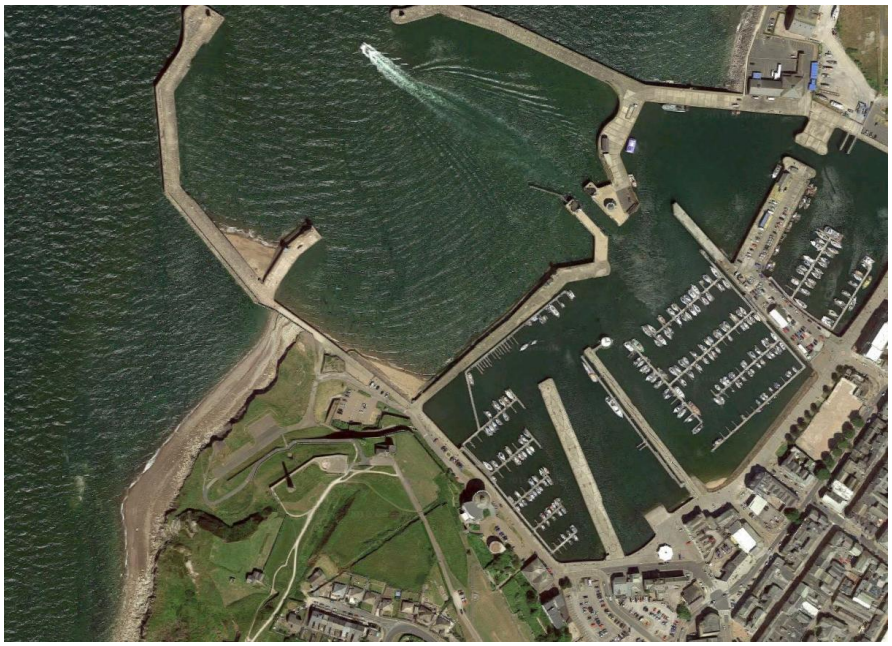
Flood Risk Assessment

at

Cumbria Coastal Activities Centre
Whitehaven Harbour,
Whitehaven,
Cumbria



for

Whitehaven Harbour Commissioners
27 Lowther Street,
Whitehaven
CA28 7DN

Contract No: 9542
Dated: 21st June 2019
Contract Ref: PG/MB/FRA/9542

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Issue	Description	Date	Originator	Approved
V1	First Issue	04/01/19	PG	MB
V2	Issued for Planning	09/01/19	PG	MB
V3	Updated to Suit Planning Comments	25/02/19	PG	MB
V4	Section 6.3 updated	21/06/19	PG	MB

Whilst every effort has been made to fully inspect those parts of the building requested of us, no permanent or secured fixtures and fittings will have been removed. We will not have inspected woodwork or other parts of the structure which were covered, unexposed or inaccessible, and we are therefore unable to report that any such part of the property is free from defect.

Thomason Partnership Limited certify that they have carried out the work contained herein with due care and diligence to their best belief and knowledge based on the time and information available.

This report is made on behalf of Thomason Partnership Limited. By receiving it and acting on it, the client – or any third party relying on it – accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).

THOMASONS

CONTENTS

Executive Summary

The proposal is for the construction of a Coastal Activities Centre on land adjacent the Outer Harbour, at Whitehaven, Cumbria.

According to the Environment Agency (EA) Indicative flood maps, the development holds a Flood Zone 1 classification, i.e. this is land assessed as having less than a 1 in 1000 annual probability of tidal flooding (<0.1%) in any year. This is due to the surcharging of the adjacent tidally influenced Outer Harbour, which in turn is linked to the Irish Sea.

The development target has been assessed against the NPPF 'Sequential Test'. Taking into consideration that the application is for an Activity Centre with rentable accommodation on the second floor and located in Flood Zone 3, Tables 1, 2 & 3 of the NPPF have been appraised to confirm that the development is appropriate and an Exception Test would not be required.

In order to mitigate the risk of flooding to the development building directly adjacent the harbour, a freeboard of 600mm is to be placed above the future 200 year tidal peak flood level including the allowance for climate change. This 600mm allows for any discrepancies in the modelling and any enhanced wave action of the tidal flood water during the peak event. Thus the finished floor level for the development would be set at a **minimum of 7.39m AOD**.

A review of recent reports on the ongoing erosion to the adjacent South Beach and the exposure of the West Pier has been considered and found that the development building is at a low risk of flood risk from future extreme wind and wave storms.

The Flood Risk Assessment has considered all other forms of flooding and overall, has found that the site is at low risk of flooding from all other sources.

There are no known records of historic flooding at the site.

There is no residual flood risk from the development site to the surrounding district due to the mimicking in existing surface water discharge rates to the adjacent Outer Harbour. As this is a tidal water no restriction on flow rates is required.

Foul water generated by the development will be discharged by gravity to the existing public combined sewer passing through the development site.

1.0 Introduction

Whitehaven Harbour Commissioners have instructed this Flood Risk Assessment to support a Planning Application for a new Coastal Activities Centre on land adjacent Whitehaven Outer Harbour.

This report has been commissioned by Whitehaven Harbour Commissioners and is specific to their interests in the Activity Centre development as described by the Architectural plan enclosed in Appendix A. This report may not be assigned.

The report has been commissioned to identify likely flooding issues associated with the proposed development, any likely constraints that could be imposed and to advise on the technical feasibility of proving drainage for the development proposals. Post planning and as the detailed design progresses, the information and details within this report may have to be refined, modified and updated to suit requirements and obligations of the Local Planning Authority, Environment Agency, United Utilities, Copeland BC and other statutory authorities. The Flood Risk Assessment and Drainage Strategy Report will include the following scope of works:

- Identify available data relating to flood risk at the site.
- Determine whether the site is at risk from flooding, including from breach or overtopping of any existing flood defences, surface water flooding and/or ground water flooding.
- Identify available data relating to drainage at the existing site, including historical discharges.
- Determine any potential increase in surface water runoff as a result of the proposed development.
- Consider the recommendations of the local Strategic Flood Risk Assessments (SFRA).
- Prepare the Flood Risk Assessment and Drainage Strategy Report.
- Assess mitigation measures & off-site impacts and define any residual risks.

2.0 Development Description and Location

2.1 Existing Location

The development site (Red Line Boundary) encompasses an existing surface level carpark and small storage unit located adjacent a small access road and walkway adjacent the wall of the Whitehaven Outer Harbour.

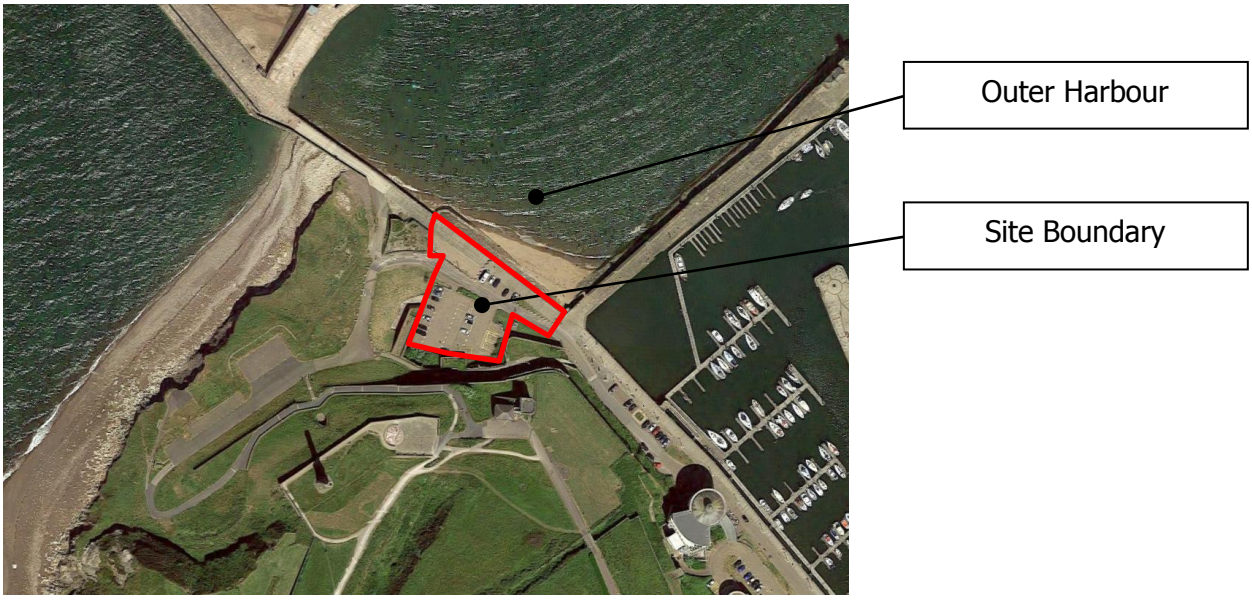
Access into the site will utilise the same existing vehicular tarmac roadway from the southern harbour.

The site is bounded to the south and east by high historic walls leading up to the elevated Wellington Lodge Coast Guard building. To the west is open parkland and the Outer Harbour to the north.

The site holds a relatively flat elevation.

Figure 1 below identifies the overall site location details.

Figure 1 – Location Plan



2.2 Proposed Development

This report has been prepared to support a full planning application for the construction of a new Coastal Activities Centre, access ramp down to the harbour and a new storage shed and parking.

The current outline Architectural Plan as indicated in Appendix A provides an indication of the proposed development intent.

3.0 Planning Policy and Consultation

3.1 Planning Policy Requirement

The indicative flood maps provided by the Environment Agency locate the site within low risk Flood Zone 1 (land as having an annual probability of fluvial flooding less than 1 in 1000 (<0.1%) in any year). As a requirement of the new National Planning Policy Framework, the proposed development must satisfy the requirements of the Sequential Test and where applicable the Exception Test.

Sequential Test:

Under the NPPF, Flood Zone 1 is defined as low probability flood risk. The proposed development is for an Activity Centre Building with some second flood rentable accommodation, which in line with Table 2 is classified as 'More Vulnerable'.

Placing both these criteria into Table 3 (Flood Risk Vulnerability and Flood Zone 'Compatibility'), More Vulnerable development in Flood Zone 1 determines that 'Development is 'Appropriate'.

However as the development is extremely close to the adjacent harbour, which is linked to the Irish Sea, plus the fact the EA indicative maps don't take account of future climate change allowances then further assessment is required.

3.2 Strategic Flood Risk Assessment (SFRA)

SFRA's assess the risk associated with all types of flooding and provide the information required to identify the amount of development permitted in an area; how drainage systems in the area should function and how risks in vulnerable areas can be reduced and/or mitigated. The NPPF states that regional planning bodies (RPB's) or local planning authorities should prepare SFRA's in consultation with the Environment Agency.

The site sits within the coverage of the Copeland Borough Council SFRA Final Report (2007). The published SFRA identifies current and future broad scale flood related issues in the Copeland Borough. The Jacobs Consulting 'final report' is dated August 2007 and remains current at the time of this assessment. The purpose of the SFRA is to assess and map all known sources of flood risk including fluvial, surface water, sewer, groundwater and all impounded water bodies, taking into account future climate change predictions

A summary of the main elements from the SFRA associated with the district are detailed below. The full report can be obtained from the Salford City Council website.

- SFRA provides a detailed understanding of flood risks across all areas from all sources.
- SFRA maps indicate the site to be at low risk of fluvial flooding (FZ1).

- Tidal Flooding poses the greatest flood risk to the Borough.
- Though risk of block watercourses and culverts also pose a risk to the town of Whitehaven.
- Copeland Borough Council has a defined policy for development requiring habitable flood levels to be no less than 600mm below the active 1000-year flood level.
- Very low risk of groundwater flooding in the Borough.
- Full sequential and exception tests to be carried out (where applicable).
- Flood Resilient construction to be used where applicable.
- Safe dry access and egress to be assured from developments located in medium and high risk locations.
- Development should be designed so that there is no flooding to the development in a 1 in 30-year event and so that there is no property flooding in a 1 in 100 year plus climate change event. Where possible sustainable drainage should be incorporated.

4.0 Definition of Flood Hazard

4.1 Sources of information

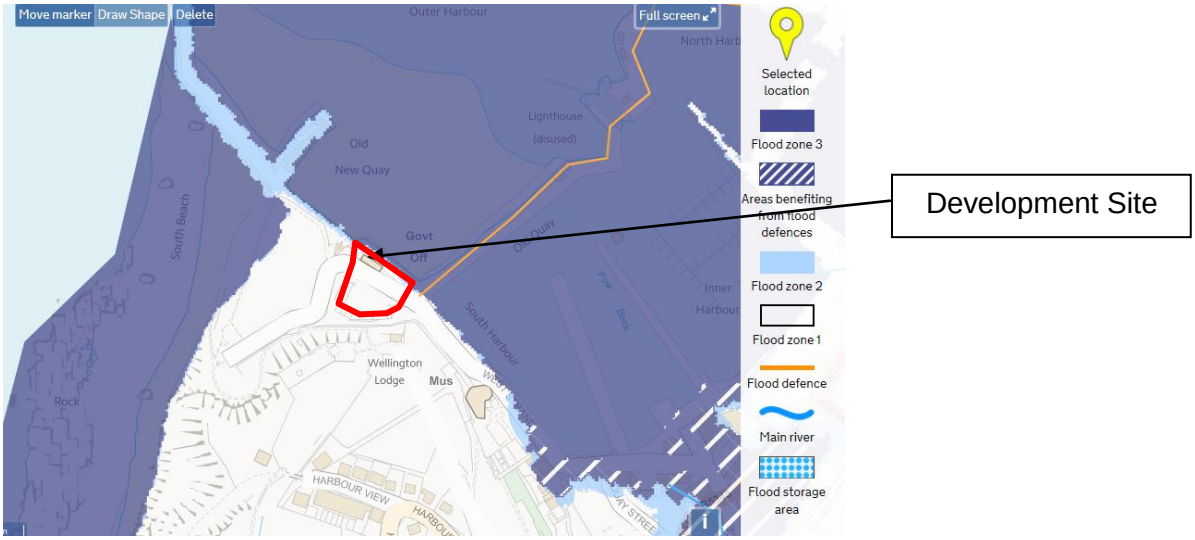
The NPPF requires the developer to consider the impact of runoff generated by the proposed development onto the downstream catchment, and to assess the risk of runoff from the surrounding district impacting on the development's footprint. Further, the report is to consider flood risk from all other sources. This section defines the flood risk receptors and anticipated flood risk. Section 5 then discusses in further the probability of flooding from defined sources and the likely impacts.

4.2 Flooding from Sea (Tidal)

Environment Agency Flood Zones

The site is located on the periphery of the Outer Harbour, which has an open link to the Irish Sea. The site is shown by EA's Indicative Flood & Coastal Map in an area considered at low risk of tidal and fluvial flooding and is located within Flood Zone 1, therefore classified as 'Low Risk'. This is land assessed as having a less than 1 in 1000 (<0.1%) annual probability of fluvial flooding. Figure 2 below details further.

Figure 2: EA Indicative Flood Maps



EA's 100-year Indicative Flood Plain

EA's 1000-year Indicative Flood Plain

However due to the close proximity of the tidal flood water, further assessment is required to determine the potential flood risk to future occupiers. This is detailed in Section 6.

4.3 Flooding from Rivers and Watercourses (Fluvial)

The development site is outside the risk of fluvial flooding due to its location away from local watercourses.

4.4 Sewers and Private Drainage

The United Utilities (UU) sewer records have been reviewed and confirm that there is a 225/300mm diameter combined water public sewer passing through the development site in a southerly direction towards the town centre. Plans of the records are located in Figure 3 below:

Figure 3: Sewer Records

Due to the small size of the sewer, the limited upstream catchment and that the sewer is designed to specific criteria it is not considered to be a flood risk generator.

The private drainage within the site is made up of drainage channels and gullies to serve the existing car park and discharge directly to the harbour.

4.5 Groundwater

An intrusive site investigation at the site to ascertain exact ground conditions is currently not available.

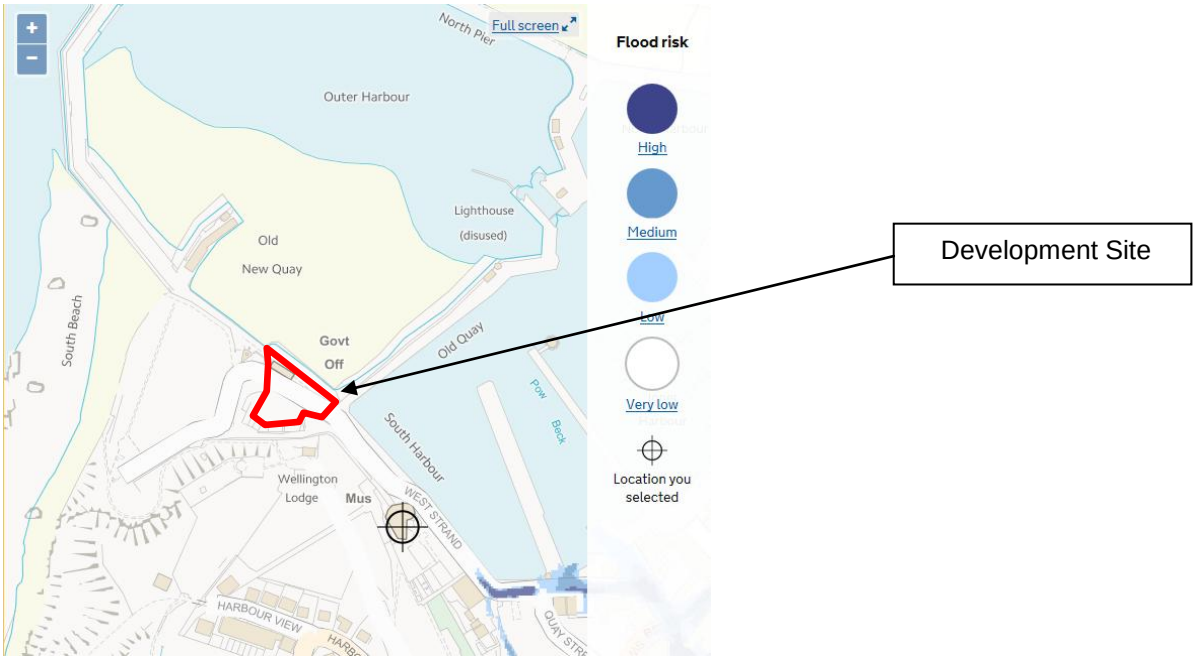
The Strategic Flood Risk Assessment (SFRA) for Copeland BC would indicate that the site is not at risk of groundwater flooding.

4.6 Surface Flooding (Overland Flow)

The area is relatively flat with a moderate fall to the south towards the harbour wall.

The EA indicative surface water flood maps as shown in Figure 4 below show the site to be at no risk of surface water flooding.

Figure 4: The Environment Agency's Indicative Surface Water Flood Map



- Chance of flooding of greater than 1 in 30 (3.3%)
- Chance of flooding of between 1 in 100 (1%) and 1 in 30 (3.3%)
- Chance of flooding of between 1 in 1000 (0.1%) and 1 in 100 (1%)

4.7 Artificial Sources

No other artificial sources such as canals, reservoirs or other waterbodies have been identified in the vicinity of the site to pose a flood risk.

5.0 Assessment of Flood Risk on Development Site (Probability)

5.1 Summary

Section 4 has defined the anticipated flood risks from all sources. Table 1 below considers each of the sources and defines in tabular format the probability of flood risk associated to each and the likely impacts.

Table 1 – Flood Risk Summary

Source	Flood Risk	Impact	Remarks
Tidal	Low	Medium	Site is located in low flood risk zone 1 but as this doesn't include for climate change, further assessment is required.
River & Watercourse	Low	Low	No Risk as no watercourses in close proximity.
Surface (Overland Flood Flow)	Low	Low	Site and surrounding area is generally flat with maps showing no risk of SW flooding.
Sewers and on-Site Drainage	Low	Low	Low risk due to sewers being designed to current guidance.
Groundwater	Low	Low	No indication that groundwater will be a flood risk to the site.
Artificial Sources	Low	Low	No artificial sources in close proximity to the site.

6.0 Fluvial Flood Risk Assessment

6.1 Assessment of Flood Risk on Proposed Development

As discussed in Section 4.2, the development site has been categorised in accordance with the SFRA and EA Flood Maps as being located within a Low flood Risk Area from Tidal flooding. This is related to flood risk from the adjacent Outer Harbour, linked to the Irish Sea but due to the close proximity and the fact no climate change allowances are included, then further assessment is required.

Other flood risk sources such as watercourse, groundwater, sewer and overland flows have been considered and have been found not to be a flood risk generator to the site.

6.2 Flooding from the Irish Sea

The EA have been consulted and have confirmed that the indicative flood maps have been prepared using modelled data taken from the recent Irish Sea Study. Thomasons have written to the EA and have obtained via a Product 4 request, the more detailed flood level information adjacent the site. Climate change allowances include for a 20% increase in rainfall are also included for the 1 in 200 year event. This is summarised in Table 2 below, with the full data found in Appendix B.

Table 2 – EA Flood Level Data

Location	1 in 100 year Defended (1% AEP)	1 in 200 year + 20% Climate Change Defended (0.5% AEP + CC)	1 in 1000 year Defended (0.1% AEP)
Outer Harbour	5.76m AOD	6.79m AOD	6.09m AOD

In order to mitigate the risk of flooding to the development building, a freeboard of 600mm should be placed above the future 200 year tidal peak flood level including the allowance for climate change. This 600mm allows for any discrepancies in the modelling and any enhanced wave action of the tidal flood water during the peak event. Thus the finished floor level for the development would be set at a **minimum of 7.39m AOD**.

The raised FFL also has the added benefit of providing the end user with a greater reduced flood risk, which in turn negates the need for any mitigation measures.

In accordance with the Risk Framework of the SFRA and from discussions with the EA, areas within the floodplain are generally not considered suitable. However, as the flood mechanism to the proposed development site is coastal (tidal), land raising can be considered without compensation.

6.3 Flooding from Coastal Erosion

Over the last 5 years two known reports have been undertaken on the on going coastal erosion of the Whitehaven South Beach and the future impact this will have on West Pier of the Outer Harbour.

South Beach is owned and maintained by Copeland Borough Council whereas the West Pier is owned and maintained by the Whitehaven Harbour Commissioners.

South Beach is made up predominantly by colliery waste that was obtained from local mining and started to be placed in the mid nineteen hundred's. This process was completed by around 1962 where the historical maps indicated the cliffs furthest extent. Since this time the spoil has gradually eroded, by an approximate distance of some 51m. This is significantly more than the North West England and North Wales Shoreline Management Plan (SMP2) document that suggests an average erosion distance of some 0.5m / year should be expected. The increased rate of erosion can be predicted at this location due to the nature of the cliff material. Though note that the exact natural cliff line is not known with 100% accuracy. When this has been completely eroded (circa a further 20m) and the natural rock is exposed, the rate of erosion will be significantly reduced and in line with the SMP document.

Assuming it takes 10 years to reach the 'Estimated natural coastline' and then erosion rates of 0.1m min and 0.5m max as taken from the various reports, then the coastal erosion has the potential to reach the building during a 60 year lifespan for a worst case scenario.

The 10 years to reach the natural coastline could be challenged but the natural cliff erosion figure of 0.5m per year is a maximum figure so should have some built in factor of safety. Refer to Appendix C for plan details of the predicted Coastal Erosion and interface with the proposed development building.

The Whitehaven West Pier South Beach Erosion report (2014) by Royal Haskoning DHV reviewed the extent of the erosion and suggested that the actual West Pier wall is in good condition and that the future erosion should not have any lasting effects on it due to the wall being originally constructed prior to the colliery spoil placement. However they did suggest the construction of a rock revetment spur off the wall and in front of the beach to reduce the wave energy and provide the better long term option, subject to funding being sought. This could also be incorporated to provide longer term protection to the coastal erosion process and will be assessed during the lifetime of the development should this need to be installed.

In 2016 (final issue) Aecom Consulting Engineering prepared the Whitehaven - South Beach Project Appraisal report. This again considered the on going erosion processes and provided a summary on the possible options for consideration. The agreed final option from the report, based on a number of criteria was Option 3 – Maintain the Existing West Pier Structure. There is however noted an increased risk that the upper parapet wall of the West Pier will be more vulnerable to exposed wind & wave action and is thus prone to possible collapse in the next 20 years if no upgrades take place. Again, on going inspection of this wall during the lifetime of the building by the Barbour Authority, Copeland BC and the owners of the proposed Watersports Centre. Should upgrade/remedial works be necessary then appropriate measures will be incorporated.

In light of the findings from the two reports and the fact the new development building is set further east of the south beach, flood risk from extreme wind and wave action and the risk of undermining from coastal erosion is deemed to be low.

The new slipway will have negligible impact on the coastal processes due to its location in the corner of the Outer Harbour with existing walls to two sides.

7 Outline Drainage Strategy

7.1 Existing Surface Water Runoff

The existing site is fully developed, encompassing a small building, access roads and car park. The existing drainage is anticipated to drain from the channel drains and gullies directly to the adjacent Outer Harbour Wall unrestricted.

7.2 Existing Sewer Records

As discussed in section 4.4, the United Utilities (UU) sewer records have been reviewed and confirm that there is a combined water public sewer passing through the development site.

7.3 Surface Water Drainage Strategy

As there is no increase in the impermeable footprint of the development site and the outfall is to a tidal waterway, rather than in land fluvial watercourse, then the surface water drainage philosophy is to retain the current below ground network with unrestricted outflow to the Outer Harbour. This is acceptable in line with national policy.

7.4 Foul Water Drainage Strategy

The new building with encompass a kitchen and toilet facilities. These will outflow via a new below ground network to the existing UU combined sewer unrestricted.

Any new drainage for the new development site will be designed in accordance with BS EN 752: 2008 and Building Regulations Part H guidance.

8 Management Measures, Off Site Impacts and Residual Risk

8.1 Flood Risk Management Measures

The finished floor levels of the new development building will be sited at a minimum of 7.39m AOD, a minimum of 600mm above the tidal 200 year plus climate change flood levels of the adjacent Outer Harbour, which is linked to the Irish Sea.

All other flood risks have been considered and found not to be a flood risk generator to the development.

Access and egress arrangements to and from the new development should exceedance flooding occur will be via the adjoining pathways to the west and north of the site which would then lead onto higher ground.

8.2 Off Site Impacts

The redevelopment of the site does not impair the hydraulic continuity of any watercourse and the current ‘‘local hydraulics’’ of distributing watercourses / outfalls.

The Development footprint does not cross or cover any existing or declared future catchment flood defences. Consequently, the Applicant does not propose to augment or compromise the current catchment defences.

Surface water runoff will mimic the pre-development scenario as there is no change to the impermeable areas or the drainage networks, therefore not increasing the flood risk to the local area.

8.3 Residual Risk

With careful design of the drainage elements as described above there will be no residual flood-related risks that will remain after the development has been completed.

There will be no residual risks to any of the neighbouring properties by any uncontrolled flood flows escaping from the proposed redevelopment.

Appendix A – Architectural Plans

OUTER HARBOUR

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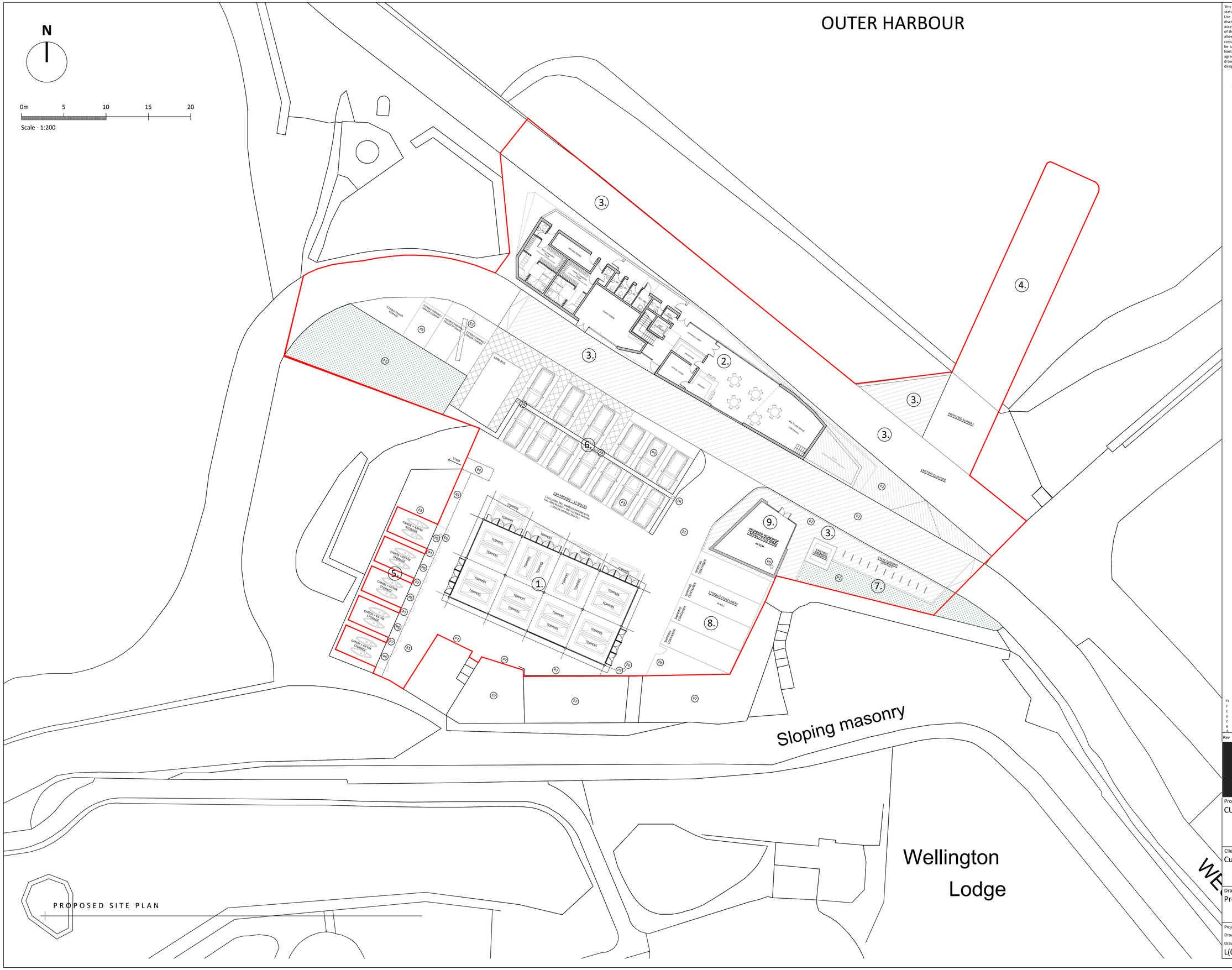
Scale - 1:200



PROPOSED SITE PLAN

This drawing is to be read in conjunction with all other relevant technical information, statutory approvals, specifications and 3rd party information. Do not scale from this drawing. Use only dimensions provided. All dimensions and levels to be checked on site and all discrepancies must be reported to the drawings author immediately. Responsibility cannot be accepted for alteration and/or deviation from this design without the prior acknowledgement of the drawings author. Any commercial decisions relating to this information must make due allowance for dimensional and area variation resulting from the design development and construction processes as well as the requirements of statutory authorities. This drawing is to be used only for the purposes indicated. This drawing is copyright and the property of Northmill Associates Ltd (NMA) and must not be reproduced without prior written agreement. Any Intellectual Property Rights (IPR) relating to the design(s) described in this drawing belong to the originating designer and, where it is not NMA's design, no credit for the design or IPR is sought by this drawings author.

PLANNING NOTES:

1. Proposals are subject to statutory consents and their related conditions.
2. Proposals and all construction section/details are indicative only and subject to further detailed design.
3. Areas are approximate and are based on existing measured data provided by others.
4. Proposals maybe subject to 3rd party agreements such as party wall agreements, rights of light, access easements and other legal covenants.
5. Proposals are subject to legal agreements and amendments to existing leases agreements where applicable.
6. Proposals are subject to measured survey.

KEY

1. Secure Covered Boat Storage Area (Showing 22 x Toppers)
2. The Coastal Activity Centre
3. New Public Realm
4. New Access Slipway
5. Canoe and Kayak Store (within existing arched structure)
6. 17 x Car Parking Spaces

   (Including 3no. disabled parking bays, 3no. flexible parking/trailer storage spaces + 1no. mini bus parking bay)
7. Cycle Parking (22 no.)
8. 4 x Shipping Containers for Secure Equipment Storage
9. Proposed workshop / retail space

Rev	Description	By	Chk	Date
P1	Issued for Planning	HD	IG	09/01/2019
F	Layout amended to suit pedestrian movement	HD	IG	07/01/2019
E	Layout fixed following client review	HD	IG	21/12/2018
D	Plan amended following client comment	HD	IG	14/12/2018
C	Plan amended following client comment	HD	IG	13/12/2018
B	Plan amended following client comment	HD	IG	16/04/2018
A	Plan amended following client comment	HD	IG	28/03/2018

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Project
CUMBRIA COASTAL ACTIVITIES CENTRE

Client
Cumbria Coastal Activities CIC

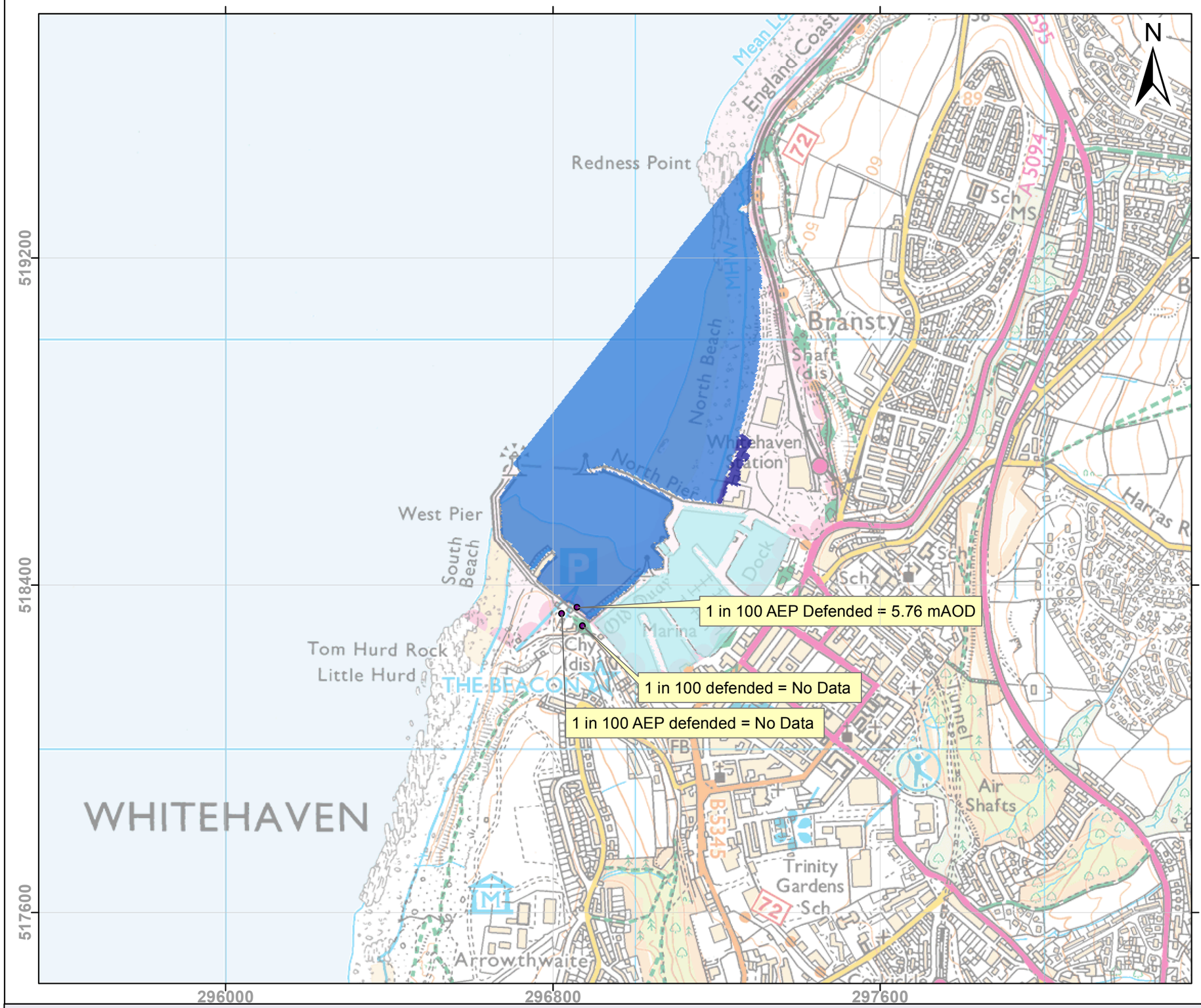
Drawing
Proposed Site Plan

Project No: 2452 | Scale @ A1 1:200 | Date: 06/03/2018
Drawn: HD | Checked: IG | Status: PLANNING
Drawing No: L(00)102 | Revision: P1

Appendix B – EA Flood Data

Tidal level Map: Outer Harbour, Whitehaven, Cumbria

Produced: 17 December 2018
Our Ref: CL77489
NGR: 296,952 518,612



Key

Tidal 1 in 100 defended scenario

Value

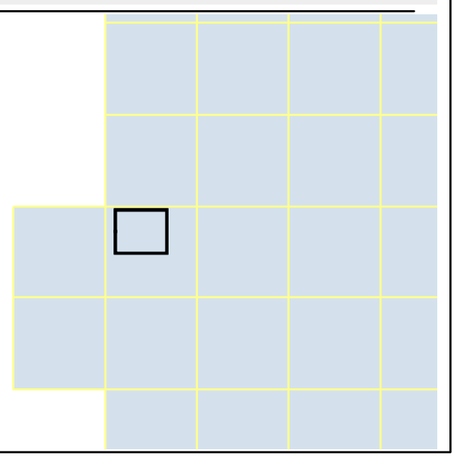
High : 7.9834

Low : 4.8894

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

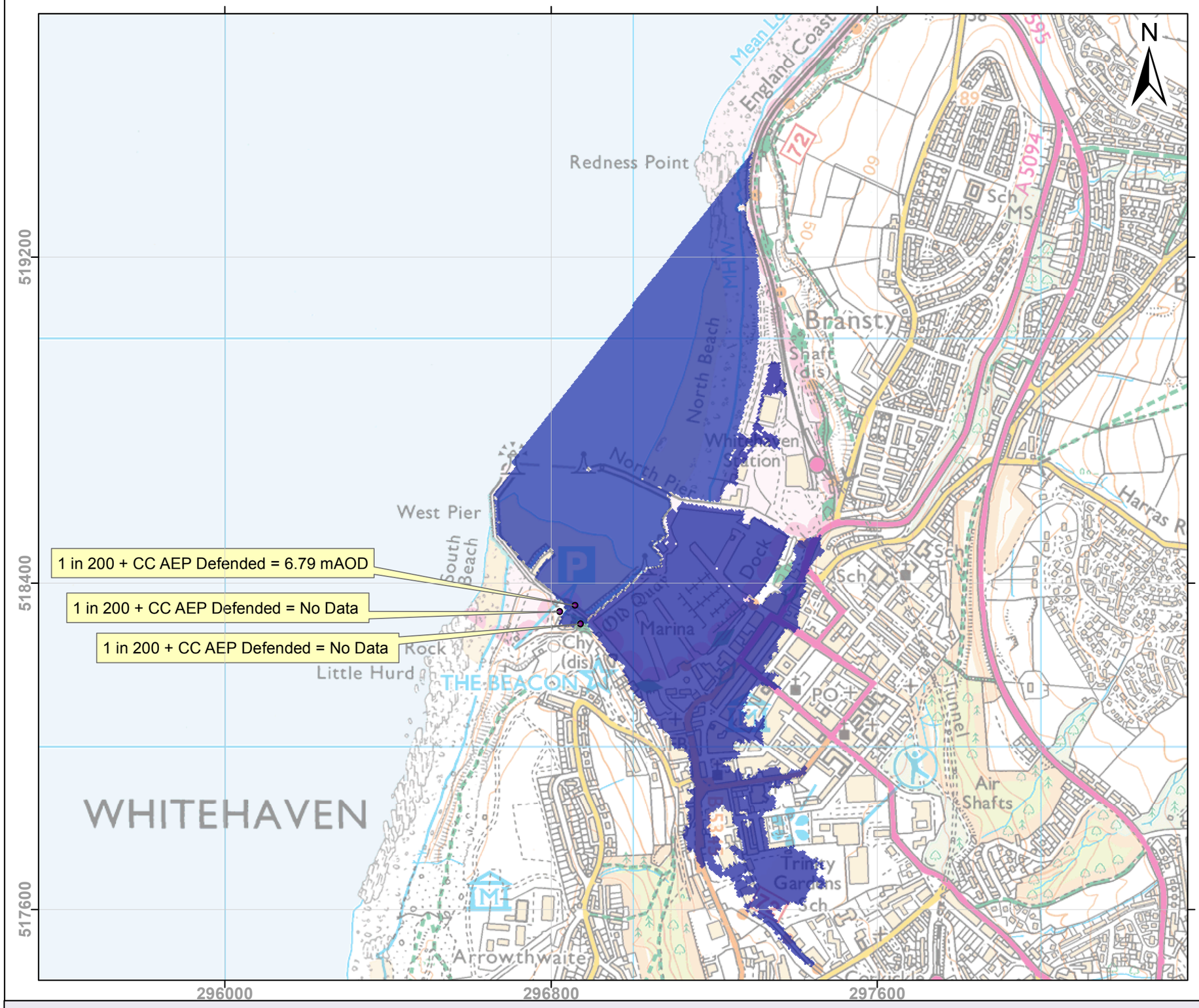
Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk



Environment Agency

Tidal level Map: Outer Harbour, Whitehaven, Cumbria

Produced: 17 December 2018
Our Ref: CL77489
NGR: 296,952 518,612

Key

1 in 200 + CC defended Scenario

Value

High : 9.8758

Low : -3.0792

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

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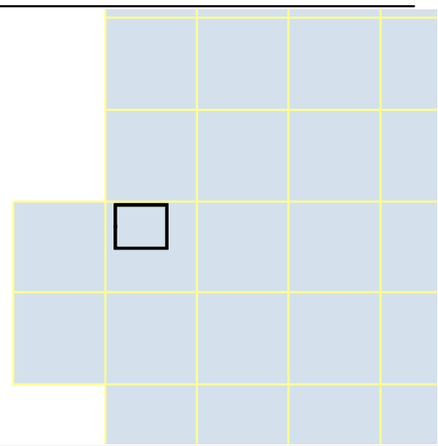

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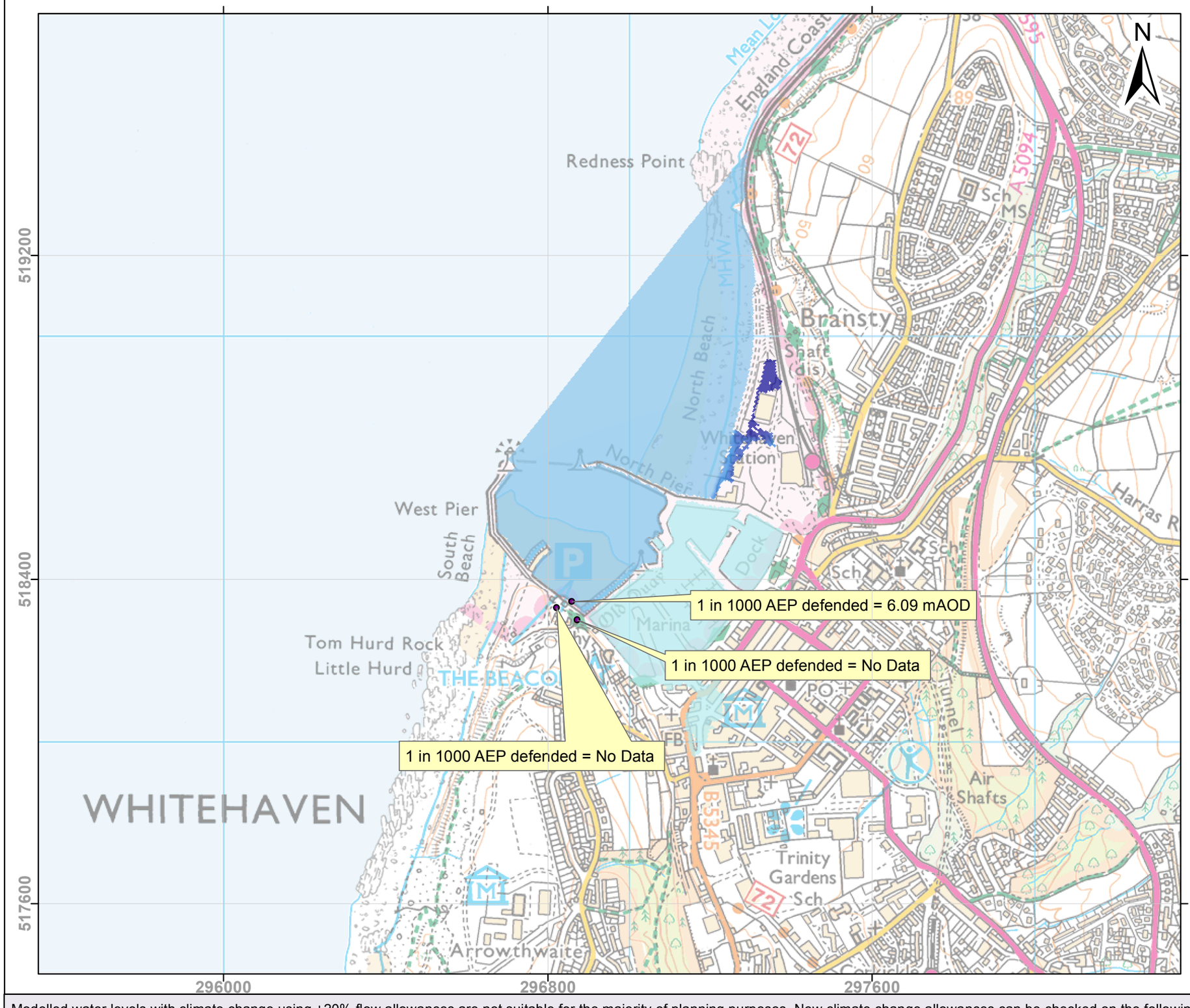


Tidal level Map: Outer Harbour, Whitehaven, Cumbria

Produced: 17 December 2018
Our Ref: CL77489
NGR: 296,952 518,612

Key

Tidal 1 in 1000 defended scenario

Value

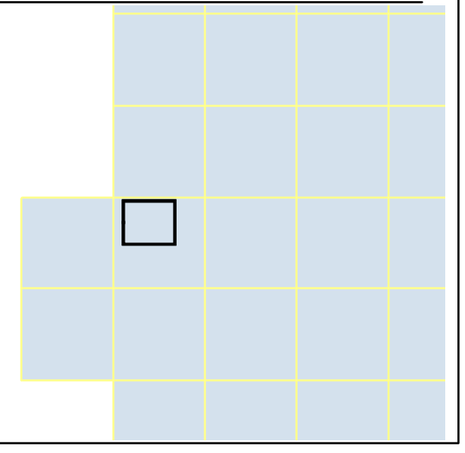
High : 9.8758

Low : 5.496

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Historic Flood Map: Outer Harbour, Whitehaven, Cumbria

Produced: 17 December 2018
Our Ref: CL77489
NGR: 297,029 518,749

Key

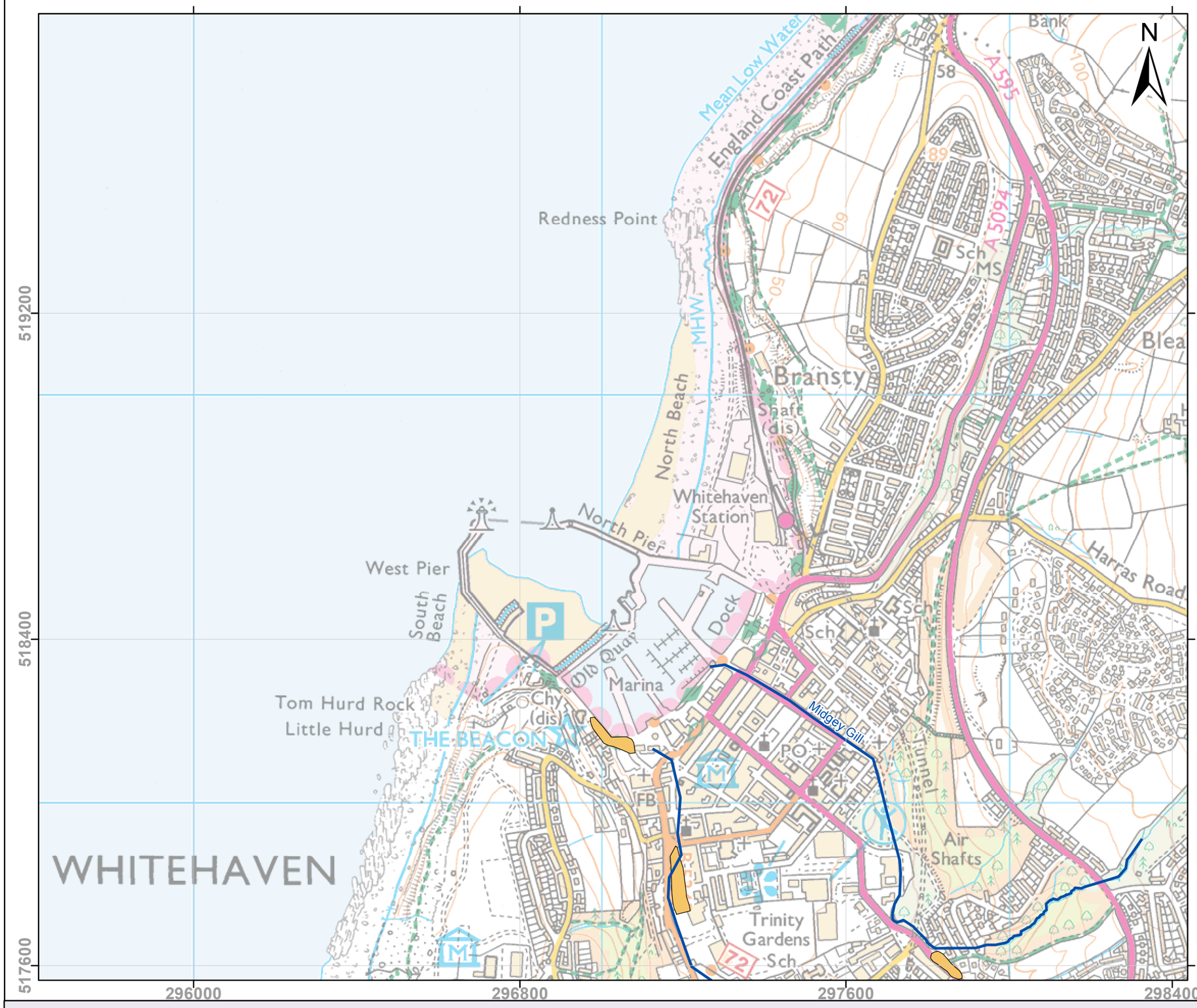
Main River

November 1999 Flood Outline

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

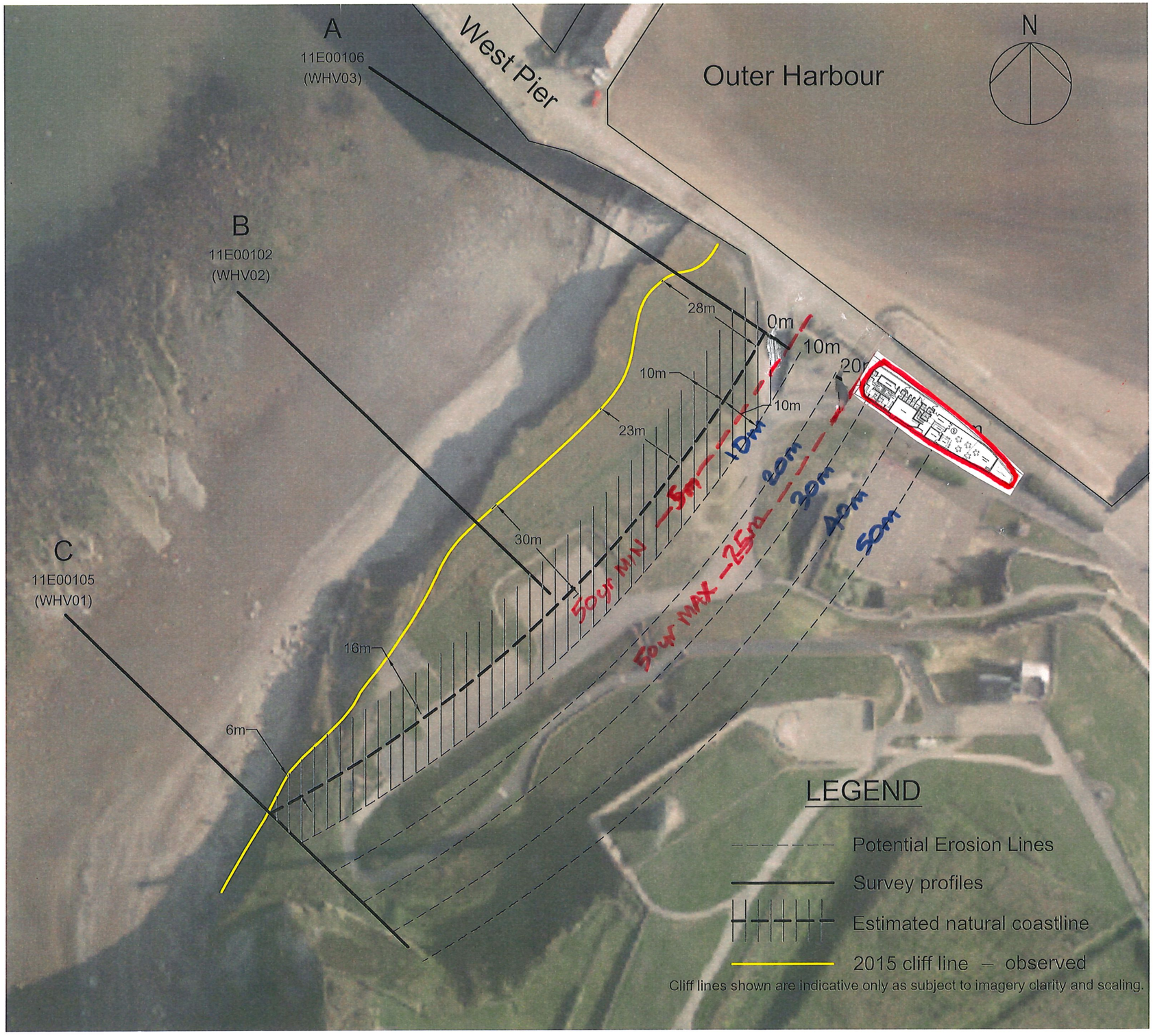
ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Modelled water levels with climate change using +20% flow allowances are not suitable for the majority of planning purposes. New climate change allowances can be checked on the following website; www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances.

Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

Appendix C – Thomasons Sketch



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
2. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
3. ALL DIMENSIONS IN MILLIMETRES, ALL CHAINAGES, LEVELS AND COORDINATES ARE IN METRES UNLESS DEFINED OTHERWISE.

IMAGE COURTESY OF CHANNEL COASTAL OBSERVATORY WWW.CHANNELCOAST.ORG

Purpose of issue

FOR INFORMATION

Client

COPELAND BOROUGH COUNCIL

Project Title

WHITEHAVEN
SOUTH BEACH APPRAISAL

Drawing Title

SOUTH BEACH
POTENTIAL EROSION

Designed	Drawn	Checked	Approved	Date
-	JMP	DG	PN	AUG 2016

URS Internal Project No.	Suitability
47072666	S2
Scale @ A3	Zone
NOT TO SCALE	HARBOUR AREA

APPENDIX C

MB	JUNE '19
9542	SK02

Plot Date : 9/1/2016 8:48 AM
File Name : WSBA-ACM-Z0-00-M2-CE-00016