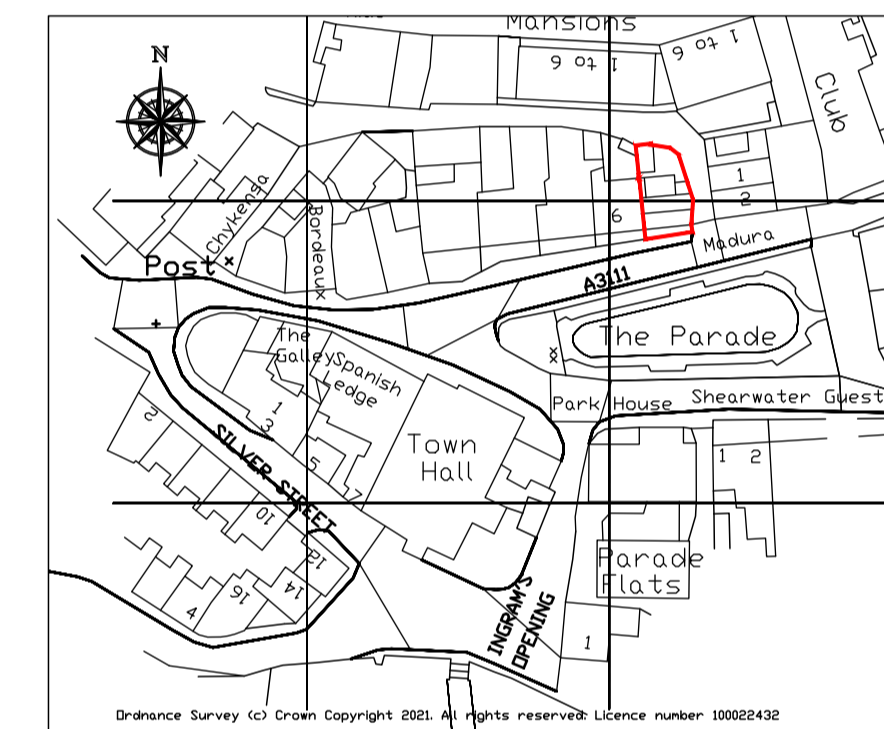
PROPOSED EAST ELEVATION 1:100  
(boundary wall removed for clarity)



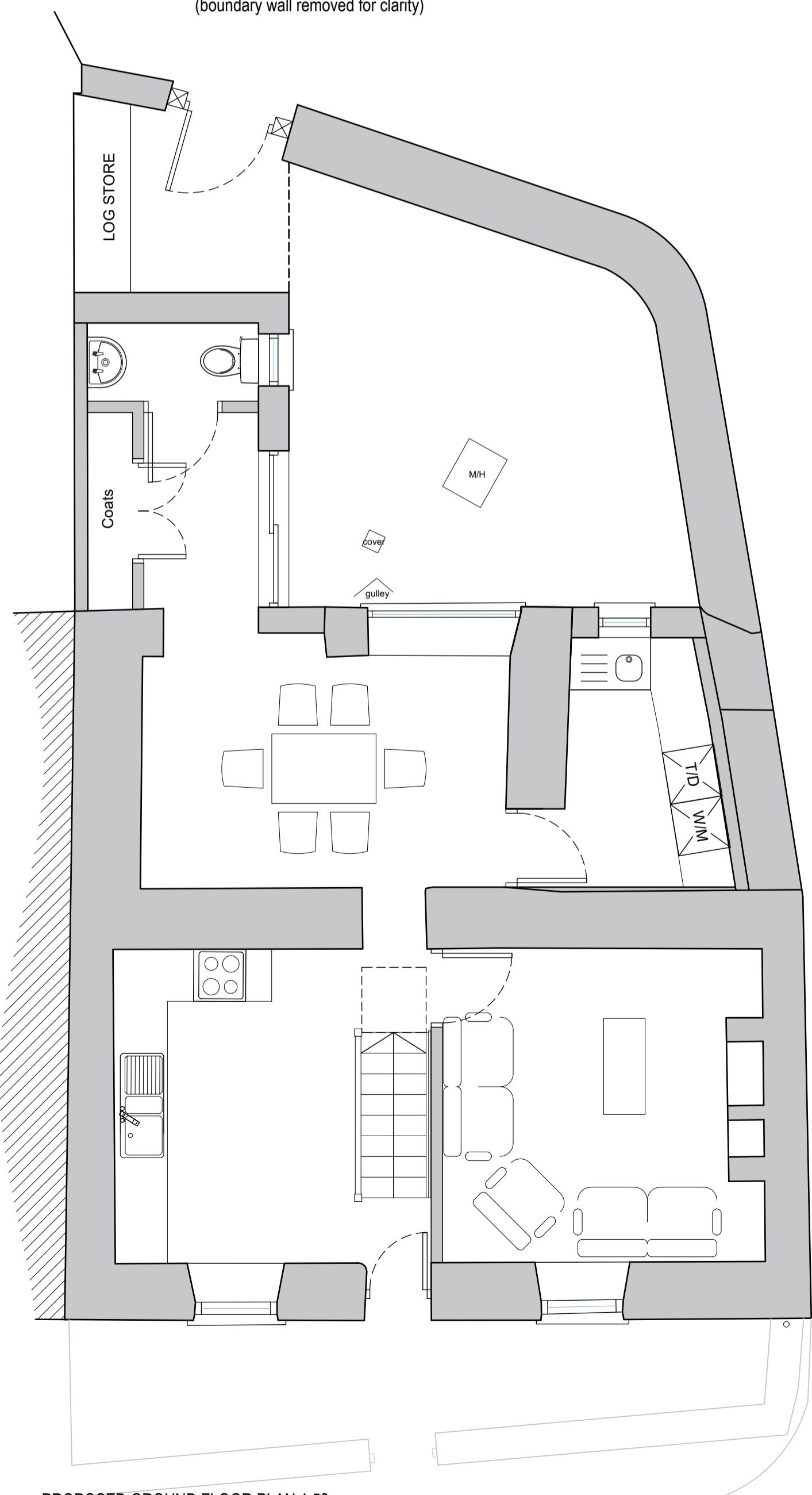
PROPOSED NORTH ELEVATION 1:100  
(boundary wall removed for clarity)



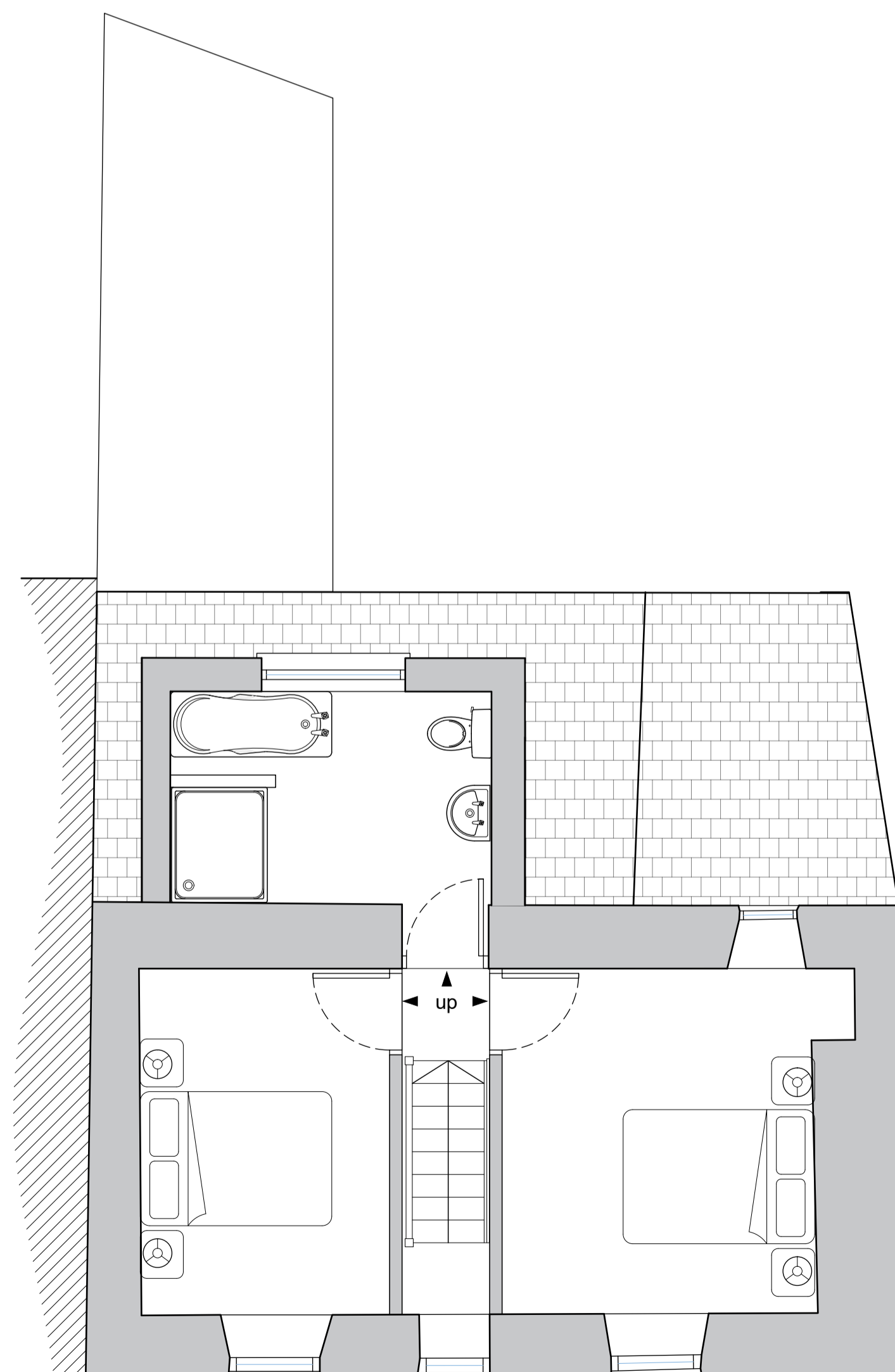
PROPOSED FINISHES:  
 Roof - Slate  
 Walls - Painted Render, Stone, and slate hanging  
 Windows/ doors - Timber



LOCATION PLAN 1:1250

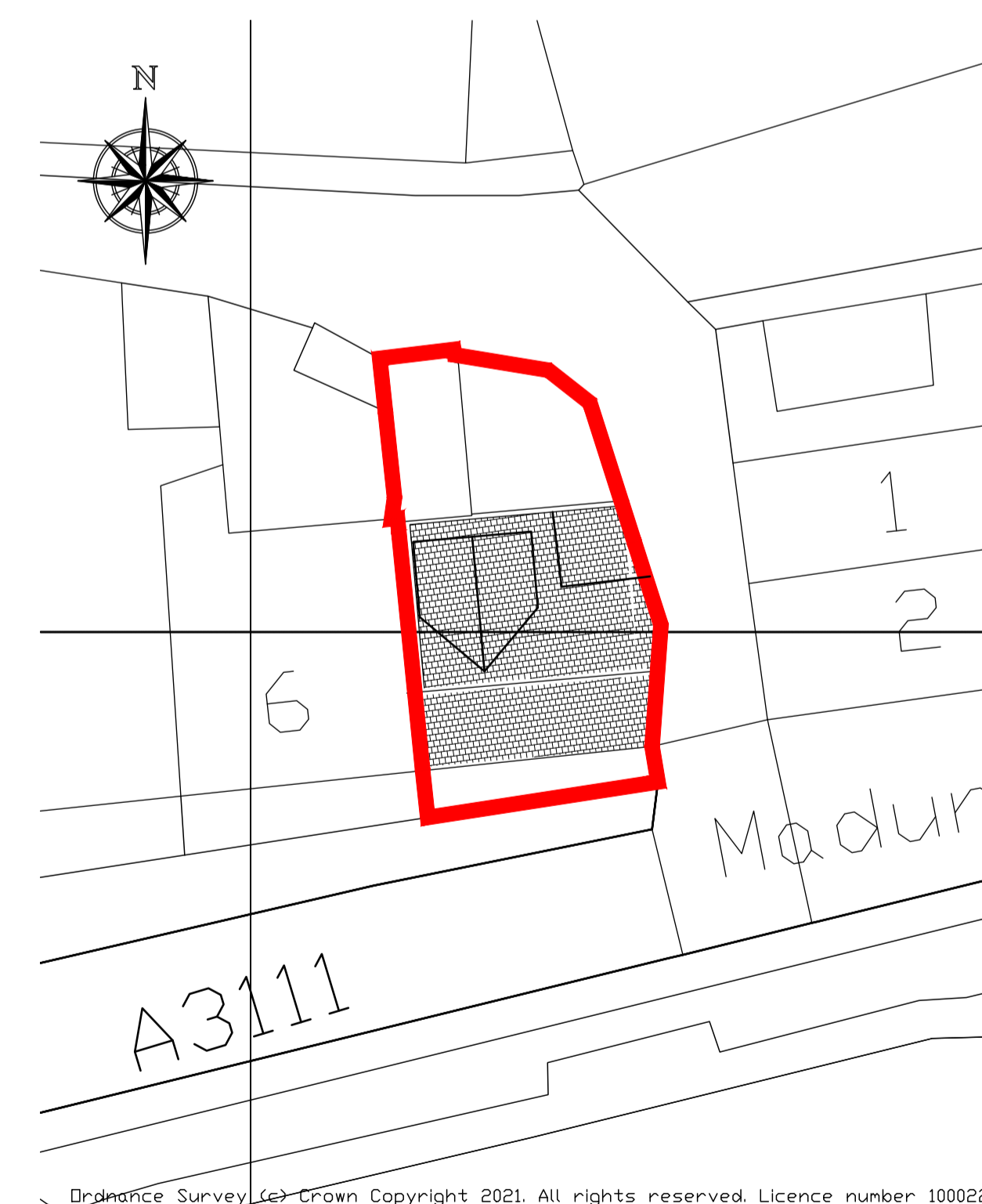


PROPOSED GROUND FLOOR PLAN 1:50



PROPOSED FIRST FLOOR PLAN 1:50

1-50



PROPOSED SITE PLAN 1:200

1-200



1-1250

- NOTES.** THIS DRAWING IS COPYRIGHT
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWINGS, DETAILS AND SPECIFICATIONS ISSUED FOR CONSTRUCTION PURPOSES BY OTHERS.
  - THIS DRAWING HAS BEEN PREPARED TO OBTAIN PLANNING AND BUILDING REGULATION DECISIONS ONLY. ALL CONTRACTORS MUST VISIT THE SITE FOR THEIR OWN ASSESSMENT WHEN PRICING.
  - THE CONTRACTOR IS RESPONSIBLE FOR ALL DIMENSIONS AND FOR THE CORRECT SETTING OUT OF THE WORK ON SITE. ONLY FIGURED DIMENSIONS ARE TO BE USED. ANY DISCREPANCIES ARE TO BE REPORTED BEFORE PROCEEDING. DO NOT SCALE FOR CONSTRUCTION PURPOSES - IF IN DOUBT ASK!
  - ALL MATERIALS AND WORKMANSHIP TO COMPLY WITH CURRENT BRITISH STANDARDS AND CODES OF PRACTICE.

rev B	
rev A	
ISSUE	PLANNING APPLICATION
CLIENT / SITE	Mr & Mrs Gannon Parkside, The Parade St Marys TR21 0LP
PROJECT	Proposed replacement of lean-to garage with two storey extension, internal alterations and removal of render to reveal stone on front elevation.
DETAILS	Proposed Plans, Elevations, Site Plan and Location Plan
PLAN N°	4337
SCALES	1:50, 1:100, 1:200 & 1:1250 @ A1
DATE	July 2023
DRAWN	DN

**APPENDIX B      ENVIRONMENT AGENCY  
INFORMATION**

# Flood risk assessment data



Location of site: 90359 / 10551 (shown as easting and northing coordinates)

Document created on: 26 March 2024

This information was previously known as a product 4.

Customer reference number: 7R3F573T42HG

Map showing the location that flood risk assessment data has been requested for.



## Flood map for planning (rivers and the sea)

Your selected location is in flood zone 3.

Flood zone 3 shows the area at risk of flooding for an undefended flood event with a:

- 0.5% or greater probability of occurring in any year for flooding from the sea
- 1% or greater probability of occurring in any year for fluvial (river) flooding

Flood zone 2 shows the area at risk of flooding for an undefended flood event with:

- between a 0.1% and 0.5% probability of occurring in any year for flooding from the sea
- between a 0.1% and 1% probability of occurring in any year for fluvial (river) flooding

It's important to remember that the flood zones on this map:

- refer to the land at risk of flooding and do not refer to individual properties
- refer to the probability of river and sea flooding, ignoring the presence of defences
- do not take into account potential impacts of climate change

The flood zones are not currently being updated. The last update was in November 2023. Some of the flood zones may have changed, however all source data is included in the models below.






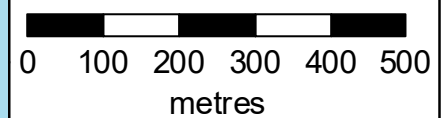
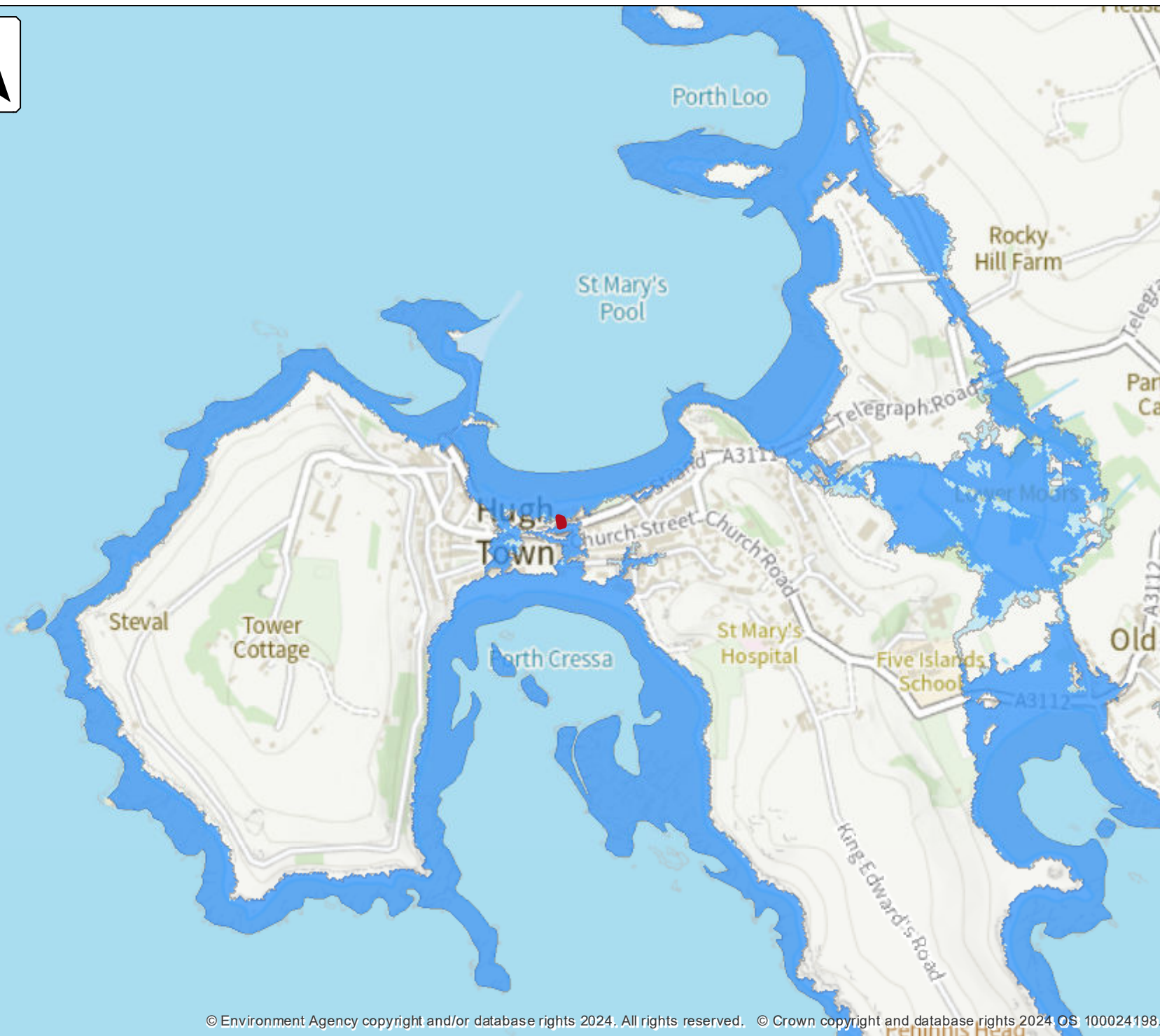
### Flood map for planning

Location (easting/northing)  
**90359/10551**

Scale  
**1:10,000**

Created  
**26 Mar 2024**

-  Selected area
-  Flood zone 3
-  Flood zone 2



## Historic Information

The map below is an indicative outline of areas that have previously flooded.

Historic outlines may not be visible where they overlap. You can download the outlines separately via the link below.

[Download recorded flood outlines in GIS format](#)

Our historic flood event outlines:

- are an indication of the geographical extent of an observed flood event. We map flooding to land, not individual properties.
- not give any indication of flood levels for individual properties. They also do not imply that any property within the outline has flooded internally.
- are based on a combination of anecdotal evidence, Environment Agency staff observations and survey.
- do not provide a definitive record of flooding.

It is possible that there will be an absence of data in places where we have not been able to record the extent of flooding. It is also possible for errors to occur in the digitisation of historic records of flooding.

Remember that: other flooding may have occurred that we do not have records for

Please note that our records are not comprehensive. We would therefore advise that you make further enquiries locally with specific reference to flooding at this location. You should consider contacting the relevant Local Planning Authority and/or water/sewerage undertaker for the area.








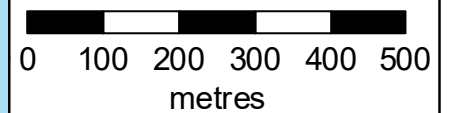
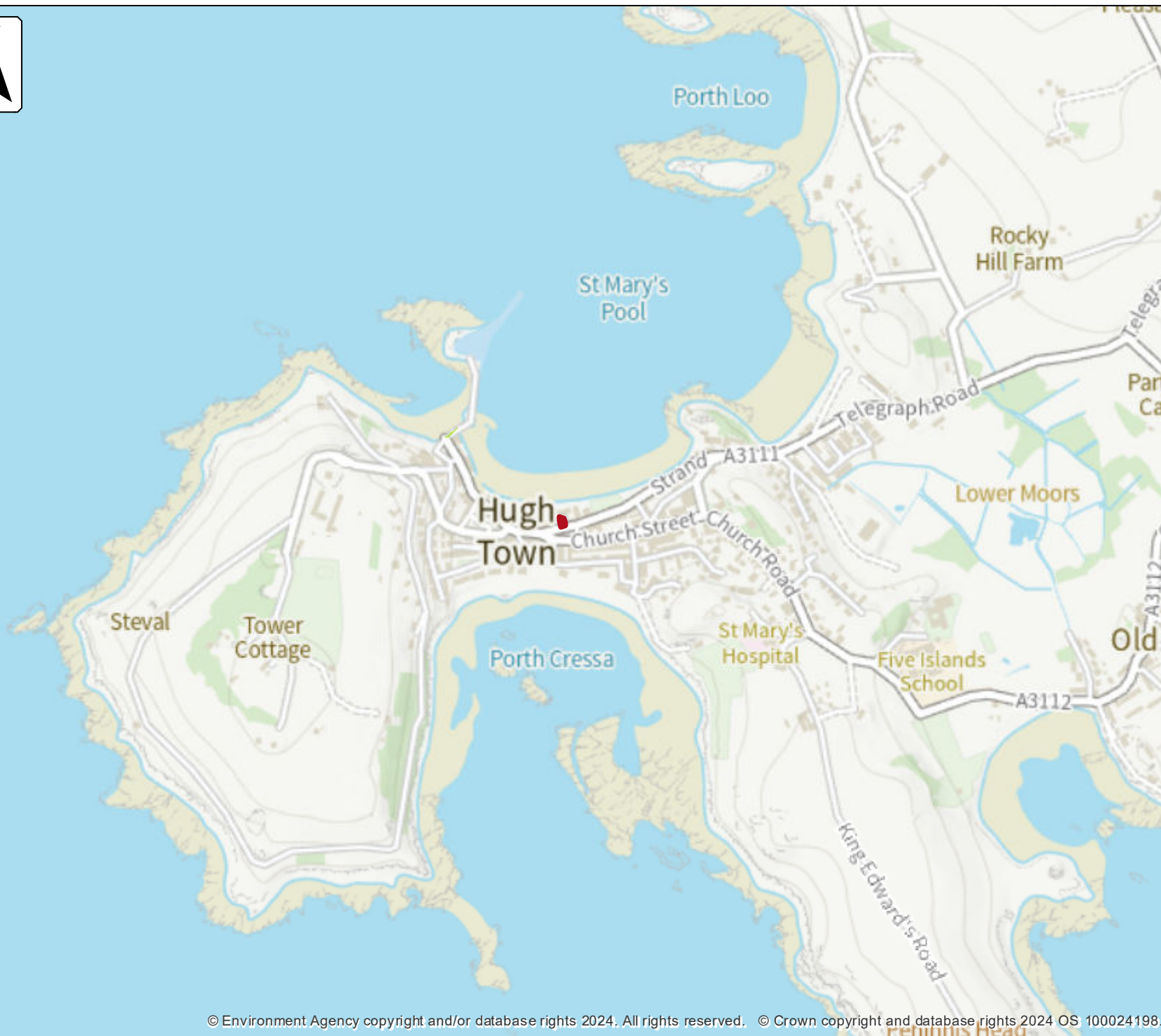
### Historic flood map

Location (easting/northing)  
**90359/10551**

Scale  
**1:10,000**

Created  
**26 Mar 2024**

-  Selected area
-  Main river
- Date of flood event
-  November, 2020



## Historic flood event data

Start date	End date	Source of flood	Cause of flood	Affects location
15 November 2020	15 November 2020	sea	overtopping of defences	No

Records of flooding in the St Mary's area.

Date	Location	Detail	Cause	Estimated Number of Properties Flooded	Flood Source
15/11/2020	Hugh town	Coastal Flooding, spring tides, high winds leading to waves overtopping defences and flooding small section of coastal roads in front of public house.	Wave overtopping defences		Tidal
30/09/2019	Isles of Scilly	High tides lead to some minor pooling on the main street as water came up the drains due to surcharge.	Surface water caused by tidal water coming up drains		Surface Water Runoff
03/01/2018	IoS - St Mary's	Flooding along Throughfare due to overtopping	Wave overtopping	0	Coastal
03/01/2018	IoS - St Mary's	Flooding of lower bar area	Wave overtopping	0	Coastal

Date	Location	Detail	Cause	Estimated Number of Properties Flooded	Flood Source
03/01/2014	Isles of Scilly	Isles of Scilly. Hugh Street was partially flooded by a few inches, mainly caused by poor drainage. Surface water flooding also affected Trench Lane, Old Town. The main set of pontoons were also damaged.	High tides, wave action and surface water run off.	1	Coastal
03/01/2014	IoS: St Mary's	Storm conditions led to flooding in Porthcressa area	Storm conditions		Coastal
03/01/2014	IoS: St Mary's	Storm conditions led to flooding in Hugh Town	Storm conditions		Coastal
03/01/2014	IoS: St Mary's	Storm conditions resulting in damage to St Mary's Quay	Storm Conditions		Coastal

Date	Location	Detail	Cause	Estimated Number of Properties Flooded	Flood Source
18/10/2012	IoS: St Mary's - High Street and Thoroughfare	Flooding from Paper shop to TIC offices. Small ingress of seawater into Schooners Bar. No RFOs and exact extent unknown.	Storm surge accompanied with high spring tides		Tidal
18/10/2012	IoS: St Mary's - Mermaid Inn sea wall	Sea wall damage caused by wave action – no records / photos of flooding occurring. No RFOs and exact extent unknown.	Storm surge accompanied with high spring tides	0	Tidal
01/01/1987	IoS: St Mary's - Mermaid Inn car park	Wrack and seaweed leaving outline of waves / sea inundation due to storm waves and overtopping. Also some damage to the wall from powerful waves.	Overtopping and damage of sea wall		Coastal
01/02/1974	IoS: St Mary's - Porthcressa	Large waves due to a storm event overtopping walls along Porthcressa bay	Storm waves overtopping walls		Coastal

This list contains all the records of flooding we hold, in a 1km radius of the specified location. Although this information is compiled to the best of our knowledge, the absence of flooding does not mean that an area has not flooded in the past, nor guarantee it will not flood in the future. Our records are updated as more information comes to light, and as flood incidents occur.

*Correct as of 26 / 03 / 2024*

## **Modelled data**

### **About the models used**

Model name: Isle's of Scilly, St Mary's

Date: 2019

This model contains the most relevant data for your area of interest.

You will need to consider the [latest flood risk assessment climate change allowances](#) and factor in the new allowances to demonstrate the development will be safe from flooding.

### **Terminology used**

#### **Annual exceedance probability (AEP)**

This refers to the probability of a flood event occurring in any year. The probability is expressed as a percentage. For example, a large flood which is calculated to have a 1% chance of occurring in any one year, is described as 1% AEP.

#### **Metres above ordnance datum (mAOD)**

All flood levels are given in metres above ordnance datum which is defined as the mean sea level at Newlyn, Cornwall.

## Isles of Scilly Coastal Model (2019)

We have provided data from the Isles of Scilly Coastal Model, 2019. Please consider the following information when using this model data:

- This is coastal model, and does not consider the risk of flooding from other source, including fluvial or surface water flooding.
- We have supplied the results and data from both the defended (flood defences included) and undefended (flood defences removed) scenarios. You will need to review the data provided, and select the scenario which provides the maximum flood extent and level (or the worst case) for the site. The most appropriate scenario will depend on the location of the specific site in question.
- Climate change: Model scenarios were completed with increases to the still water levels, wind speeds and wave heights to represent the impacts of climate change. This model was produced following the guidance that was available at the time of the model build (UKCP09). For Flood Risk Assessments, this should be updated using the latest guidance available. For more information and advice, please see: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>
- The maps and digital data supplied should be considered only a summary of the conclusions of the study. It may be necessary to collect more detailed topographic information for particular sites where development is proposed and undertake a more detailed site-specific hydrological and hydraulic analysis for the location using guidance from the National Planning Policy Framework (NPPF)
- In this commission the focus has been on flooding from the sea rather than from fluvial sources. It is important that consideration is given to fluvial flooding for any development sites if appropriate. The impact of combined fluvial and tidal events should be examined to understand the impact that this has upon flood depth extent and the duration of inundation
- Any assessment of Flood Risk undertaken must be appropriate for the decisions that need to be based upon it, consider the risks and also take into account any limitations of the data used.
- Please be aware that the Environment Agency does not guarantee that this data is suitable for your purposes.

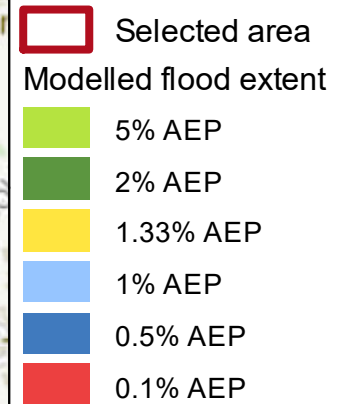


## Defended modelled tidal extent

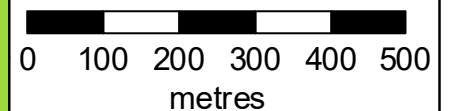
Location (easting/northing)  
**90359/10551**

Scale Created  
**1:10,000 26 Mar 2024**

Model name  
**Isles of Scilly. St. Mary's 2019.**



Flood extents may not be visible where they overlap other return periods





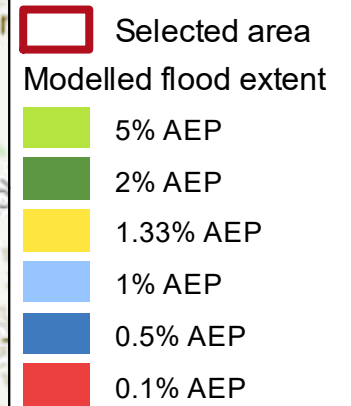


## Defences removed modelled tidal extent

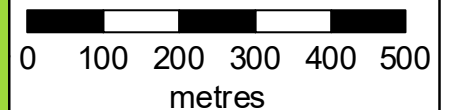
Location (easting/northing)  
**90359/10551**

Scale Created  
**1:10,000 26 Mar 2024**

Model name  
**Isles of Scilly. St. Mary's 2019.**



Flood extents may not be visible where they overlap other return periods















### Defended climate change modelled tidal extent

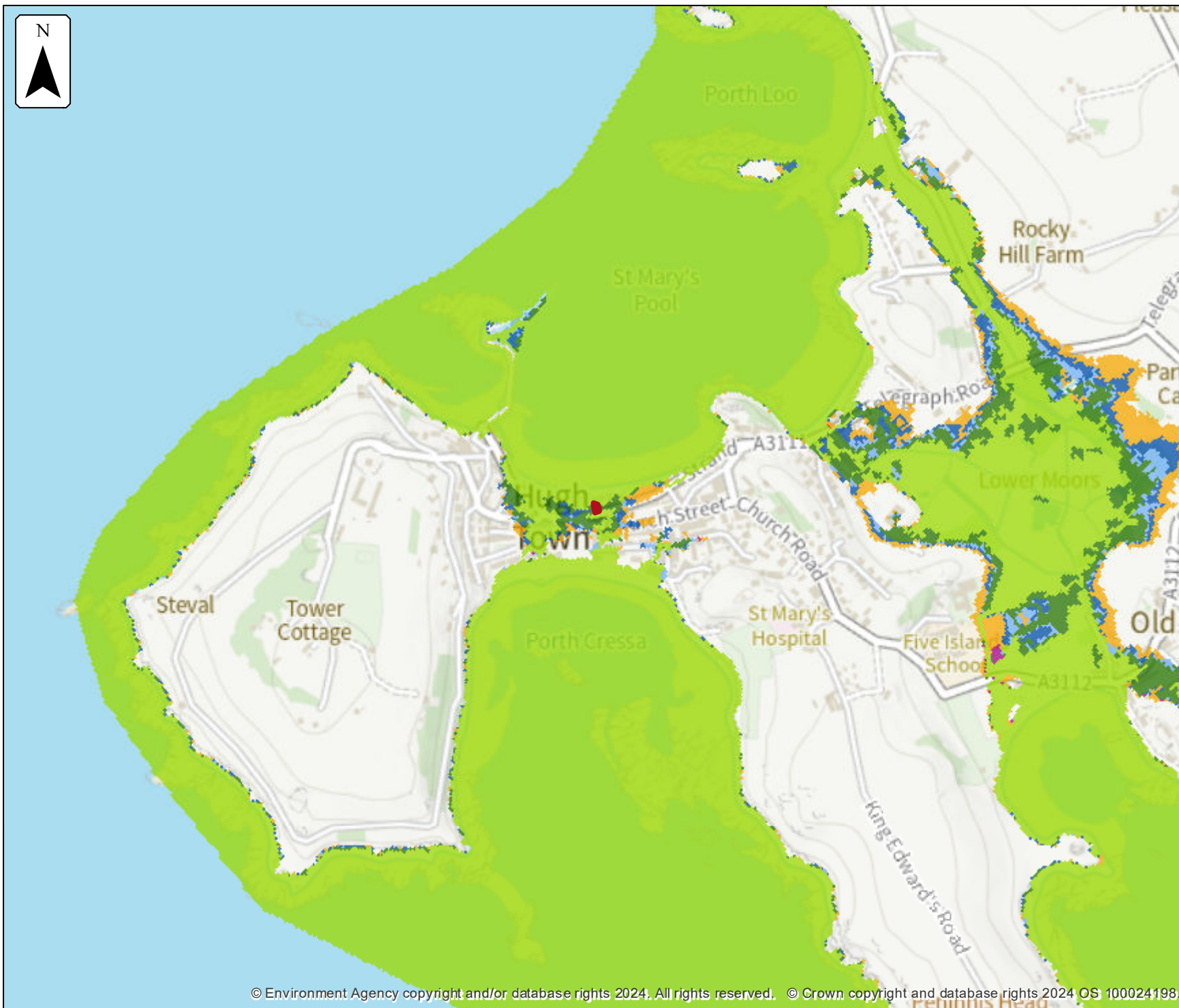
Location (easting/northing)  
**90359/10551**

Scale Created  
**1:10,000 26 Mar 2024**

Model name  
**Isles of Scilly. St. Mary's 2019.**

-  Selected area
-  Main river
- Modelled flood extent**
-  1.0% AEP (+351mm)
-  1.0% AEP (+812mm)
-  0.5% AEP (+351mm)
-  0.5% AEP (+812mm)
-  0.5% AEP (+1037mm)
-  0.1% AEP (+351mm)
-  0.1% AEP (+812mm)
-  0.1% AEP (+1037mm)

Flood extents may not be visible where they overlap other return periods













### Defences removed climate change modelled tidal extent

Location (easting/northing)  
**90359/10551**

Scale Created  
**1:10,000 26 Mar 2024**

Model name  
**Isles of Scilly. St.  
Mary's 2019.**

-  Selected area
-  Main river
- Modelled flood extent**
-  0.5% AEP (+351mm)
-  0.5% AEP (+812mm)
-  0.5% AEP (+1037mm)
-  0.1% AEP (+351mm)
-  0.1% AEP (+812mm)
-  0.1% AEP (+1037mm)

Flood extents may not be visible where they overlap other return periods





### Defended modelled tidal extent and height

Location (easting/northing)  
**90359/10551**

Scale Created  
**1:500 26 Mar 2024**

Model name  
**Isles of Scilly. St. Mary's 2019.**

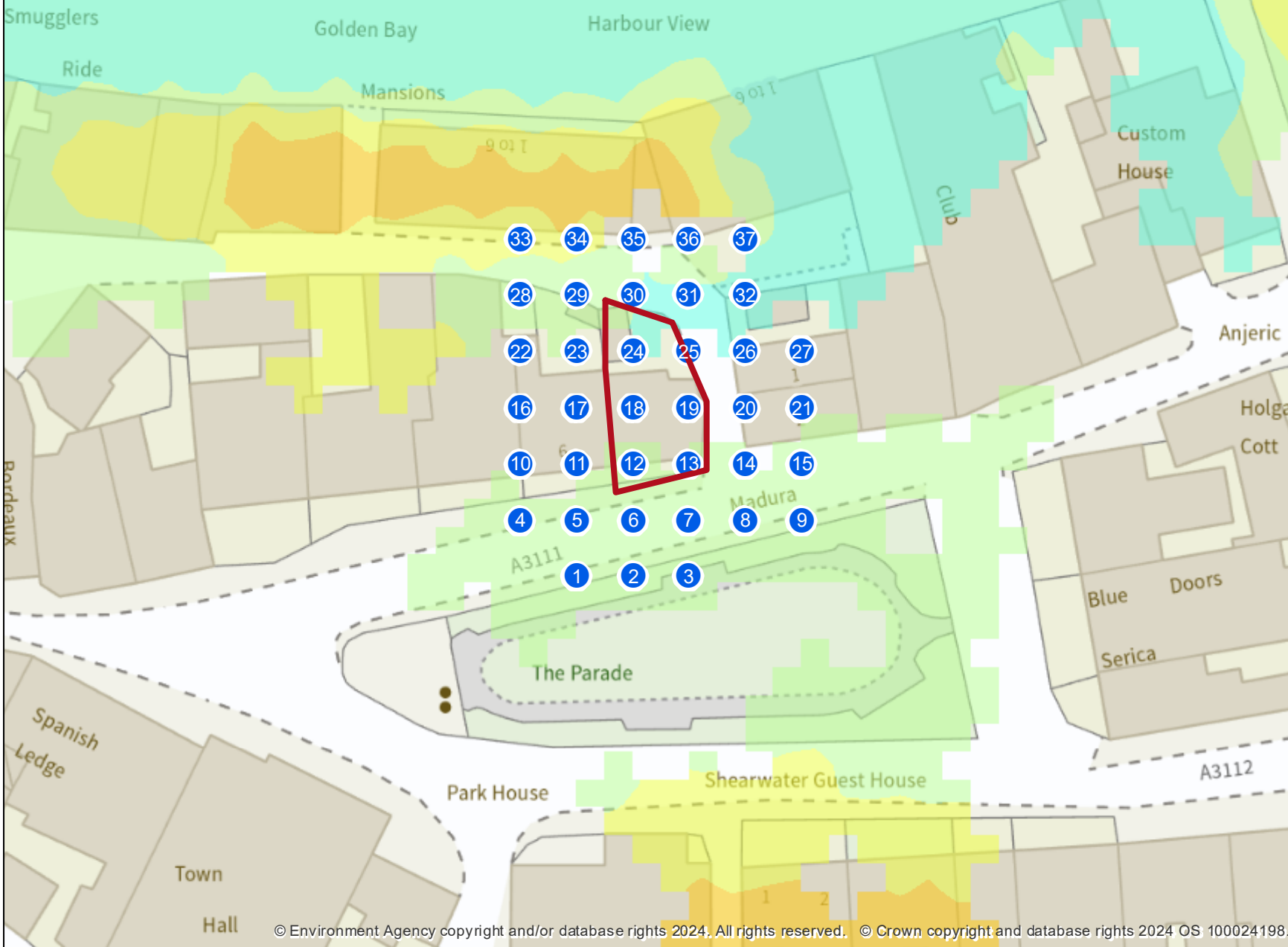
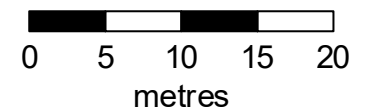
Selected area

Main river

Modelled 2D grid  
*Water level in mAOD*

- 0 - 3.0
- 3.0 - 3.375
- 3.375 - 3.75
- 3.75 - 4.125
- 4.125 - 4.5
- 4.5 - 4.875
- 4.875 - 5.25
- 5.25 - 5.625
- 5.625 - 6.0

This map shows the 0.1% AEP height data





Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	90352	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	90357	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
19	90362	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
20	90367	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	90372	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	90347	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	90352	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	90357	10555	0.02	4.08	0.02	4.08	0.02	4.08	0.02	4.09	0.02	4.09	0.02	4.10
25	90362	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
26	90367	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
27	90372	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
28	90347	10560	0.06	4.33	0.06	4.34	0.06	4.34	0.06	4.34	0.07	4.35	0.08	4.36
29	90352	10560	0.06	4.22	0.06	4.22	0.06	4.22	0.06	4.22	0.07	4.23	0.07	4.24
30	90357	10560	0.23	4.24	0.23	4.24	0.23	4.24	0.23	4.25	0.19	4.20	0.09	4.11
31	90362	10560	0.27	4.20	0.28	4.21	0.28	4.21	0.28	4.21	0.23	4.16	0.17	4.10
32	90367	10560	0.12	4.08	0.13	4.09	0.13	4.09	0.14	4.10	0.13	4.09	0.14	4.10
33	90347	10565	0.02	4.76	0.02	4.77	0.02	4.77	0.02	4.77	0.02	4.77	0.02	4.78
34	90352	10565	0.01	4.83	0.01	4.83	0.01	4.83	0.01	4.83	0.01	4.83	0.01	4.81
35	90357	10565	0.01	5.10	0.01	5.10	0.01	5.10	0.01	5.10	0.01	5.10	NoData	NoData

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
36	90362	10565	0.00	4.89	0.00	4.89	0.00	4.89	0.00	4.89	0.00	4.89	NoData	NoData
37	90367	10565	NoData	NoData	0.26	4.33	0.26	4.33	0.26	4.33	0.21	4.28	0.09	4.16

Data in this table comes from the Isles of Scilly. St. Mary's 2019. model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.




### Defences removed modelled tidal extent and height

Location (easting/northing)  
**90359/10551**




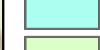





Scale Created  
**1:500 26 Mar 2024**

Model name  
**Isles of Scilly. St.  
Mary's 2019.**

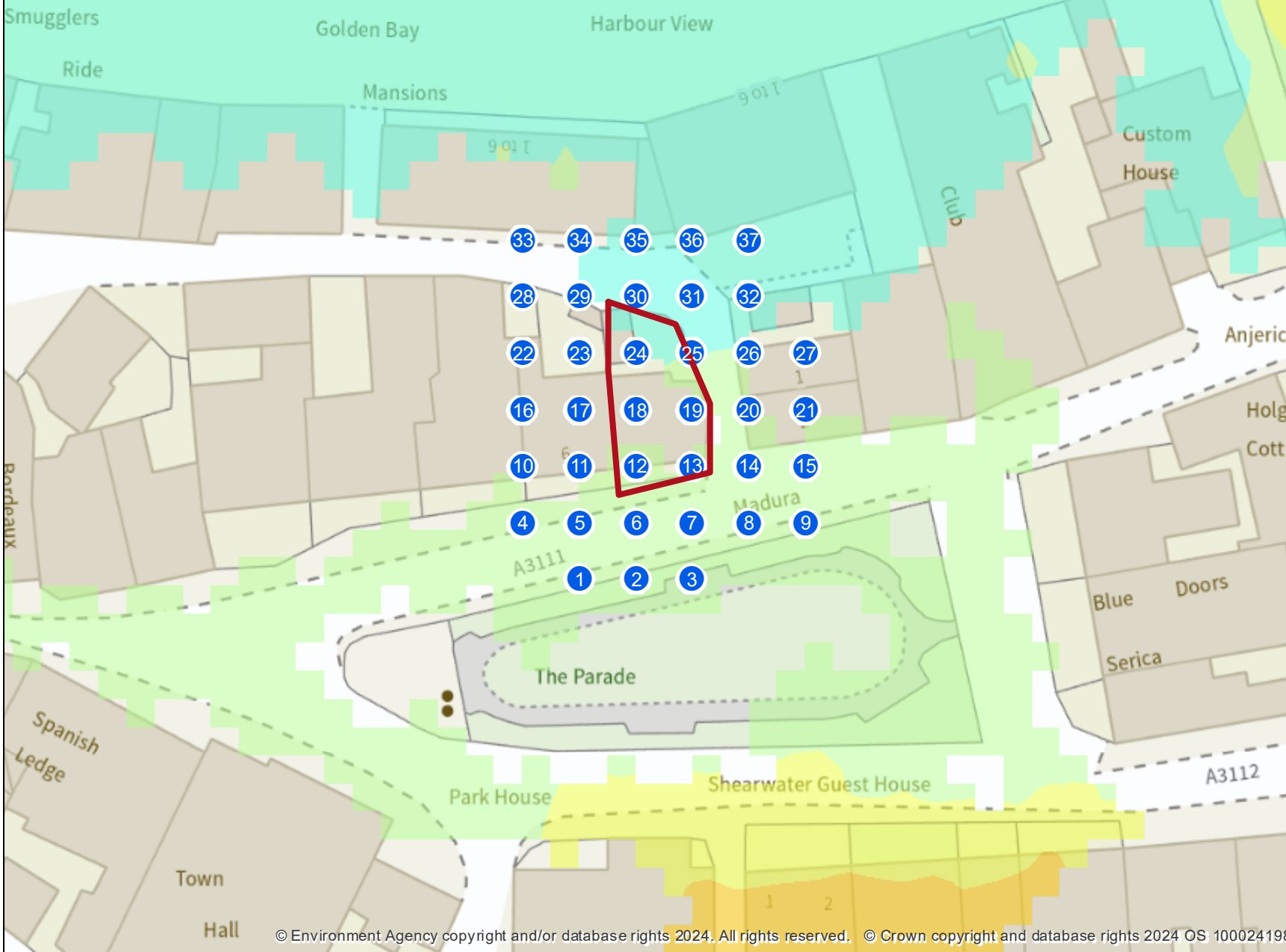
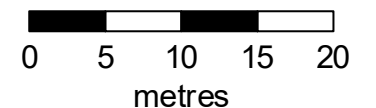
 Selected area

 Main river

Modelled 2D grid  
*Water level in mAOD*

-  0 - 3.0
-  3.0 - 3.375
-  3.375 - 3.75
-  3.75 - 4.125
-  4.125 - 4.5
-  4.5 - 4.875
-  4.875 - 5.25
-  5.25 - 5.625
-  5.625 - 6.0

This map shows the  
0.1% AEP height data







Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	90352	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
18	90357	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
19	90362	10550	NoData	NoData	NoData	NoData	0.09	4.13	0.09	4.13	0.10	4.14	0.11	4.15
20	90367	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
21	90372	10550	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
22	90347	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
23	90352	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
24	90357	10555	NoData	NoData	NoData	NoData	0.02	4.09	0.02	4.09	0.02	4.10	0.02	4.11
25	90362	10555	NoData	NoData	NoData	NoData	0.08	4.10	0.08	4.10	0.09	4.11	0.11	4.12
26	90367	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
27	90372	10555	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
28	90347	10560	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
29	90352	10560	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	0.00	4.09	0.01	4.10
30	90357	10560	NoData	NoData	NoData	NoData	0.06	4.08	0.06	4.08	0.07	4.09	0.09	4.10
31	90362	10560	0.02	3.93	0.02	3.93	0.14	4.07	0.14	4.08	0.16	4.09	0.17	4.11
32	90367	10560	0.01	3.94	0.01	3.94	0.11	4.07	0.11	4.07	0.12	4.09	0.14	4.10
33	90347	10565	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
34	90352	10565	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData	NoData
35	90357	10565	NoData	NoData	NoData	NoData	0.07	4.07	0.08	4.07	0.09	4.08	0.11	4.10

Label	Easting	Northing	5% AEP		2% AEP		1.33% AEP		1% AEP		0.5% AEP		0.1% AEP	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
36	90362	10565	0.01	3.97	0.01	3.97	0.10	4.06	0.10	4.06	0.11	4.07	0.13	4.09
37	90367	10565	NoData	NoData	NoData	NoData	0.07	4.06	0.07	4.06	0.09	4.08	0.10	4.09

Data in this table comes from the Isles of Scilly. St. Mary's 2019. model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



### Defended climate change modelled tidal extent and height

Location (easting/northing)  
**90359/10551**

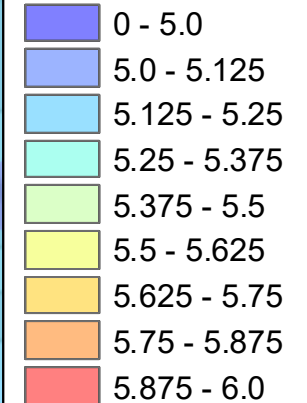
Scale Created  
**1:500 26 Mar 2024**

Model name  
**Isles of Scilly. St. Mary's 2019.**

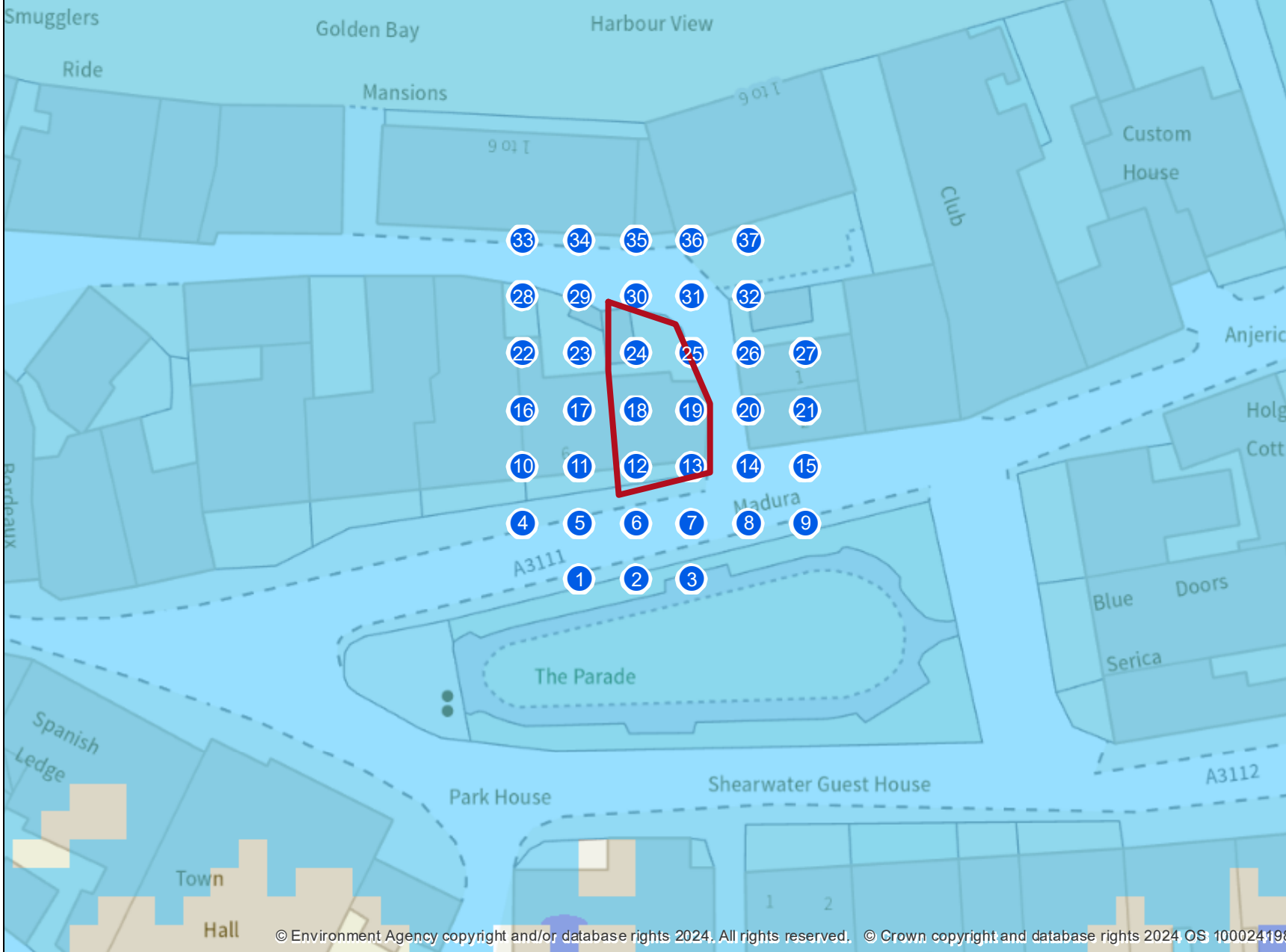
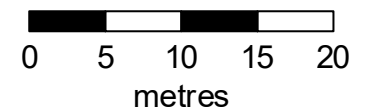
 Selected area

 Main river

Modelled 2D grid  
*Water level in mAOD*



This map shows the  
0.1% AEP +1037mm height data



# Sample point data

## Defended climate change

Label	Easting	Northing	1% AEP (+351mm)		1% AEP (+812mm)		0.5% AEP (+351mm)		0.5% AEP (+812mm)		0.5% AEP (+1037mm)		0.1% AEP (+351mm)		0.1% AEP (+812mm)		0.1% AEP (+1037mm)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	90352	10535	0.10	4.27	0.45	4.62	0.15	4.32	0.48	4.66	0.71	4.88	0.15	4.33	0.60	4.77	0.96	5.13
2	90357	10535	0.11	4.27	0.46	4.62	0.16	4.32	0.50	4.66	0.72	4.88	0.17	4.33	0.61	4.77	0.97	5.13
3	90362	10535	0.04	4.27	0.38	4.62	0.08	4.32	0.41	4.66	0.64	4.88	0.08	4.33	0.53	4.77	0.89	5.13
4	90347	10540	NoData	NoData	0.41	4.62	0.11	4.32	0.45	4.66	0.67	4.88	0.12	4.33	0.56	4.77	0.92	5.13
5	90352	10540	0.20	4.27	0.55	4.62	0.25	4.32	0.58	4.66	0.81	4.88	0.25	4.33	0.70	4.77	1.06	5.13
6	90357	10540	0.24	4.27	0.59	4.62	0.29	4.32	0.62	4.66	0.85	4.88	0.29	4.33	0.74	4.77	1.10	5.13
7	90362	10540	0.24	4.27	0.59	4.62	0.29	4.32	0.62	4.66	0.85	4.88	0.29	4.33	0.74	4.77	1.10	5.13
8	90367	10540	0.26	4.27	0.61	4.62	0.31	4.32	0.65	4.66	0.87	4.88	0.32	4.33	0.76	4.77	1.12	5.13
9	90372	10540	0.16	4.27	0.50	4.62	0.20	4.32	0.54	4.66	0.77	4.88	0.21	4.33	0.65	4.77	1.02	5.13
10	90347	10545	NoData	NoData	0.03	4.62	NoData	NoData	0.06	4.66	0.29	4.88	NoData	NoData	0.18	4.77	0.54	5.13
11	90352	10545	NoData	NoData	0.31	4.62	NoData	NoData	0.35	4.66	0.58	4.88	NoData	NoData	0.46	4.77	0.82	5.13
12	90357	10545	0.13	4.27	0.41	4.62	0.16	4.32	0.45	4.66	0.67	4.88	0.17	4.33	0.56	4.77	0.92	5.13
13	90362	10545	0.26	4.25	0.63	4.62	0.31	4.29	0.67	4.66	0.90	4.88	0.34	4.33	0.78	4.77	1.14	5.13
14	90367	10545	NoData	NoData	0.50	4.62	0.20	4.32	0.53	4.66	0.76	4.88	0.20	4.33	0.65	4.77	1.01	5.13
15	90372	10545	0.21	4.27	0.56	4.62	0.26	4.32	0.59	4.66	0.82	4.88	0.26	4.33	0.71	4.77	1.07	5.13
16	90347	10550	NoData	NoData	0.02	4.62	NoData	NoData	0.05	4.66	0.28	4.88	NoData	NoData	0.17	4.77	0.53	5.13
17	90352	10550	NoData	NoData	0.05	4.62	NoData	NoData	0.09	4.66	0.32	4.88	NoData	NoData	0.20	4.77	0.57	5.13
18	90357	10550	NoData	NoData	0.19	4.62	NoData	NoData	0.22	4.66	0.45	4.88	NoData	NoData	0.33	4.77	0.70	5.13
19	90362	10550	0.13	4.19	0.49	4.62	0.15	4.22	0.53	4.66	0.76	4.88	0.22	4.32	0.64	4.77	1.01	5.13

Label	Easting	Northing	1% AEP (+351mm)		1% AEP (+812mm)		0.5% AEP (+351mm)		0.5% AEP (+812mm)		0.5% AEP (+1037mm)		0.1% AEP (+351mm)		0.1% AEP (+812mm)		0.1% AEP (+1037mm)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
20	90367	10550	NoData	NoData	0.29	4.62	NoData	NoData	0.32	4.66	0.55	4.88	NoData	NoData	0.44	4.77	0.80	5.13
21	90372	10550	NoData	NoData	0.21	4.62	NoData	NoData	0.25	4.66	0.48	4.88	NoData	NoData	0.36	4.77	0.73	5.13
22	90347	10555	NoData	NoData	NoData	NoData	NoData	NoData	0.15	4.65	0.38	4.88	NoData	NoData	0.27	4.77	0.63	5.13
23	90352	10555	NoData	NoData	0.29	4.62	NoData	NoData	0.33	4.65	0.56	4.88	0.03	4.34	0.44	4.77	0.81	5.13
24	90357	10555	0.07	4.19	0.50	4.62	0.10	4.21	0.54	4.65	0.76	4.88	0.21	4.33	0.65	4.77	1.01	5.13
25	90362	10555	0.17	4.19	0.60	4.62	0.20	4.21	0.64	4.65	0.87	4.88	0.31	4.32	0.75	4.77	1.12	5.13
26	90367	10555	NoData	NoData	0.29	4.62	NoData	NoData	0.32	4.65	0.55	4.88	NoData	NoData	0.44	4.77	0.80	5.13
27	90372	10555	0.01	4.18	0.33	4.62	0.02	4.21	0.36	4.65	0.59	4.88	0.08	4.32	0.48	4.77	0.84	5.13
28	90347	10560	0.09	4.39	0.23	4.64	0.10	4.41	0.25	4.66	0.47	4.88	0.11	4.43	0.35	4.77	0.72	5.13
29	90352	10560	0.10	4.28	0.36	4.64	0.11	4.30	0.38	4.66	0.60	4.88	0.15	4.38	0.48	4.77	0.84	5.13
30	90357	10560	0.17	4.19	0.60	4.62	0.22	4.24	0.64	4.65	0.87	4.88	0.31	4.33	0.75	4.77	1.11	5.13
31	90362	10560	0.25	4.19	0.69	4.62	0.28	4.21	0.72	4.65	0.95	4.88	0.39	4.32	0.84	4.77	1.20	5.13
32	90367	10560	0.20	4.18	0.62	4.62	0.23	4.21	0.65	4.65	0.88	4.88	0.32	4.32	0.76	4.77	1.13	5.13
33	90347	10565	0.02	4.79	0.05	4.86	0.02	4.79	0.05	4.85	0.07	4.89	0.03	4.80	0.06	4.87	0.26	5.13
34	90352	10565	0.01	4.83	0.02	4.90	0.01	4.83	0.02	4.90	0.02	4.91	0.01	4.87	0.02	4.91	0.20	5.13
35	90357	10565	NoData	NoData	0.01	5.10	0.01	5.10	0.01	5.10	0.01	5.10	0.01	5.10	0.01	5.10	0.03	5.13
36	90362	10565	NoData	NoData	0.00	5.01	0.00	4.92	0.00	5.00	0.00	5.01	0.00	4.94	0.00	5.01	0.03	5.13
37	90367	10565	0.16	4.24	0.54	4.65	0.22	4.31	0.57	4.68	0.76	4.88	0.28	4.37	0.67	4.78	0.98	5.13

Data in this table comes from the Isles of Scilly, St. Mary's 2019, model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.



### Defences removed climate change modelled tidal extent and height

Location (easting/northing)  
**90359/10551**

Scale Created  
**1:500 26 Mar 2024**

Model name  
**Isles of Scilly. St.  
Mary's 2019.**

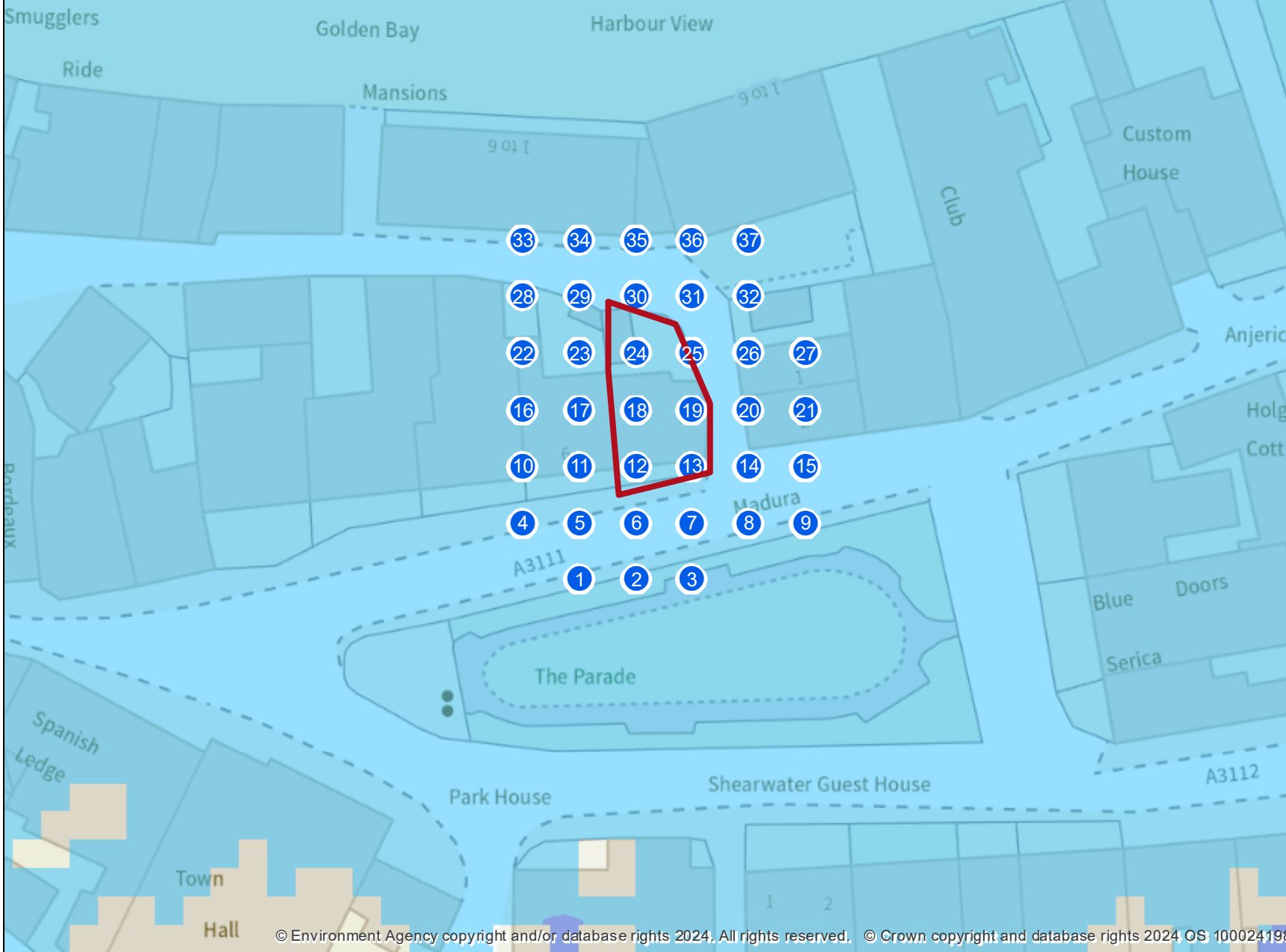
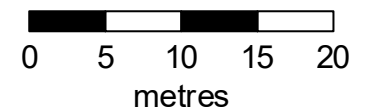
Selected area

Main river

Modelled 2D grid  
*Water level in mAOD*

- 0 - 5.0
- 5.0 - 5.125
- 5.125 - 5.25
- 5.25 - 5.375
- 5.375 - 5.5
- 5.5 - 5.625
- 5.625 - 5.75
- 5.75 - 5.875
- 5.875 - 6.0

This map shows the  
0.1% AEP +1037mm height data



# Sample point data

## Defences removed climate change

Label	Easting	Northing	0.5% AEP (+351mm)		0.5% AEP (+812mm)		0.5% AEP (+1037mm)		0.1% AEP (+351mm)		0.1% AEP (+812mm)		0.1% AEP (+1037mm)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
1	90352	10535	0.16	4.34	0.49	4.66	0.71	4.88	0.17	4.35	0.60	4.77	0.96	5.13
2	90357	10535	0.18	4.34	0.50	4.66	0.72	4.88	0.19	4.35	0.61	4.77	0.97	5.13
3	90362	10535	0.09	4.34	0.42	4.66	0.64	4.88	0.10	4.35	0.53	4.77	0.89	5.13
4	90347	10540	0.13	4.34	0.45	4.66	0.67	4.88	0.14	4.35	0.56	4.77	0.92	5.13
5	90352	10540	0.27	4.34	0.59	4.66	0.81	4.88	0.27	4.35	0.70	4.77	1.06	5.13
6	90357	10540	0.31	4.34	0.63	4.66	0.85	4.88	0.31	4.35	0.74	4.77	1.10	5.13
7	90362	10540	0.31	4.34	0.63	4.66	0.85	4.88	0.31	4.35	0.74	4.77	1.10	5.13
8	90367	10540	0.33	4.34	0.65	4.66	0.87	4.88	0.34	4.35	0.76	4.77	1.12	5.13
9	90372	10540	0.22	4.34	0.55	4.66	0.77	4.88	0.23	4.35	0.66	4.77	1.02	5.13
10	90347	10545	NoData	NoData	0.07	4.66	0.29	4.88	NoData	NoData	0.18	4.77	0.54	5.13
11	90352	10545	NoData	NoData	0.36	4.66	0.58	4.88	NoData	NoData	0.46	4.77	0.83	5.13
12	90357	10545	0.17	4.34	0.45	4.66	0.68	4.88	0.18	4.35	0.56	4.77	0.92	5.13
13	90362	10545	0.33	4.32	0.68	4.66	0.90	4.88	0.35	4.34	0.78	4.77	1.15	5.13
14	90367	10545	0.21	4.34	0.54	4.66	0.76	4.88	0.22	4.35	0.65	4.77	1.01	5.13
15	90372	10545	0.28	4.34	0.60	4.66	0.82	4.88	0.28	4.35	0.71	4.77	1.07	5.13
16	90347	10550	NoData	NoData	0.06	4.66	0.28	4.88	NoData	NoData	0.17	4.77	0.53	5.13



Label	Easting	Northing	0.5% AEP (+351mm)		0.5% AEP (+812mm)		0.5% AEP (+1037mm)		0.1% AEP (+351mm)		0.1% AEP (+812mm)		0.1% AEP (+1037mm)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
17	90352	10550	NoData	NoData	0.10	4.66	0.32	4.88	NoData	NoData	0.21	4.77	0.57	5.13
18	90357	10550	NoData	NoData	0.23	4.66	0.45	4.88	NoData	NoData	0.34	4.77	0.70	5.13
19	90362	10550	0.15	4.22	0.54	4.66	0.76	4.88	0.21	4.32	0.65	4.77	1.01	5.13
20	90367	10550	NoData	NoData	0.33	4.66	0.55	4.88	NoData	NoData	0.44	4.77	0.80	5.13
21	90372	10550	NoData	NoData	0.26	4.66	0.48	4.88	NoData	NoData	0.37	4.77	0.73	5.13
22	90347	10555	NoData	NoData	0.16	4.66	0.38	4.88	NoData	NoData	0.27	4.77	0.63	5.13
23	90352	10555	NoData	NoData	0.34	4.66	0.56	4.88	0.01	4.31	0.45	4.77	0.81	5.13
24	90357	10555	0.09	4.21	0.54	4.66	0.77	4.88	0.19	4.31	0.65	4.77	1.01	5.13
25	90362	10555	0.19	4.21	0.65	4.66	0.87	4.88	0.30	4.31	0.76	4.77	1.12	5.13
26	90367	10555	NoData	NoData	0.33	4.66	0.55	4.88	NoData	NoData	0.44	4.77	0.80	5.13
27	90372	10555	0.02	4.20	0.37	4.66	0.59	4.88	0.07	4.31	0.48	4.77	0.84	5.13
28	90347	10560	NoData	NoData	0.25	4.66	0.47	4.88	0.04	4.31	0.36	4.77	0.72	5.13
29	90352	10560	0.04	4.21	0.37	4.66	0.60	4.88	0.09	4.31	0.48	4.77	0.85	5.13
30	90357	10560	0.19	4.21	0.64	4.66	0.87	4.88	0.30	4.31	0.75	4.77	1.12	5.13
31	90362	10560	0.27	4.21	0.73	4.66	0.95	4.88	0.38	4.31	0.84	4.77	1.20	5.13
32	90367	10560	0.22	4.20	0.66	4.66	0.88	4.88	0.31	4.31	0.77	4.77	1.13	5.13
33	90347	10565	NoData	NoData	0.35	4.66	0.58	4.88	NoData	NoData	0.46	4.77	0.83	5.13
34	90352	10565	NoData	NoData	0.45	4.66	0.67	4.88	NoData	NoData	0.56	4.77	0.92	5.13

Label	Easting	Northing	0.5% AEP (+351mm)		0.5% AEP (+812mm)		0.5% AEP (+1037mm)		0.1% AEP (+351mm)		0.1% AEP (+812mm)		0.1% AEP (+1037mm)	
			Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height	Depth	Height
35	90357	10565	0.21	4.21	0.67	4.66	0.89	4.88	0.32	4.31	0.77	4.77	1.14	5.13
36	90362	10565	0.25	4.20	0.70	4.66	0.93	4.88	0.35	4.31	0.81	4.77	1.17	5.13
37	90367	10565	0.21	4.20	0.67	4.66	0.89	4.88	0.32	4.31	0.78	4.77	1.14	5.13

Data in this table comes from the Isles of Scilly. St. Mary's 2019. model.

Height values are shown in mAOD, and depth values are shown in metres.

Any blank cells show where a particular scenario has not been modelled for this location.

Cells which contain text 'NoData' for a scenario show that return period has been modelled but there is no flood risk for that return period for that location.

## Strategic flood risk assessments

We recommend that you check the relevant local authority's strategic flood risk assessment (SFRA) as part of your work to prepare a site specific flood risk assessment.

This should give you information about:

- the potential impacts of climate change in this catchment
- areas defined as functional floodplain
- flooding from other sources, such as surface water, ground water and reservoirs

## About this data

This data has been generated by strategic scale flood models and is not intended for use at the individual property scale. If you're intending to use this data as part of a flood risk assessment, please include an appropriate modelling tolerance as part of your assessment. The Environment Agency regularly updates its modelling. We recommend that you check the data provided is the most recent, before submitting your flood risk assessment.

## Flood risk activity permits

Under the Environmental Permitting (England and Wales) Regulations 2016 some developments may require an environmental permit for flood risk activities from the Environment Agency. This includes any permanent or temporary works that are in, over, under, or nearby a designated main river or flood defence structure.

[Find out more about flood risk activity permits](#)

## Help and advice

Contact the Devon Cornwall and the Isles of Scilly Environment Agency team at [dcisenquiries@environment-agency.gov.uk](mailto:dcisenquiries@environment-agency.gov.uk) for:

- [more information about getting a product 5, 6, 7 or 8](#)
- general help and advice about the site you're requesting data for

# Pre-planning application Guidance Note: Devon, Cornwall & Isles of Scilly Area

Last Updated: September 2022

**This guidance has been produced to help you plan and prepare your development proposal.**

**It sets out the environmental issues we expect to be considered as part of a planning application. Please be aware that this guide is not exhaustive and further details may be requested by us at planning application stage to address site specific environmental issues.**

**This guidance is only for use in the Environment Agency's Devon, Cornwall and Isles of Scilly Area and should be read alongside our detailed national guidance which can be found on the GOV.UK website.**

**It can be used by applicants, developers and consultants at the pre-planning stage.**

## Further bespoke advice

The information provided below details generic information which may or may not be applicable to your development. We can provide bespoke guidance or review technical information prior to the submission of a planning application. This is part of our charged service, which equates to £100 per person per hour plus VAT.

Further engagement at the pre-application stage will speed up our formal response to your planning application and provide you with certainty as to what our response to your planning application will be. It should also result in a better quality and more environmentally sensitive development. As part of our charged for service we will provide a dedicated project manager to act as a single point of contact to help resolve any problems.

If you are interested in finding out more about this service, please email: [SPDC@environment-agency.gov.uk](mailto:SPDC@environment-agency.gov.uk).

We also recommend that you consult with the relevant Local Planning Authority (LPA) to ensure that your planning application meets their requirements.

## Section 1: Flood Risk

The National Planning Policy Framework (NPPF) requires development in areas at risk of flooding to be safe and not increase the risk of flooding.

You can view a site's flood zone on the [Flood Map for Planning](#). If your proposed development is located within Flood Zone 2 or 3 you should consult the [Flood Risk and Coastal Change](#) pages of the National Planning Practice Guidance (NPPG).

The guidance will help you determine whether the flood risk vulnerability of your proposed development and the flood zone are compatible. You can also establish if there are flood risk sequential test and exception test requirements for your proposed development. These are summarised in the table below, which is adapted from [Table 3](#) in the NPPG.

Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
<b>Zone 1</b>	✓ Avoid flood risk from sources other than rivers & sea	✓ Avoid flood risk from sources other than rivers & sea	✓ Avoid flood risk from sources other than rivers & sea	✓ Avoid flood risk from sources other than rivers & sea	✓ Avoid flood risk from sources other than rivers & sea
<b>Zone 2</b>	? Sequential Test required	? Sequential and Exception Tests required	? Sequential Test required	? Sequential Test required	? Sequential Test required
<b>Zone 3a</b>	? Sequential and Exception Tests required	X Development should not be permitted	? Sequential and Exception Tests required	? Sequential Test required	? Sequential Test required
<b>Zone 3b</b>	? Sequential and Exception Tests required	X Development should not be permitted	X Development should not be permitted	X Development should not be permitted	? Sequential Test required

### 1.1 Sequential Test

The NPPF and associated NPPG ([Flood Risk and Coastal Change](#) chapter) requires the Sequential Test to be applied to planning applications where development is located within Flood Zone 2, 3a or 3b in the circumstances shown in the table above. The only exceptions are sites allocated in an adopted Local Plan which have already been subject to the test, change of use or [minor development](#).

For the site to pass the Sequential Test it must be satisfactorily demonstrated to the LPA that there are no appropriate alternative sites available for this development at a lower risk of flooding. It is for the LPA to determine if the Sequential Test has to be applied and whether or not there are other sites available at lower flood risk. Therefore, we recommend that you discuss the requirements of the Sequential Test with the LPA at the earliest opportunity.

### 1.2 Sequential Approach

If the Sequential Test is passed then a sequential approach should be applied within the site to direct development to the areas of lowest flood risk (Flood Zone 1 first, followed by Flood Zone 2). If it is not possible to locate all of the development within Flood Zone 1, then the most vulnerable elements of the development should be located in the lowest risk parts of the site.

### 1.3 Exception Test

The Exception Test should only be applied in the circumstances shown in the table above following application of the sequential test. The Exception Test should not be used to justify the grant of planning permission in flood risk areas when the Sequential Test has not been satisfied.

The Exception Test is in two parts and both need to be met for the test to be satisfied. It is for the applicant to demonstrate this to the LPA, but we will provide advice on the second part of the test. The second part requires a site-specific flood risk assessment (FRA) to demonstrate that the new development will be safe over its lifetime (including access and egress), will not increase flood risk elsewhere and, where possible, will reduce flood risk overall. The NPPF states that both parts of this test should be satisfied for development to be permitted.

## 1.4 Inappropriate development in areas at risk of flooding

[Table 3](#) in the NPPG sets out the circumstances where development is inappropriate and should not be permitted.

Flood Zone 3b is land classed as the 'functional floodplain' and is land defined by an LPA's Strategic Flood Risk Assessment (SFRA) as having the highest probability of flooding, and where water has to flow or be stored in times of flood. Only water compatible development and essential infrastructure (subject to the Exception Test) can be acceptable within the functional floodplain.

We would **object in principle** to any development that falls under any other vulnerability classification. It is important to note that the functional floodplain is not separately distinguished from Zone 3a on the Flood Map for Planning. Instead, areas of functional floodplain have been identified by LPAs within their SFRA's.

Highly vulnerable development, which includes caravans, mobile homes and park homes intended for permanent residential use and basement dwellings, is also not acceptable in Flood Zone 3a.

## 1.5 Flood Risk Assessment (FRA) Requirements

A site-specific flood risk assessment should be provided for all development in Flood Zones 2 and 3 in accordance with paragraph 167, footnote 55 of the [National Planning Policy Framework](#) (NPPF). In Flood Zone 1, an assessment should accompany all proposals involving: sites of 1 hectare or more; land which has been identified by the Environment Agency as having critical drainage problems; land identified in a strategic flood risk assessment as being at increased flood risk in future; or land that may be subject to other sources of flooding, where its development would introduce a more vulnerable use.

In accordance with the NPPF and associated NPPG, a site specific FRA must clearly demonstrate how you intend to manage flood risk on site to ensure that the proposed development will be safe for its lifetime and that flood risk is not increased on site and elsewhere.

The FRA should be appropriate to the scale, nature and location of the development. While it is possible for applicants to undertake their own assessment, most employ suitably experienced professionals. We are not able to recommend specific consultants, but details of competent individuals or companies can be found online.

We would expect your FRA to address (but not necessarily be limited to) the following issues:

- Consideration of the level of flood risk and whether the proposed use would be appropriate in accordance with its vulnerability classification outlined within [Table 2](#) of the Planning Practice Guidance: [Flood Risk and Coastal Change](#) (section 25).
- Identification of the level of flood risk on the site and consideration of the impact a range of flood events would have on the proposed development, including an assessment of the impacts of climate change by selecting the appropriate climate change allowances.

- Confirmation of any flood defences and standard of protection provided, to confirm the level of residual risk in accordance with the Strategic Flood Risk Assessment (SFRA) for the local planning authority in which the development is located.
- Estimation of flood depths at the site for a range of flood events, to calculate internal flood depths and level of refuge required in the event of a breach or failure of the flood defences.
- Appropriate and realistic flood mitigation measures based on flood characteristics at site.
- Details of set back of the development from the riverbank / defence.
- Confirmation that a safe route of access and egress with a 'very low flood hazard' rating in accordance with the guidance document '[FD2320 \(Flood Risk Assessment Guidance for New Developments\)](#)' is achievable.

For further information on our flood map products please visit our [website](#). Guidance on the content of a site-specific FRA can be found on the NPPG and at [gov.uk](#).

We can provide any flood risk information which we have available – such as predicted flood levels and historical flood data – for use in FRAs. Please contact our Customers and Engagement Team at [DCISEnquiries@environment-agency.gov.uk](mailto:DCISEnquiries@environment-agency.gov.uk) for further details.

## 1.6 Modelling

In some instances a detailed hydraulic model or flood modelling work may be necessary, in particular if there is no available data for the area of your planning application or to take into account correct climate change allowances. Please be aware that if you are required to carry out flood modelling as part of your proposal you will need to submit the flood model files to the LPA as part of your planning application, which will then need to be reviewed by us.

Where modelling is required, we advise you to contact us ahead of submitting your planning application to discuss your modelling requirements and avoid delays when you submit your planning application.

## 1.7 Climate Change Allowances

In order to demonstrate the risks to the proposal over its lifetime, a site-specific FRA must also consider the impact of climate change on future flood risks. The latest guidance on how to apply the correct, up to date climate change allowance for FRAs is available at [gov.uk](#).

## 1.8 Finished Floor Levels

Raising floor levels above the design flood level is the most effective means of ensuring development will not be subject to internal flooding. The finished floor levels of new buildings in areas at a high risk of flooding should be at least 300 millimetres above the design flood level, including an allowance for climate change. Where this cannot be achieved due to other planning constraints, we request that floor levels are set as high as possible (for extensions to existing buildings, no lower than the existing floor levels) and that flood resilience/resistance measures are considered, where appropriate, up to the design flood level.

Where floor levels cannot be raised sufficiently, consideration should be given to the use of flood resilient construction practices and materials in the design and build phase. Choice of materials and simple design modifications can make the development more resistant to flooding and reduce rehabilitation time in the event of future inundation. We may object unless it can be demonstrated that the safety of occupants can be managed by including other flood resilience/resistance measures up to the design flood level.

Detailed information on flood proofing and mitigation can be found on the gov.uk website in the documents [‘Improving the Flood performance of new buildings’](#) and [‘Prepare your property for flooding’](#).

### 1.9 Floodplain Compensation

Your FRA will need to demonstrate that any increase in built footprint within the 1 in 100 year plus climate change flood extent can be directly compensated for, on a volume-for-volume and level-for-level basis to prevent a loss of floodplain storage. If it is not possible to provide level for level flood plain compensation, other forms of mitigation may be considered if agreed with the LPA or there should be no increase in built footprint. It will also need to be demonstrated that the proposed development does not impact the flow and conveyance of water.

The use of voids, stilts or under-croft parking as mitigation for a loss in floodplain storage should be avoided, as they may become blocked over time by debris or domestic effects. We would not recommend these methods to the LPA as an acceptable means of compensation.

### 1.10 Safe Access

During a flood, the journey to safe, dry areas completely outside the 1 in 100 year plus climate change flood extent would involve crossing areas of potentially fast flowing water. Those evacuating on foot in areas where flooding exceeds 100 millimetres or so would be at risk from a wide range of hazards, including for example unmarked drops, or access chambers where the cover has been swept away.

Where safe access cannot be achieved, an emergency flood plan that deals with matters of evacuation and refuge to demonstrate that people will not be exposed to flood hazards should be submitted to and agreed with the LPA.

We recommend that you discuss safe access and egress routes with the local authority emergency planners, as they will be responsible for agreeing to any emergency plan submitted with your application.

### 1.11 Flood Defences

It should be demonstrated that any flood walls/defences are in good enough condition to protect the proposed development for its lifetime. This is usually 100 years for residential development. This should be submitted in the form of a survey and should include an assessment of any remedial works or flood defence replacement options required to protect the site from flooding for the lifetime of the development.

The FRA should assess the impacts of a failing flood defence (for example, a breach scenario) on the proposed development and demonstrate that there will not be an unacceptable risk of flooding.

### 1.12 Critical Drainage Areas

A Critical Drainage Area (CDA) is defined as an area (including areas within Flood Zone 1) which has critical drainage problems, as notified to the local planning authority by the Environment Agency. Within such areas developments may present significant risks of flooding on-site and/or off-site if surface water run-off is not effectively managed. Within CDAs development is therefore expected to meet tighter drainage standards. In accordance with Paragraph 167, footnote 55 of the NPPF, applicants for planning permission are required to submit an appropriate FRA when development is proposed in such locations.



The responsibility for determining whether surface water drainage proposals are appropriate rest with the relevant Lead Local Flood Authority (LLFA). There are four LLFAs within Devon and Cornwall (Cornwall Council, Devon County Council, Plymouth City Council and Torbay Council). The CDAs that have been notified in each LLFA area are listed below. For further information please contact the LLFAs directly.

<b>Cornwall LLFA</b> <a href="mailto:floodrisk@cornwall.gov.uk">floodrisk@cornwall.gov.uk</a>
Bodmin – Bude – Camborne, Pool, Illogan & Redruth – Falmouth & Penryn – Flexbury – Hayle – Helston – Launceston – Liskeard – Lostwithiel – Padstow – Penzance and Newlyn – Saltash (Latchbrook Leat) – St Austell – St Blazey – St Ives – Truro (Kenwyn, Allen & Tregolls Rd and Tinney) – Wadebridge
<b>Devon LLFA</b> <a href="mailto:floodrisk@devon.gov.uk">floodrisk@devon.gov.uk</a>
Ashburton – Axminster – Barnstaple (southwest and east) – Bideford – Bovey Tracey – Cullompton – Dawlish Warren – East the Water – Feniton – Fremington and Yelland – Holbeam Dam (River Lemon) – Holsworthy – Ilfracombe and Hele – Ivybridge – Kingsbridge – Modbury – Okehampton – Palmers Dam (River Harbourne) – Tavistock – Totnes (Bridgetown & Warlands) – Whimble
<b>Plymouth LLFA</b> <a href="mailto:FloodRiskTeam@plymouth.gov.uk">FloodRiskTeam@plymouth.gov.uk</a>
All areas of the city except Ennesettle, Whitleigh, Woolwell, Glenholt, Mainstone and Plymstock
<b>Torbay LLFA</b> <a href="mailto:highways@torbay.gov.uk">highways@torbay.gov.uk</a>
All areas of Torbay

### 1.13 Flood Risk Standing Advice for lower risk development

We have produced a series of standard comments for LPAs and applicants to refer to for lower risk development proposals. These comments replace direct consultation with us. These standard comments are known as Flood Risk Standing Advice (FRSA), and can be found on [gov.uk](http://gov.uk). We recommend that you view our standing advice in full before submitting the required information as part of a planning application. The LPA will then determine whether flood risk has been considered in line with FRSA recommendations.

Within Devon, Cornwall and Isles of Scilly Area we have also produced Local Flood Risk Standing Advice (LFRSA). The LFRSA covers non-major changes of use to residential uses (i.e. less than 10 dwellings) and replacement dwellings in areas at risk of flooding. We will issue the relevant LFRSA guidance notes directly to Local Planning Authorities when consulted on these proposals.

## Section 2: Main Rivers & Ecology

### 2.1 Flood Risk Activity Permit

The Environmental Permitting (England and Wales) Regulations 2016 require a permit to be obtained for any activities which will take place:

- in, over or under a main river
- on or within 8 metres of the bank of a main river, or 16 metres if it is a tidal main river
- on or within 8 metres of any flood defence structure or culvert on a main river, or 16m for a tidal main river or sea defence
- involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert
- in a floodplain more than 8 metres from the riverbank, culvert or flood defence structure (16 metres if it is a tidal main river) without planning permission.

Flood risk activities can be classified as: Exclusions, Exemptions, Standard Rules or Bespoke. These are associated with the level of risk your proposed works may pose to people, property and the environment. Further guidance on applying for flood risk activity permits can be found [online](#).

To identify any Main Rivers in proximity to your proposed development please check our Flood Map for Planning.

Where a Flood Risk Activity Permit (FRAP) is required, it is unlikely that our consent will be granted for works that do not allow access for maintenance or repair purpose or that have an unacceptable impact on flood risk or the natural environment. The permanent retention of a continuous unobstructed area is an essential requirement for emergency access to the river for repairs to the bank and for future maintenance and/or improvement works.

Where development or works are proposed that would require a FRAP, it is recommended that detailed planning advice is obtained from us prior to the submission of a planning application. We may object to a planning application if we do not consider that we can issue a FRAP for a development as proposed. The determination of a planning application could be delayed until our concerns are resolved.

FRAPs are required irrespective of any planning permission and are not guaranteed. You should not assume that a permit will automatically be forthcoming once planning permission has been granted, and we advise you to consult with us at the earliest opportunity.

### 2.2 Ecological Enhancements & Biodiversity Net Gain

Paragraphs 174 and 179 of the National Planning Policy Framework (NPPF) recognise that the planning system should conserve and enhance the environment by minimising impacts on and providing net gains for biodiversity. If significant harm resulting from a development cannot be avoided, adequately mitigated, or as a last resort compensated for, planning permission should be refused.

We recommend that development proposals protect and enhance the local environment and seek opportunities to enhance ecology and provide Biodiversity Net Gains (BNG). The enhancement of

biodiversity in and around development should be led by a local understanding of ecological networks, and should seek to include:

- habitat restoration, re-creation and expansion;
- improved links between existing sites;
- buffering of existing important sites;
- new biodiversity features within development; and
- securing management for long term enhancement

### 2.3 River Naturalisation and Culverted Watercourses

Development on sites with existing culverts present opportunities for de-culverting as part of the proposal. Deculverting and river restoration will provide environmental improvements and contribute to the delivery of BNG, will help deliver [Water Framework Directive \(WFD\)](#) improvements and will also reduce the risk of flooding. We strongly recommend you consider all options to remove any culverted sections of watercourses as part of your development proposals, restoring the river to its natural state. If deculverting is not possible on the site we would expect to see adequate evidence for this.

We will object to any proposal to culvert main river watercourses. Development that involves culverting for land gain purposes is not sustainable. It works against the natural processes of watercourses and can exacerbate the risk of flooding and increase maintenance costs and complexity. It can also destroy wildlife habitats, hinder fish passage, reduce amenity value, interrupt the continuity of the linear corridor of a watercourse and affect channel stability. It can also significantly reduce resilience to the effects of drought, floods and pollution. Culverting an ordinary watercourse requires the prior consent of the Lead Local Flood Authority.

### 2.4 Buffer Zone

Development adjacent to main rivers should be designed with a naturalised buffer zone of at least 8 metres from the bank top or retaining wall to protect and enhance the conservation value of the watercourse and ensure access for flood defence maintenance. This increases to 16 metres for a tidal main river, and the requirement for a buffer zone also applies to culverted watercourses. Where such a buffer strip does not currently exist, we normally seek to ensure that it is established. In urban areas in particular, rivers have often been degraded by past development, and we expect that any new development should go some way to redress the balance.

The buffer zone should be designed and managed for the benefit of biodiversity and should be undisturbed by development with no fencing, footpaths or other structures. It should not include formal landscaping, and should include the planting of locally appropriate native species. Mowing regimes should be low intensity, allowing plants to flower. Light spill within the buffer zone from external artificial lights should be kept at an absolute minimum and be located and directed so that light levels of 0-2 lux are maintained. The buffer zone will help provide more space for flood waters, provide improved habitat for local biodiversity and allows access for any maintenance requirements.

We recommend that you submit a suitably scaled plan showing the distance of the new development from the watercourse.

## 2.5 Nature Conservation & Ecology Surveys

The presence of a main river on or within 8 metres of your proposed development site means an ecological survey should accompany your planning application to establish whether development is likely to have a detrimental impact on the biodiversity of the watercourse. We would not support development proposals if there was shown to be a likely detrimental impact on the water environment. In accordance with the NPPF, any development proposal should avoid significant harm to biodiversity and seek to provide a net gain in biodiversity. Opportunities to incorporate biodiversity in and around the development will be encouraged where appropriate, see examples in our [Estuary Edges Guidance](#).

If there is the potential for protected species or habitats to be present on or adjacent to the site, as part of your planning application you will need to undertake the necessary ecological surveys / assessments to determine if they are present. Where protected species and / or habitats are present, detailed assessments and mitigation measures may be necessary. We may offer advice in relation to water-based species and / or habitats that are within our remit.

Where protected species or habitats are present, works may also require licensing from Natural England and therefore we recommend you contact Natural England for their advice.

You can find a full list of protected sites, species and the precautions required for planning on the [GOV.UK](#) website.

## 2.6 Water Framework Directive (WFD)

With any development alongside watercourses, consideration should be given to the requirements of the [Water Framework Directive](#) (WFD) which includes causing no overall deterioration in water quality or the ecological status of any waterbody.

Proposed development in close proximity to watercourses may require a [WFD compliance assessment](#). This must assess any potential impacts on the watercourses and demonstrate that the required enhancements will be delivered. Any development that has the potential to cause deterioration in classification under WFD or that precludes the recommended actions from being delivered in the future is likely to be considered unacceptable to us. You will find actions associated with the WFD by searching for your watercourse on the [EA Catchment Data Explorer](#). For further guidance on undertaking a WFD compliance assessment, please refer to [gov.uk](#).

## 2.7 Non-native Species

Development and construction activities may increase the risk of spreading invasive species present within a proposed development site. Where the presence of invasive species is known or suspected, prior to the commencement of development (including ground clearance) we would expect a detailed method statement for the removal or long-term management /eradication of the invasive species on the site to be submitted to and approved in writing by the LPA. This will help prevent the spread while work is being carried out and consider the longer-term management. When visiting any site, work methods must include appropriate biosecurity measures (considered for all potential spread pathways) to prevent the spread and introduction of invasive non-native species in order to avoid contravention of the Wildlife and Countryside Act 1981. Without this, avoidable damage could be caused to the nature conservation value of a site.

## Section 3: Groundwater Quality and Contaminated Land

### 3.1 Land Affected by Contamination

The NPPF takes a precautionary approach to land contamination. Before the principle of development can be determined, land contamination should be investigated to see whether it could preclude certain development due to environmental risk or cost of remediation.

Where contamination is known or suspected, a desk study, site investigation, remediation and other works may be required to enable safe development (paragraph 183 of the NPPF). The minimum requirements for submission with a planning application are a preliminary risk assessment, such as a site walkover or desk top study.

Site Investigation and Remediation Strategy reports may be required for submission with a planning application for sensitive land use types or where significant contamination or uncertainty is found. Where these reports are missing or where they do not demonstrate no adverse impact on the environment, we are likely to raise an objection to the planning application.

If during site works contaminated material is suspected, you are advised to stop works and seek further guidance. Remediation of contaminated land may require a permit under Environmental Permitting Regulations.

When dealing with land affected by contamination, developers should follow the risk management framework provided in 'Model procedures for the management of land contamination' ([CLR11](#)).

Please also note that any surface water drainage system must not pose a risk to groundwater quality and must not be constructed in ground affected by contamination.

Further guidance can be found at:

- What is [contaminated land](#)?
- [NPPF: Land affected by contamination](#)
- [Environment Agency Land contamination: technical guidance](#)
- [Land contamination risk assessment](#)

We recommend you contact your Local Authority's Environmental Health team who may hold records on known/potential land contamination. Please note our primary concern is with regards to water quality. Your Local Authority's Environmental Health team will advise you on issues related to human health.

### 3.2 Groundwater Protection

Our [groundwater protection position statements](#) set out our position on groundwater protection for a wide range of activities and developments. These cover both planning and permitting.

We have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used across the country for public drinking water supply. These zones are more vulnerable to contamination from activities that might cause pollution in the area. The closer the activity to groundwater, the greater the risk.

To see if your proposed development is located within a Source Protection Zone, please use our [online map](#).

We will **object** to the following developments within **SPZ1** in line with our groundwater protection position statements:

- large-scale above or below ground storage of hazardous substances (as may occur at a chemical works or at a petrol filling station)
- new development of non-landfill waste operations where the operation poses an intrinsic hazard to groundwater, for example deposit of waste for recovery activities.
- landspreading of sludge or liquid waste containing significant concentrations of pollutants.
- the locating of any new cemetery or the extension of any existing cemetery, within SPZ1, or 250 metres from a well, borehole or spring used to supply water that is used for human consumption, whichever is the greater distance.

### 3.3 Cemeteries

Development proposals for cemeteries should be avoided in areas where they present a high risk to the water environment. A [groundwater risk assessment](#) should be undertaken to accompany any planning application for a proposed burial site. This should show that there are minimal risks to the environment either at the time of burial, or in the future.

From 1 April 2022, cemeteries with the highest environmental risk are also controlled through the permitting system under the Environmental Permitting (England and Wales) Regulations 2016. If you need to apply for an environmental permit, you must also provide a risk assessment as part of your application.

More information and guidance can be found on the following GOV.UK pages:

- [protecting groundwater from human burials](#)
- [‘The Environment Agency’s approach to groundwater protection](#) – specifically Section L: Cemetery developments

### 3.4 Surface Water Drainage

We recommend the use of Sustainable Drainage Systems (SuDS). These techniques can provide a method for reducing runoff that could otherwise lead to flooding. They can also minimise pollution impacts, improve biodiversity and provide amenity areas.

Where infiltration drainage is proposed, it must be demonstrated that it will not pose a risk to groundwater quality. Infiltration should not be focused in areas where ground contamination has been identified. Surface water infiltrating through contaminated ground can mobilise contaminants and result in pollution of the groundwater. Where necessary, we will seek to control the depths of soakaway systems by recommending maximum penetration depths and a requirement that the water table should not be intersected. In general, groups of shallow soakaways are preferable to one or two deep boreholes.

Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should have a suitable series of treatment steps to prevent the pollution of

groundwater. For the immediate drainage catchment areas used for handling and storage of chemicals and fuel, handling and storage of waste and lorry, bus and coach parking or turning areas, infiltration SuDS are not permitted without an environmental permit.

Please note that we cannot issue an environmental permit for the direct discharge of hazardous substances into groundwater.

Further guidance can be found in our [groundwater protection position statements](#) and the updated [CIRIA SUDs manual](#).

Sustainable Drainage Systems (SuDS) should always be carefully considered in discussions with the Lead Local Flood Authority, who are responsible for providing advice on the management of surface water drainage. You should consult them for their comments on your proposal.

## Section 4: Foul Water Drainage & Water Resources

### 4.1 Foul Water Drainage

Government guidance contained within the [NPPG](#) (Water supply, wastewater and water quality – considerations for planning applications, paragraph 020) sets out a hierarchy of drainage options that must be considered and discounted in the following order:

1. Connection to the public sewer
2. Package sewage treatment plant (adopted in due course by the sewerage company or owned and operated under a new appointment or variation)
3. Septic tank

The first presumption must be to provide a system of foul drainage discharging into a public sewer to be treated at a public sewage treatment works. Only where an applicant can demonstrate to the satisfaction of the LPA that connection to a public sewer is not feasible due to the cost and / or practicability should a non-mains foul sewage disposal solution be considered.

The NPPG states that ‘applications for developments relying on anything other than connection to a public sewage treatment plant should be supported by sufficient information to understand the potential implications for the water environment’. Any planning application which includes a non-mains system should therefore be accompanied by a [foul drainage assessment form](#) (FDA) which provides sufficient information for an assessment to be made of the risks of pollution to the water environment. For the proposal to be acceptable the FDA will need to demonstrate that the proposed system will be viable and will not be detrimental to the water environment.

Where the proposed development involves the connection of foul drainage to an existing non-mains drainage system, the applicant should ensure that it is in a good state of repair, regularly de-sludged and of sufficient capacity to deal with any potential increase in flow and loading which may occur as a result of the development. We have provided [guidance](#) to LPAs on non-mains drainage from non-major development to help them determine these planning applications.

Further information on septic tanks and treatment plants can be found [here](#).

## 4.2 Trade Effluent

Effluent discharged from any premises operating as a trade or industry, and effluent generated by a commercial enterprise where the effluent is different to that which would arise from domestic activities in a normal home, is described as trade effluent.

If you wish to discharge a trade effluent to groundwater or surface water via a non-mains system, you will require a permit under the Environmental Permitting Regulations.

If you wish to discharge a trade effluent to the public sewer, or a private sewer that connects to a public foul sewer, a trade effluent consent or a trade effluent agreement with your water and sewerage company must be obtained before you do so.

If you are not able to discharge effluent it will be classed as waste and you must then comply with your duty of care responsibilities.

## 4.3 Environmental Permitting Regulations (Foul Drainage and Trade Effluent)

Environmental Permitting Regulations require any discharge of sewage or trade effluent made to either surface water or groundwater to be registered as an exempt discharge activity or hold a permit issued by the Environment Agency, additional to planning permission. This applies to any discharge to inland freshwaters, coastal waters or relevant territorial waters.

The granting of planning permission does not guarantee the granting of an Environmental Permit. Upon receipt of a correctly filled in application form we will carry out an assessment. It can take up to 4 months before we are able to decide whether to grant a permit or not.

Where a pre-existing non-mains drainage system is covered by a permit to discharge then an application to vary the permit will need to be made to reflect the increase in volume being discharged. It can take up to 13 weeks before we decide whether to vary a permit.

## 4.4 Water Resources

All new homes are required to meet the mandatory national water efficiency standard for consumption as set out in the [Building Regulations](#) of 125 litres/person/day. In some water-stressed areas, LPAs have adopted policies in their Local Plans that require developers to apply the tighter Building Regulations optional requirement of 110 litres/person/day. While the use of the tighter consumption requirement is not required everywhere, we still recommend developers apply it where possible to ensure their schemes minimise their impact on the environment as much as possible by reducing demand for water.

We suggest you submit a [water efficiency calculator](#) report, or equivalent information, at the planning stage to demonstrate compliance with this standard. Achieving these targets can be done with existing technology by installing efficient showerheads, spray taps and low flush toilets. Complex greywater recycling and rainwater harvesting schemes are not typically required to adhere to this water efficiency standard.

We also recommend that new non-residential commercial buildings are required to achieve a BREEAM 'excellent' rating for water efficiency (or an equivalent rating with any successors).

Older buildings are often the least efficient in resource use. We strongly recommend the retrofitting of existing buildings where opportunities arise through refurbishments and changes of use. There



are a number of [BREEAM Technical Standards](#) documents to support retrofitting for commercial and residential buildings.

## Section 5: Waste

### 5.1 Development Close to an Existing Permitted Sites

New development in close proximity to an existing waste facility could result in the community at the proposed development being exposed to odour, noise, dust and pest impacts. The severity of these impacts will depend on the size of the facility, the nature of the waste it takes and prevailing weather conditions. If the site operator can demonstrate that they have taken all reasonable precautions to mitigate these impacts, the facility and community may co-exist, with some residual impacts. In some cases, these residual impacts may cause local residents concern, and there are limits to the mitigation the operator can apply. Only in very exceptional circumstances would we revoke the operators permit.

Generally, sensitive development (e.g. occupied buildings) within 50m of such a facility is unacceptable because of the potential impacts to residents that may not be able to be mitigated. If any development is proposed within 50m of such a site at the planning application stage, we may object to the application on this basis.

### 5.2 Waste Management

The CL:AIRE Definition of Waste: Development Industry Code of Practice (version 2) provides operators with a framework for determining whether or not excavated material arising from site during remediation and/ or land development works are waste or have ceased to be waste. Under the Code of Practice:

- excavated materials that are recovered via a treatment operation can be re-used on-site providing they are treated to a standard such that they fit for purpose and unlikely to cause pollution
- treated materials can be transferred between sites as part of a hub and cluster project
- some naturally occurring clean material can be transferred directly between sites

Developers should ensure that all contaminated materials are adequately characterised both chemically and physically, and that the permitting status of any proposed on-site operations are clear. If in doubt, the Environment Agency should be contacted for advice at an early stage to avoid any delays.

We recommend that developers should refer to:

- the position statement on the Definition of Waste: Development Industry Code of Practice
- The waste management page on GOV.UK

### 5.3 Waste To Be Taken Off-Site

Contaminated soil that is (or must be) disposed of is waste. Therefore, its handling, transport, treatment and disposal are subject to waste management legislation, which includes:

- Duty of Care Regulations 1991
- Hazardous Waste (England and Wales) Regulations 2005
- Environmental Permitting (England and Wales) Regulations 2016
- The Waste (England and Wales) Regulations 2011

Developers should ensure that all contaminated materials are adequately characterised both chemically and physically in line with British Standard BS EN 14899:2005 'Characterization of Waste - Sampling of Waste Materials - Framework for the Preparation and Application of a Sampling Plan' and that the permitting status of any proposed treatment or disposal activity is clear. If in doubt, the Environment Agency should be contacted for advice at an early stage to avoid any delays.

If the total quantity of hazardous waste material produced or taken off-site is 500kg or greater in any 12 month period, the developer will need to register with us as a hazardous waste producer. Refer to the hazardous waste pages on [gov.uk](http://gov.uk) for more information.

## 5.4 Environmental Permitting Regulations (Waste)

To see if your proposed development requires an Environmental Permit under the Environmental Permitting Regulations please refer to [gov.uk](http://gov.uk).

As planning and permitting decisions are often closely linked, we have issued [detailed guidance for developments requiring planning permission and environmental permits](#). This guidance explains how, when responding to planning consultations that require environmental permits, we will advise of three possible positions:

- No major permitting concerns
- More detailed consideration is required and parallel tracking is recommended
- Don't proceed – unlikely to grant a permit

We advise joint discussions with the applicant, planning authority and ourselves, as well as parallel tracking of the planning and permit applications where possible. Parallel tracking planning and environmental permit applications offers the best option for ensuring that all issues can be identified and resolved, where possible, at the earliest possible stages. This will avoid the potential need for amendments to the planning application post-permission.

## Section 6: Agricultural Development

### 6.1 Agricultural Buildings

If the buildings are to be used for livestock housing, the operator must ensure that they comply with the relevant regulations regarding the storage of slurry and silage. Any increase in the numbers of livestock may require the construction or expansion of slurry and silage storage facilities.

The operator should ensure that they comply with the requirements of The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010, commonly known as the 'SSAFO regs', and the storage requirements of The Nitrate Pollution Prevention Regulations 2015, commonly known as the 'NVZ regs'.

### 6.2 Slurry Storage

If your livestock produces slurry, you must be able to store the slurry produced in accordance with the regulations on capacity, construction, and the associated calculations and records.

Depending on the relevant regulations, slurry stores must have the capacity to store:

- 4, 5 or 6 months of slurry;
- rainfall expected to enter the store during the storage period including yards and roofs; and
- any wash water or other liquids that enter the store during that period.

If you have poultry manure or other types of solid manure you must store them:

- in a vessel;
- on an impermeable base, with appropriate collection and containment of runoff;
- in a roofed building; or
- in an appropriately located temporary field heap.

If you build a new facility for storing organic manure (i.e. slurry stores or impermeable bases for solid manure) and/or if you substantially reconstruct or enlarge your existing facilities, you must:

- comply with standards set down in the SSAFO Regulations, and
- notify the Environment Agency in writing about your intention to build a new store, or substantially enlarge or reconstruct an existing store at least 14 days before you start construction or reconstruction works.

### 6.3 Silage Storage

All parts of a silo must be resistant to attack. Your silo must have:

- an impermeable base extending beyond any walls
- impermeable drainage collection channels around the outside, flowing into an appropriately sized effluent tank

Further guidance is available at [gov.uk](http://gov.uk).

### Disclaimer

Please note that this document is a response to a pre-application enquiry only and does not represent our final view in relation to any future planning application made in relation to any site. We reserve the right to change our position in relation to any such application. This response is based on current planning policy, associated legislation, and environmental data/information. If any of these elements change in the future then we may need to reconsider our position.

As part of this preliminary response we have not technically reviewed any documents. You should seek your own expert advice in relation to technical matters relevant to any planning application before submission.

If you have any questions please contact the Devon, Cornwall & Isles of Scilly Sustainable Places team: [SPDC@environment-agency.gov.uk](mailto:SPDC@environment-agency.gov.uk)

## Use of Environment Agency Information for Flood Risk / Flood Consequence Assessments

### **Important**

If you have requested this information to help inform a development proposal, then we recommend that you undertake a formal pre-application enquiry using the form available from our website:-

<http://www.environment-agency.gov.uk/research/planning/33580.aspx>

Depending on the enquiry, we may also provide advice on other issues related to our responsibilities including flooding, waste, land contamination, water quality, biodiversity, navigation, pollution, water resources, foul drainage or Environmental Impact Assessment.

In **England**, you should refer to the Environment Agency's Flood Risk Standing Advice, the technical guidance to the National Planning Policy Framework and the existing PPS25 Practice Guide for information about what flood risk assessment is needed for new development in the different Flood Zones. These documents can be accessed via:

<http://www.environment-agency.gov.uk/research/planning/82587.aspx>

<http://www.communities.gov.uk/publications/planningandbuilding/nppftechnicalguidance>

<http://www.communities.gov.uk/publications/planningandbuilding/pps25guideupdate>

You should also consult the Strategic Flood Risk Assessment produced by your local planning authority.

In **Wales**, you should refer to TAN15 for information about what flood consequence assessment is needed for new development in the different flood zones

<http://new.wales.gov.uk/splash;jsessionid=8ylGTfGZthmB0t2vhp6hS1GcB1LXvZzB3Ylczf20Xn7LK3zk0nMk!981825250?orig=/topics/planning/policy/tans/tan15/>

You should also consult the Strategic Flood Consequence Assessment if one has been produced by your local planning authority.

In both **England and Wales** you should note that:

1. Information supplied by the Environment Agency may be used to assist in producing a Flood Risk / Consequence Assessment (FRA / FCA) where one is required, but does not constitute such an assessment on its own.
2. This information covers flood risk from main rivers and the sea, and you will need to consider other potential sources of flooding, such as groundwater or overland runoff. The information produced by the local planning authority referred to above may assist here.
3. Where a planning application requires a FRA / FCA and this is not submitted or deficient, the Environment Agency may well raise an objection.
4. For more significant proposals in higher flood risk areas, we would be pleased to discuss details with you ahead of making any planning application, and you should also discuss the matter with your local planning authority.



## What can we offer?

We can provide **free preliminary opinion advice note** that will identify the environmental constraints you will need to consider and signpost where you can find further information. In addition, in some areas we have some locally specific advice. Any other planning advice would fall within our cost recovery service at a **standard fee of £100 per hour plus VAT**.

Our cost recovery service is also available for Local Planning Authorities seeking strategic advice.

As part of this service we can:

- Provide bespoke advice;
- Review technical documents;
- Attend meetings;
- Attend site visits.

We may not always agree with your conclusions, but will act as a critical friend to ensure that your planning submissions are complete and well-reasoned. This will help local planning authorities to make informed decisions.

## Want to know more?

If your development is within Devon, Cornwall or the Isles of Scilly please contact the Sustainable Places team:

✉ [SPDC@environment-agency.gov.uk](mailto:SPDC@environment-agency.gov.uk)

Alternatively, if the development is located elsewhere, you can find your local Environment Agency office by:

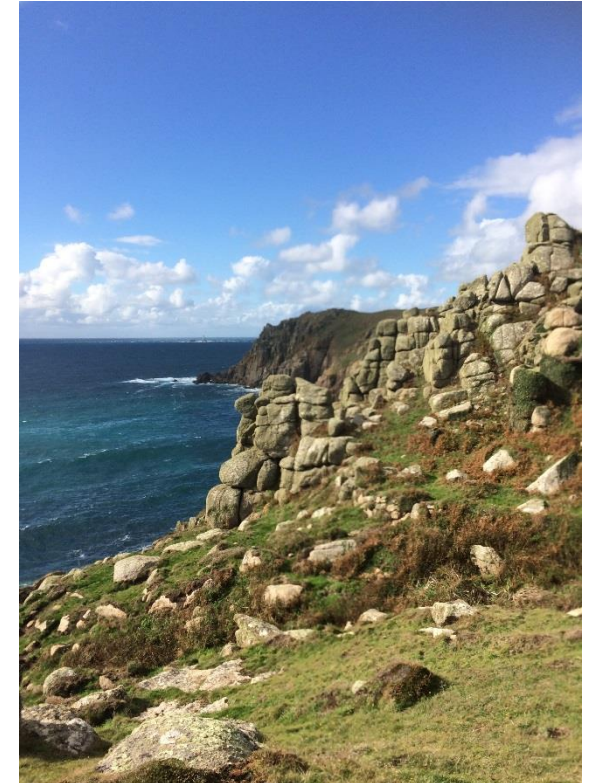
☎ **03708 506 506\*** (Monday – Friday, 8am to 6pm)

✉ [enquiries@environment-agency.gov.uk](mailto:enquiries@environment-agency.gov.uk)

Or visit our website

[www.gov.uk/government/organisations/environment-agency](http://www.gov.uk/government/organisations/environment-agency)

\*details of call charges can be found on the GOV.UK website.



## Planning Advice from the Environment Agency



**We are the Sustainable Places team covering Devon, Cornwall and the Isles of Scilly.**

**Through partnership with other place makers, we enable sustainable growth and create better places for people and wildlife.**

**We will be your single point of contact for planning advice relating to the water environment and waste management.**



**Please come to us for advice relating to Flood Risk; Water Quality; Water Resources; Water-based habitats and species; and Waste.**

## What is our Planning Service?

We can provide advice at all stages in the planning process: strategic plan making, pre-application, resolving objections, discharge of conditions and any subsequent amendments.

### Developers

We want to work with you to make the process as smooth as possible. We provide evidence and advice to a range of customers, including land agents, house builders, consultants, local authorities and the public.

By seeking our advice early, environmental issues can be identified and worked through before formal submission to the local planning authority. This will provide you with certainty going forward and save you time and resources at a later stage.

### Local Planning Authorities

The advice that we provide will help you understand the strategic environmental issues to shape growth strategies. For example, we can provide early technical advice on evidence based documents.

## What are the benefits of our advice?

**A dedicated project manager** will be assigned to your enquiry and will be your single point of contact at the Environment Agency.

We will provide you with an estimation of costs and will agree a **clear schedule of work with realistic timescales**, so that you can develop your project plan with certainty.

You will be provided with **technical bespoke advice**. Through **constructive challenge** and reality checking, we will use our experience to identify any omissions in your submissions and help you prepare the best case for your planning proposals.

Our advice will help to **speed up the process** when your proposals are formally submitted to the local planning authority and **save you money later** by avoiding costly revisions to the scheme and any supporting documentation.

By ensuring that your development is safe and sustainable, it will be more **desirable to customers**.

For Local Planning Authorities our service helps provide certainty that the **environmental issues have been appropriately addressed in Local Plans**.

We can provide an early indication of **permitting requirements** so you can be confident of what is needed and when.



**Engineering and Development Solutions Ltd**

Registered Office: Unit 10 | Penstraze Business Centre | Truro | Cornwall | TR4 8PN  
Registered in England No. 10467487