



Flood Risk Assessment

Parton to Harrington Sea Wall No. 3

For

Network Rail

Project No.: ENRL548-001

8th July 2021

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Project Number	Report No.
ENRL548-001	001

Revision No.	Date of Issue	Author	Reviewer	Approver
001	8 th July 2021	Katherine Teakle	David Mould	Tessa Harding

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1. Introduction

1.1 Background

- 1.1.1** Thomson Environmental Consultants have been commissioned by Network Rail to undertake a Flood Risk Assessment of Parton to Harrington Sea Wall. A Flood Risk Assessment is required for a Planning Application for the proposed restoration of the sea wall along the rail line link between these two settlements. The site is shown in Figure 1.

1.2 Location

- 1.2.1** The site is located southwest of Carlisle, west of Keswick, south of Workington and north of Whitehaven.
- 1.2.2** Specifically, the site is located on the coast between Parton and Harrington, west of Lowca (see Figure 1).
- 1.2.3** A National Grid Reference for the site approximately mid-way along the railway line reach is NX 97820 22065 and the post code is CA28 6PU.

1.3 Aims and Objectives

- 1.3.1** This report aims to provide an assessment of flood risk in line with National Planning Policy Framework for the proposed restoration of the Parton to Harrington sea wall.
- 1.3.2** The objectives of this report are to review available information about geology, topography and hydrology local to the site and undertake a site visit. Then the risk of flooding from a range of sources based on this information will be assessed along with consultation with relevant authorities. Recommendations will be made, where necessary, to manage and/or mitigate flood risks identified.

Parton to Harrington Sea Wall No. 3

Flood Risk Assessment

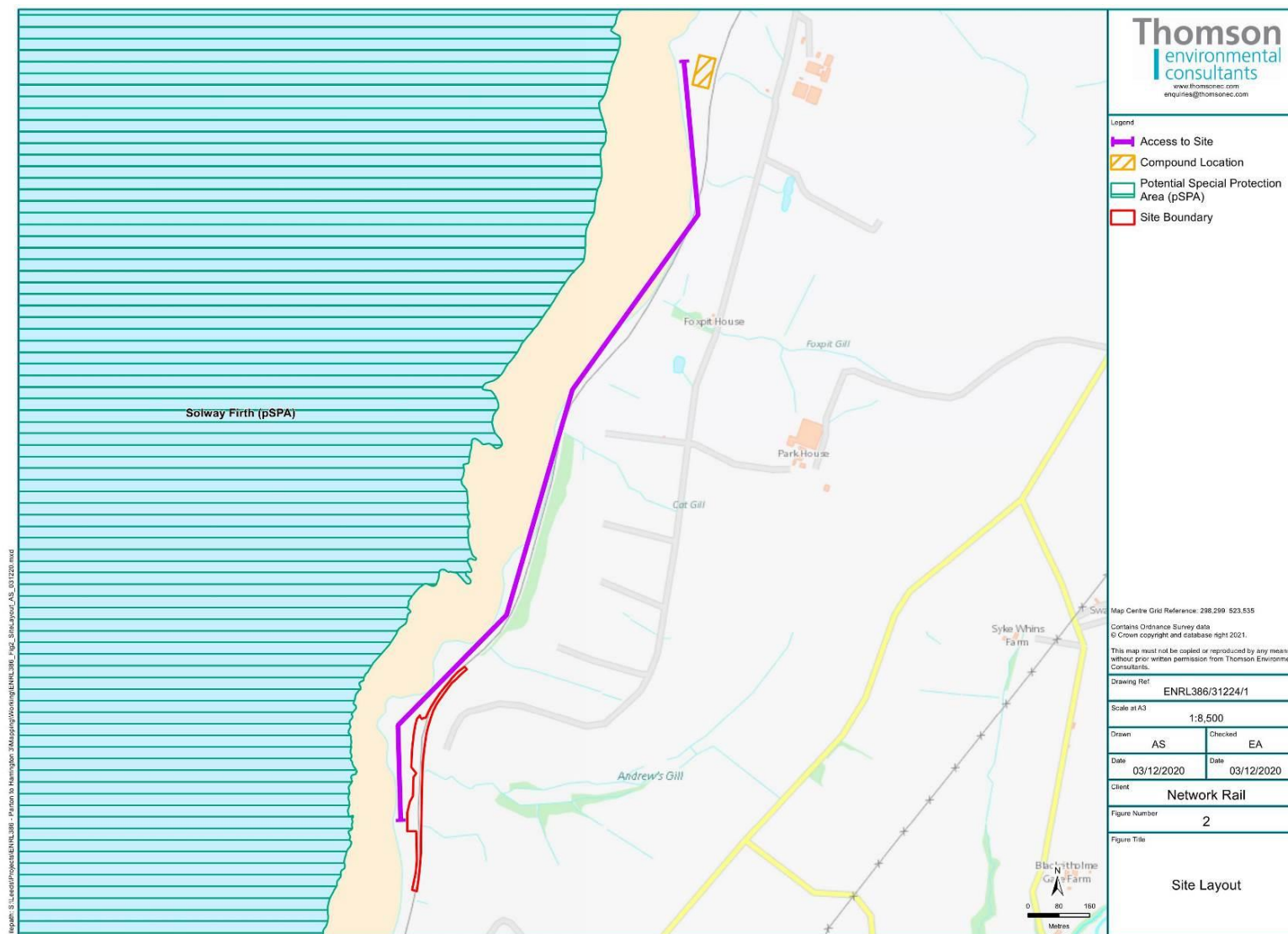


Figure 1: Location Map; Contains OS data © Crown copyright and database rights 2021

2. Development Description and Background

- 2.1.1** The following section provides a description of the existing and proposed site layout. Background information describing the topography, geology and hydrology of the site and the surrounding area are also detailed to provide a baseline to the Flood Risk Assessment.

2.2 Development Site Description

- 2.2.1** The site is located west of Lowca village and extends from Cunning Point to Providence Bay. Access to the site was advised on foot at low tide from Harrington. Whilst on site it was identified that there is access from Parton, at the southern end of the site, from a car park on Providence Bay Beach.
- 2.2.2** The proposed development site is located west of a minor road that runs through Lowca. A watercourse known as Andrew's Gill flows through the northern end of the site, and there is a smaller unnamed watercourse located south of this. West of Lowca there is a network of drains and ditches. These watercourses are shown below in Figure 4.
- 2.2.3** The proposed development between Parton and Harrington is 600 m of existing Sea Walls and coastal defences *"...comprising a soil embankment and stone pitching both of which are protected by armour stone along part of their length"*.
- 2.2.4** There is a culvert at the northern end of the reach that allows the outflow of Andrew's Gill to the sea. The reference of this is "15Q" (Network Rail NR-L2-CIV-003-F001-162832, April 2020).
- 2.2.5** It is proposed to install *"...protection measures to reinforce the toe and lower elevation of the defence to ensure the resilience of the asset"*. Specifically, rock armour was proposed for several identified locations, Andrew's Gill culvert outflow was identified as requiring work to the headwall, and there were spot maintenance and tying-in works proposed for the site (Network Rail NR-L2-CIV-003-F001-162832, April 2020).
- 2.2.6** The site is currently used by Network Rail for the Harrington to Parton part of the coastal rail line and this would continue post-development. It is considered that this use would come under the category of "Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk". National Planning Policy Framework classifies the land use as "Essential Infrastructure", based on the flood risk vulnerability classification outlined in Table 2 of the Planning Practice Guidance (Ministry of Housing, Communities & Local Government, March 2014).

2.3 Topography

- 2.3.1** The topography of the site has been reviewed from Ordnance Survey 1:25,000 scale mapping, on-site observations from the site visit and surveyed cross sections provided by Network Rail.
- 2.3.2** The site is located adjacent to the Irish Sea coast and runs north to south. There is a coastal slope to the east, inland side of the site. Above the coastal slope the land above the northern half of the site slopes in an overall north-westerly direction, decreasing in elevation towards the coast from about 80 maOD near the minor road to about 70 maOD above the coastal slope. The land above the coastal slope on the southern half of the site descends in a southerly direction. There is a raised area on the southwestern corner of the land above the coastal slope.
- 2.3.3** Site observations during a site visit in June 2021 identified that the rail line is positioned above the shoreline. Andrew's Gill was identifiable as a gully through the coastal slope. A smaller watercourse located south of this watercourse was also identifiable as a gully through the coastal slope. The location of both watercourses is shown in Figure 2.
- 2.3.4** Network Rail cross sections in four locations (Sections A through D) identified that the rail line is located above the mean high water springs in this location. Figure 3 shows the location of these Sections (Figure 3a) along with their detail (Figures 3b and 3c).



Figure 2: Photos from site: Andrew's Gill (left) and smaller watercourse located south of this watercourse (right).

Flood Risk Assessment



Flood Risk Assessment



Parton to Harrington Sea Wall No. 3

Flood Risk Assessment

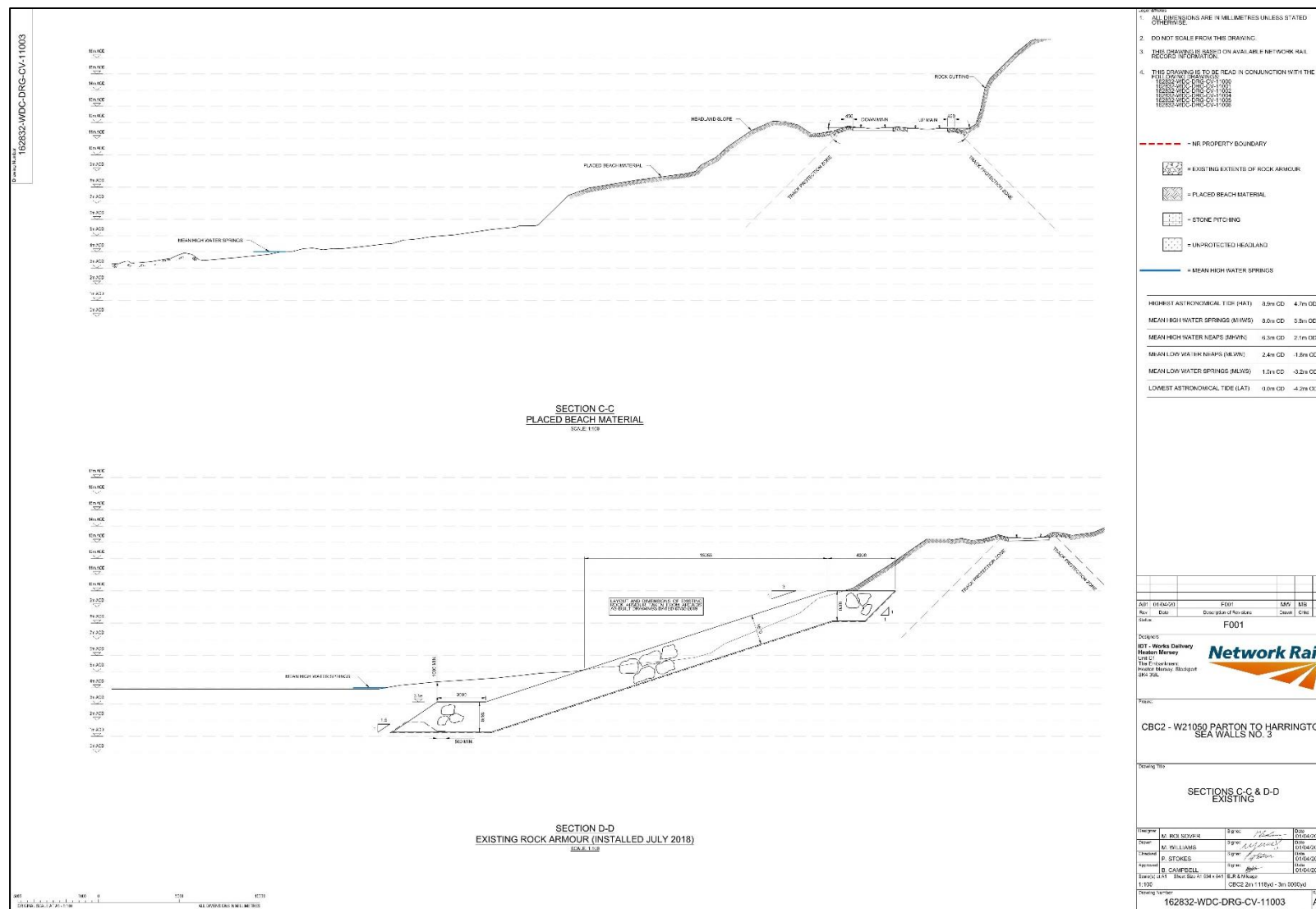


Figure 3c: Cross sections in the northern part of the site near Andrew's Gill (culvert ref: 15Q) (Network Rail NR-L2-CIV-003-F001-162832, April 2020)

2.4 Geology

- 2.4.1** Available mapping for the area of interest was reviewed, namely the British Geological Survey, online Geology of Britain viewer, 1:50,000.
- 2.4.2** This map indicates that the northern part of the site near Cuning Point is underlain by “*Pennine Lower Coal Measures Formation - Mudstone, Siltstone and Sandstone*” bedrock (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021).
- 2.4.3** The central and southern parts of the site are shown as underlain by a mixture of “*Pennine Middle Coal Measures Formation - Mudstone, Siltstone and Sandstone*” and “*Pennine Middle Coal Measures Formation - Sandstone*” (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021).
- 2.4.4** This mapping indicates that the superficial deposits underlying the land to the east of the site are mainly “*Till, Devensian - Diamicton*.” (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021). The superficial deposits underlying the site are largely unmapped. There are some areas of superficial deposits of “*Alluvium - Clay, Silt, Sand and Gravel*” and “*Raised Marine Deposits - Clay and Silt*” noted in the northern part of the site in the vicinity of Andrew’s Gill. There are also superficial deposits of “*Marine Beach Deposits - Sand and Gravel*” at the southern end of the site (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021).

2.5 Hydrology

- 2.5.1** Andrew’s Gill is located at the northern end of the site, and there is a smaller watercourse located south of this watercourse and west of Lowca there is a network of drains and ditches. Lowca Beck is located at the southern end of the site.
- 2.5.2** All watercourses flow from east to west, towards the coast and draining the higher ground to the east.

3. Flood Hazard Definition and Probability

3.1.1 The flood hazard to the proposed development is defined and the probability of flooding from each potential source is derived. The potential sources of flooding that may affect the site are considered to be as follows:

- Fluvial;
- Tidal;
- Surface water;
- Groundwater; and
- Sewer sources.

3.1.2 The flood hazard from each of these sources is hereafter defined and the probability of the site flooding from each source concluded following consultation with the relevant authority and after reviewing available information.

3.2 Fluvial and Tidal Sources

3.2.1 The proposed development is located on the coast and there are a several watercourses and water features on the land above the coastal slope.

3.2.2 Environment Agency Data defines the flood risk from fluvial and coastal flooding sources. The Environment Agency Flood Map for Planning has been obtained for the area of the site and indicates that the site is located within Flood Zone 1. This is shown in Figure 4, Figure 5, and Appendix B.

3.2.3 The Environment Agency were contacted for data from coastal flood modelling and fluvial flood modelling. Their response indicates that they do not have information specifically modelled for this location.

3.2.4 The cross section information provided by Network Rail for the reach of rail line near Andrew's Gill illustrates that the rail line is located above the Mean High Water Springs. Observations made on site are that the rail line is located above the beach along the reach of rail line within the site.

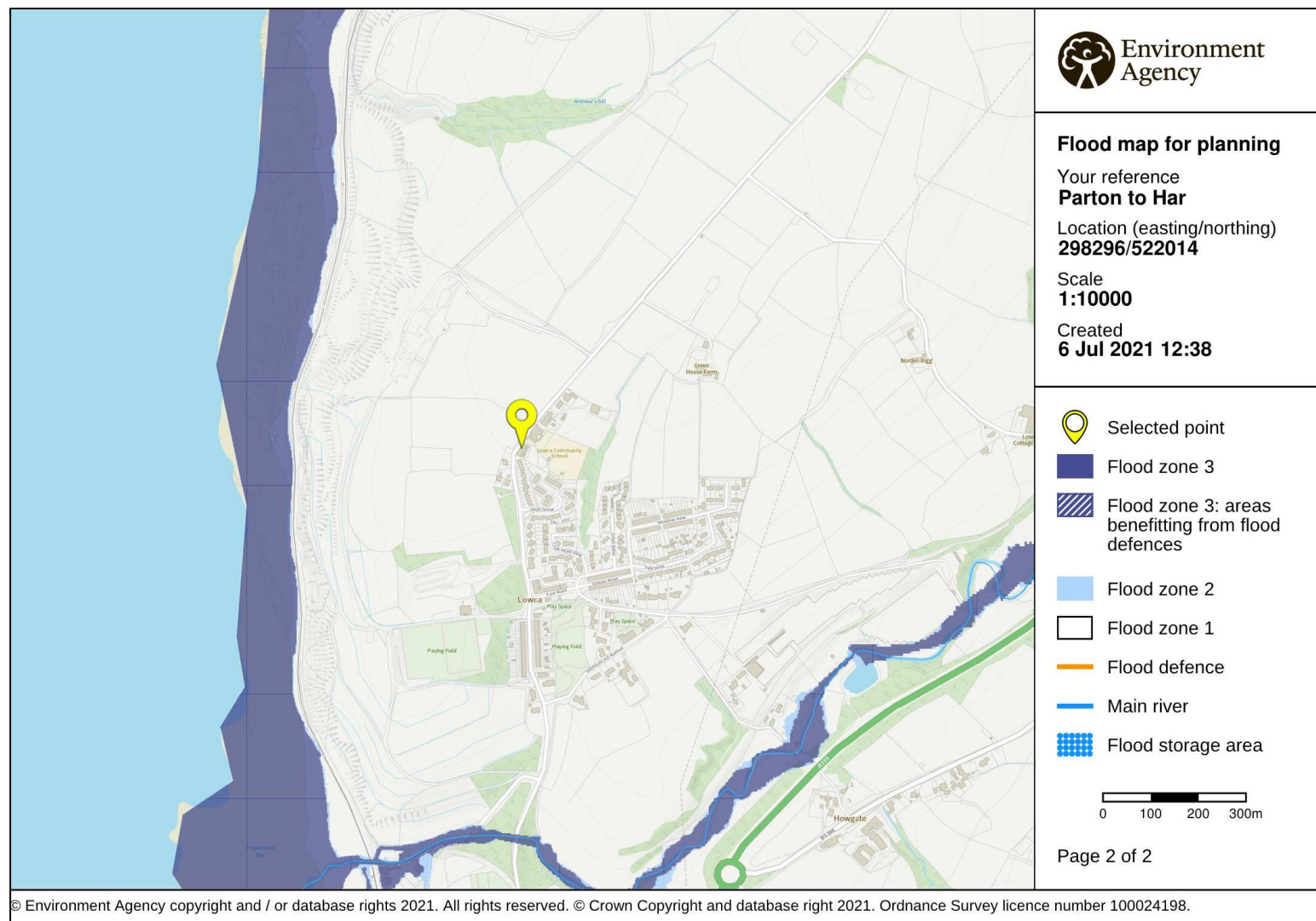


Figure 4: Environment Agency map illustrating the flood zones in the area of the site. Contains Environment Agency information © Environment Agency copyright and database rights 2021; Contains Ordnance Survey data © Crown copyright and database rights Ordnance Survey 100024198, 2021.

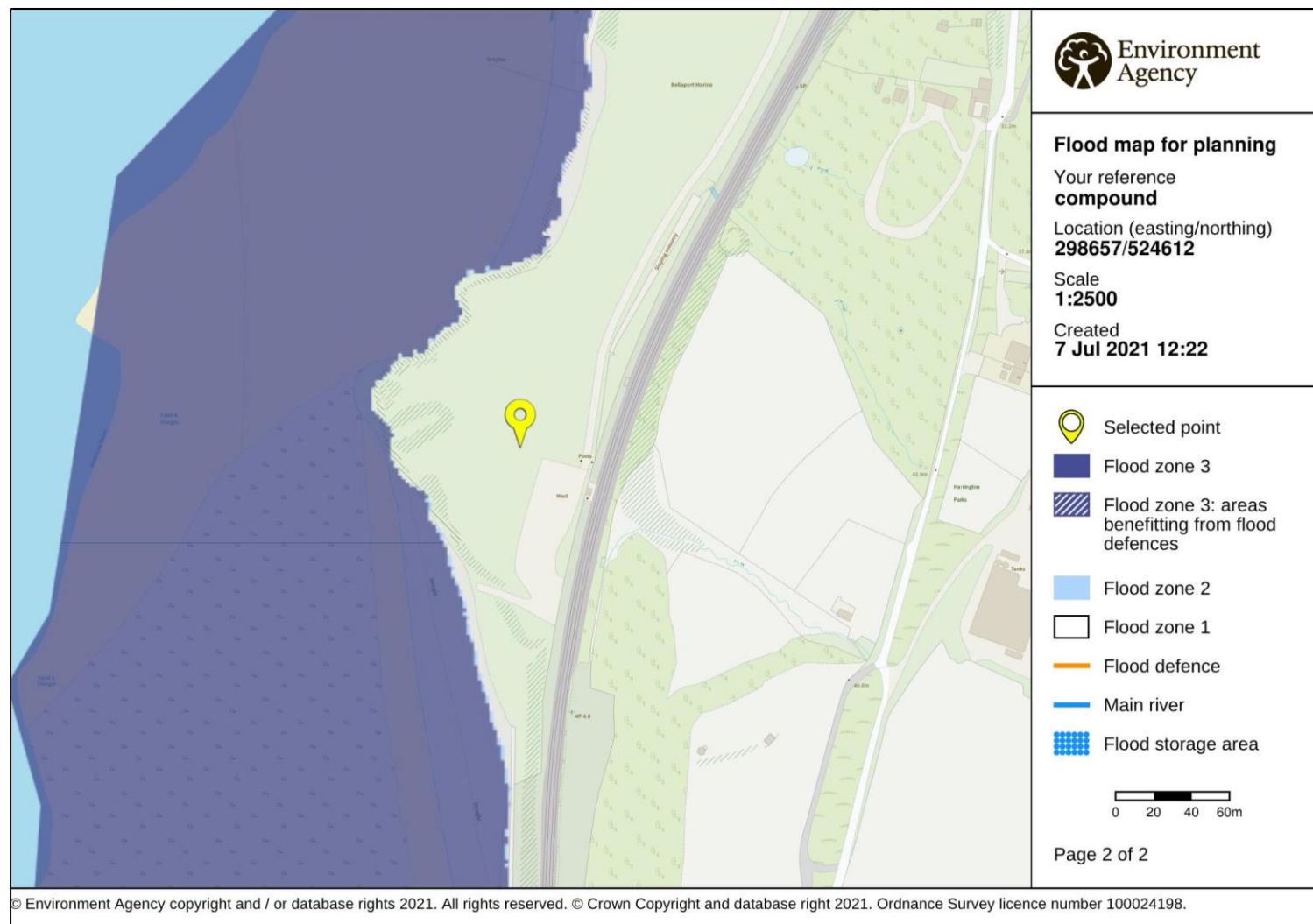


Figure 5: Environment Agency map illustrating the flood zones in the area of the compound. Contains Environment Agency information © Environment Agency copyright and database rights 2021; Contains Ordnance Survey data © Crown copyright and database rights Ordnance Survey 100024198, 2021

Access and Egress

- 3.2.5** The Environment Agency Flood Map for Planning (Figure 4) indicates that land to the west of the rail line is in Flood Zone 3. The compound is proposed to be located near Harrington; the location of the compound is in Flood Zone 1 (Figure 5). Access to the site would be limited by tide times and weather conditions.

Flood Management and Mitigation Measures

- 3.2.6** It is recommended that the Environment Agency is contacted to include the site on the register of properties to receive flood warnings. It is further recommended that upon receipt of a flood warning that a flood management plan be actioned. It is envisaged that a flood management plan would consider weather, coastal and on-site conditions, including surface water flow paths and ponding, in the decision process for service cancellation during inclement weather, coastal and site conditions in relation to flood risk management.

3.3 Groundwater Sources

- 3.3.1** Available mapping for the area of interest was reviewed, namely the British Geological Survey, online Geology of Britain viewer, 1:50,000.
- 3.3.2** This map indicates that the northern part of the site near Cuning Point is underlain by “Pennine Lower Coal Measures Formation - Mudstone, Siltstone and Sandstone” bedrock (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021).
- 3.3.3** The central and southern parts of the site are shown as underlain by a mixture of “Pennine Middle Coal Measures Formation - Mudstone, Siltstone and Sandstone” and “Pennine Middle Coal Measures Formation - Sandstone” (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021).
- 3.3.4** This map indicates that the superficial deposits underlying the land to the east of the site are mainly “Till, Devensian - Diamicton” (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021). The superficial deposits underlying the site are largely unmapped.
- 3.3.5** There are some areas of superficial deposits of “Alluvium - Clay, Silt, Sand and Gravel” and “Raised Marine Deposits - Clay and Silt” noted in the northern part of the site in the vicinity of Andrew’s Gill. There are also superficial deposits of “Marine Beach Deposits - Sand and Gravel” at the southern end of the site (Contains British Geological Survey materials © UKRI 2021; accessed 07/07/2021).
- 3.3.6** Ordnance Survey mapping of the area indicates that the site is located on the coast and runs overall north to south. There is a coastal slope located on the east, inland side of the site. Above the coastal slope the land above the northern half of the site slopes in an overall north westerly direction, decreasing in elevation towards the coast from about 80 maOD near the minor road to about 70 maOD above the coastal slope. The land above the coastal slope on the southern half of the site slopes in an overall southerly direction.
- 3.3.7** It is considered that there is the potential for groundwater to affect the site. This is considered given the geology, the relatively dense network of hydrological features and in the vicinity of the site (see Section 2.5). Also important is the topography of the site and surrounding area, with the relatively flat landward cliff top and position of the track toward the toe of the cliff as it slopes to the sea with outflows passing through the site.

Flood Management and Mitigation Measures

3.3.8 It is recommended that measures are taken to manage groundwater flood risk, such as using construction processes and practices appropriate for locations at risk of groundwater flooding and where groundwater is present.

3.3.9 Given the land use type beyond the coastal slope and the presence of drains and ditches on both the coastal slope and the land beyond, it is recommended that the rail line and the coastal defences be constructed such that groundwater is able to move diffusely from the landward side to the coastal side of the rail line.

3.4 Sewer Sources

3.4.1 United Utilities has been contacted regarding their infrastructure in the vicinity of the site. Their response indicates that there is no infrastructure in the vicinity of the site. See Appendix B for further details.

3.5 Surface Water Sources

3.5.1 The risk of flooding from surface water runoff has been assessed using levels derived from site observations as well as a review of readily available information from the Environment Agency.

3.5.2 The Environment Agency Risk of Flooding from Surface Water map has been accessed and illustrates the likelihood of flooding from surface water (Figures 6 to 8). Three events are illustrated on this mapping: High, Medium and Low Risk.

- High Risk events represent those events with a probability of occurrence in any given year of greater than 3.3%;
- Medium Risk events have a probability of occurrence in any given year of 1% to 3.3%; and
- Low Risk events have a probability of occurrence in any given year of 0.1% to 1%.

3.5.3 As stated on the data source system: "Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding".

(<https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>, 05/01/21).

- 3.5.4** The Environment Agency Risk of Flooding from Surface Water maps indicate that flooding of the site could occur from this source. The mapping indicates that surface water from the coastal slope, originating from the land beyond the coastal slope, would follow the topography and drain towards the rail line.
- 3.5.5** The mapping indicates that surface water would pond on the upslope, landward side of the line. In some locations at the site, specifically at the outflow from Andrew's gill and the smaller watercourse to the south, the mapping indicates that surface water may potentially overtop the rail line before flowing on to the sea.

Flood Management and Mitigation Measures

- 3.5.6** It is recommended that consideration be given to addressing surface water runoff and ponding on the upslope side of the rail line by facilitating diffuse movement of flood water to the seaward side of the rail line.

Existing Surface Water Drainage Arrangements

- 3.5.7** The existing arrangement for surface water drainage from the site is a culvert servicing the outflow from Andrew's gill. Groundwater pipe outflows through the sea wall were observed whilst on site.

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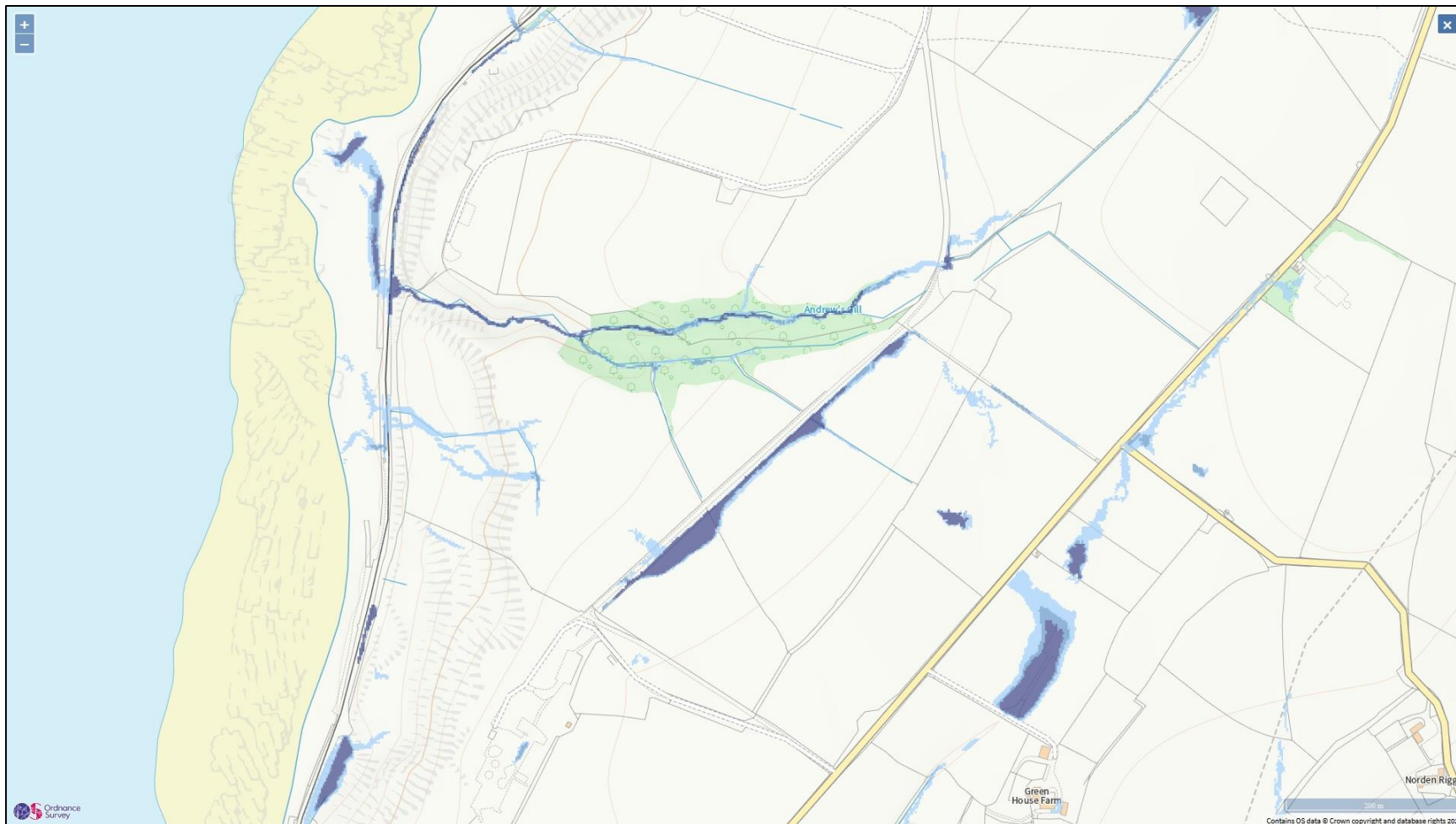


Figure 6: Environment Agency map illustrating the Flood Risk from Surface Water: Extent of Surface Water Flooding (accessed June 2021). Contains Environment Agency information © Environment Agency copyright and database rights 2021

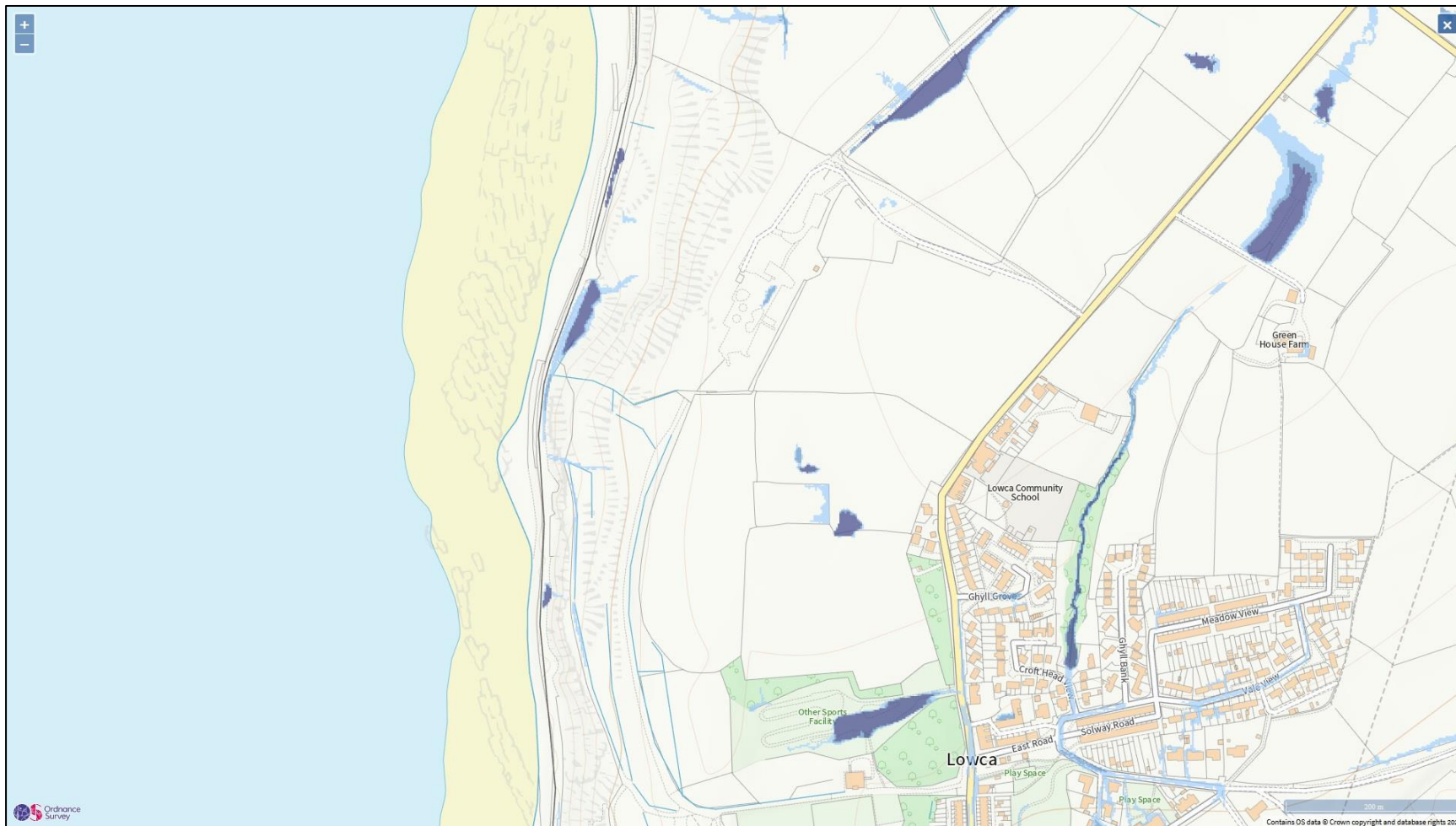


Figure 7: Environment Agency map illustrating the Flood Risk from Surface Water: Extent of Surface Water Flooding (accessed June 2021). Contains Environment Agency information © Environment Agency copyright and database rights 2021

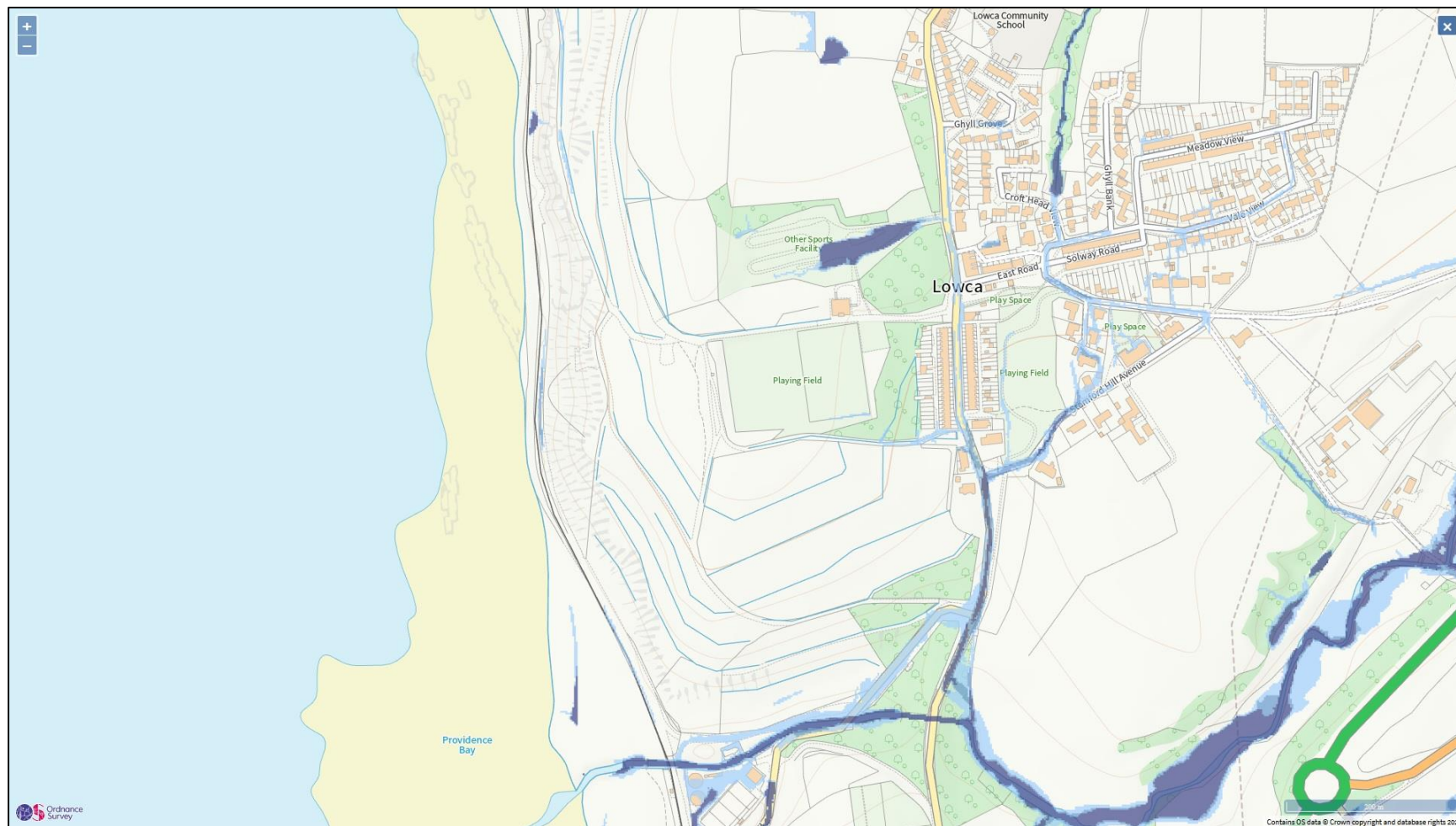


Figure 8: Environment Agency map illustrating the Flood Risk from Surface Water: Extent of Surface Water Flooding (accessed June 2021). Contains Environment Agency information © Environment Agency copyright and database rights 2021

4. Flood Risk Management Measures

- 4.1.1 It is recommended that the Environment Agency is contacted to include the site on the register of properties to receive flood warnings.
- 4.1.2 It is recommended that upon receipt of a flood warning that a Flood Management Plan be actioned. It is envisaged that a Flood Management Plan would consider weather, coastal and on-site conditions (including surface water flow paths and ponding) in the decision-making process for service cancellation in relation to flood risk management.
- 4.1.3 It is recommended that measures are taken to manage groundwater flood risk, such as using construction processes and practices appropriate for locations at risk from groundwater flooding and where groundwater is present.
- 4.1.4 Given the land use type beyond the coastal slope and the presence of drains and ditches on both the coastal slope and the land beyond, it is recommended that the rail line and the coastal defences be constructed such that groundwater be able to move diffusely from the landward side to the coastal side of the rail line.
- 4.1.5 To manage surface water runoff it is recommended that consideration be given to addressing surface water flow paths and ponding on the upslope side of the rail line by facilitating diffuse movement of flood water to the seaward side of the rail line.

5. Conclusions

- 5.1.1** A Flood Risk Assessment has been completed for Parton to Harrington Sea Wall no. 3 works to be undertaken by Network Rail. A Flood Risk Assessment is required for a Planning Application for the proposed restoration of the sea wall along the rail line link between these two settlements.
- 5.1.2** The rural site has a general location southwest of Carlisle, west of Keswick, south of Workington and north of Whitehaven. More specifically, the site is located on the coast between Parton and Harrington, west of Lowca. A National Grid Reference for the site is (for approximately mid-way along the railway line section) is NX 97820 22065, with a post code of CA28 6PU.
- 5.1.3** The Environment Agency Flood Map for Planning has been obtained for the area of the site and indicates that the site is located within Flood Zone 1.
- 5.1.4** The Environment Agency were contacted for data from coastal flood modelling and fluvial flood modelling, their response indicates that they do not have modelled information for this location.
- 5.1.5** The cross section information provided by Network Rail for the reach of rail line near Andrew's Gill illustrates that the rail line is located above the Mean High Water Springs. Observations made on site were that the rail line is located above the beach along the section of rail line within the site.
- 5.1.6** It is recommended that the Environment Agency is contacted to include the site on the register of properties to receive flood warnings. It is further recommended that upon receipt of a flood warning that a Flood Management Plan be actioned. It is envisaged that a Flood Management Plan would consider weather, coastal and on-site conditions (including surface water flow paths and ponding) in the decision process for service cancellation in relation to flood risk management.
- 5.1.7** It is considered that there is the potential for groundwater flooding to affect the site. This is considered given the geology, the relatively dense network of hydrological features in the vicinity of the site, and the topography of the site and surrounding area (with the relatively flat landward cliff top and position of the track toward the toe of the cliff, as it slopes to the sea) with watercourse outflows passing through the site.
- 5.1.8** It is recommended that measures are taken to manage the groundwater flood risk, such as using construction processes and practices appropriate for locations at risk from groundwater flooding and where groundwater is present. Given the land use type beyond the coastal slope and the presence of drains and ditches - on both the coastal slope and the land beyond - it is recommended that the rail line and the coastal defences are constructed such that the groundwater is able to move diffusely from the landward side to the coastal side of the rail line.

- 5.1.9** United Utilities has been contacted regarding their infrastructure in the vicinity of the site. Their response indicates that there is no infrastructure in the vicinity of the site.
- 5.1.10** The risk of flooding from surface water runoff has been assessed using levels derived from site observations as well as a review of readily available information from the Environment Agency. The Environment Agency Risk of Flooding from Surface Water Map has been accessed and illustrates the likelihood of flooding from surface water. The mapping indicates that surface water from the coastal slope, originating from the land beyond the coastal slope, would follow the topography and drain towards the rail line. The mapping indicates that surface water would pond on the upslope, landward side of the line. In some locations at the site, specifically at the outflow from Andrew's Gill and the smaller watercourse to the south, the mapping indicates that surface water may potentially overtop the rail line before flowing on to the sea.
- 5.1.11** It is recommended that consideration be given to addressing surface water runoff and ponding on the upslope side of the rail line by facilitating diffuse movement of flood water to the seaward side of the rail line.

6. References

British Geological Survey, online Geology of Britain viewer, 1:50,000, accessed July 2021.

Ministry of Housing, Communities & Local Government, July 2018, National Planning Policy Framework

Ministry of Housing, Communities & Local Government, March 2014, Planning Practice Guidance: Flood risk and coastal change

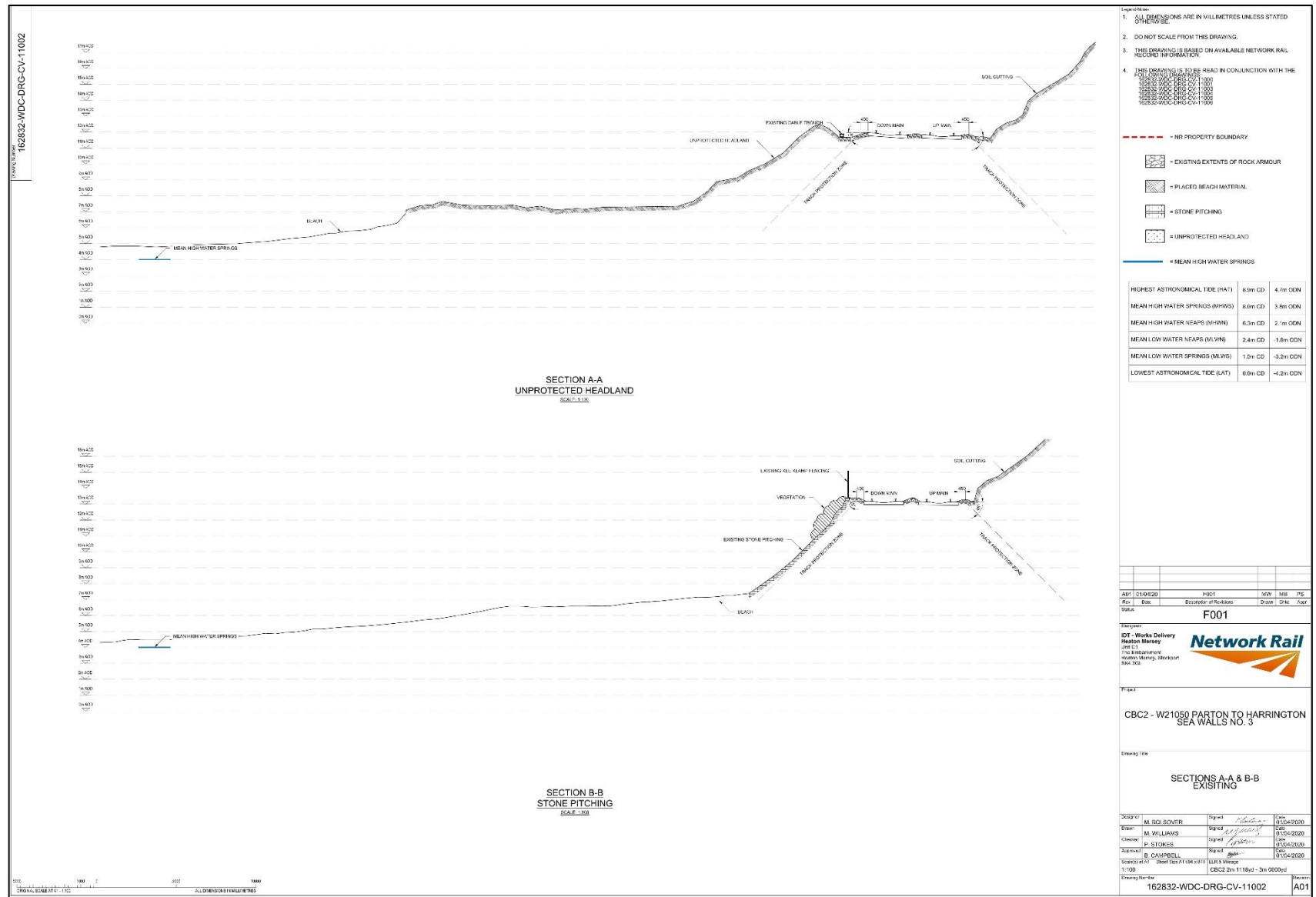
Appendix I - Existing and Proposed Site Layout

Flood Risk Assessment



Parton to Harrington Sea Wall No. 3

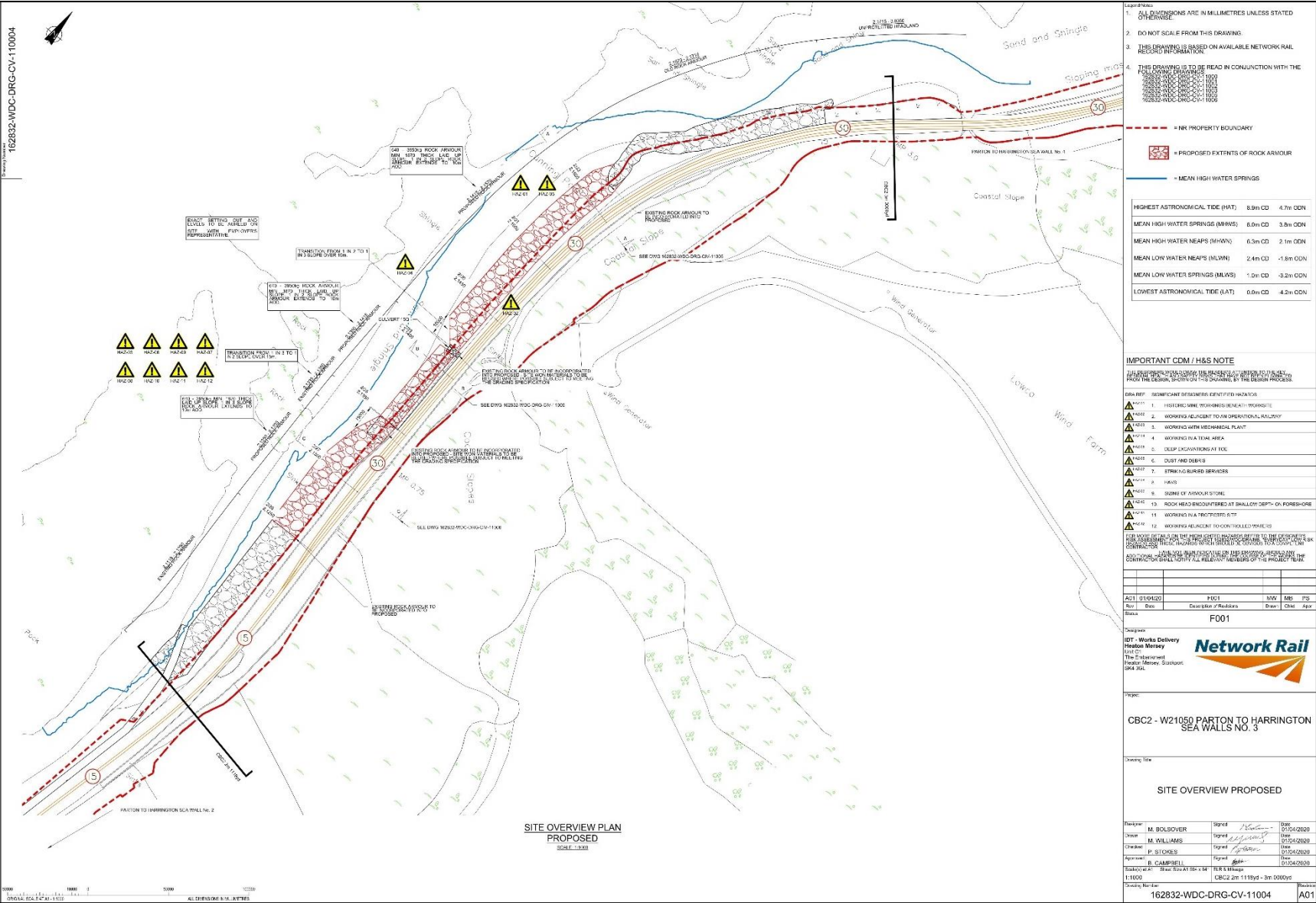
Flood Risk Assessment



Flood Risk Assessment



Parton to Harrington Sea Wall No. 3
Flood Risk Assessment



Flood Risk Assessment



Flood Risk Assessment



Appendix II - Correspondence

katherine@katherinecolby.com

From: CMBLNC Info Request
Sent: 01 July 2021 10:02
To:
Cc: CMBLNC Info Requests
Subject: CL221352MG Response - Flood Risk Data - Network Rail Line between Harrington and Parton along the coast

Good Morning Katherine

Thank you for contacting the Environment Agency regarding flood risk for the Network Rail Line between Harrington and Parton along the coast. You provided a location plan highlighting the site is below and a grid reference for approximately mid-way along the railway line reach is NX9782022065.

We respond under the Freedom of Information Act 2000 and Environmental Information Regulations 2004. Please refer to the [Open Government Licence](#) which explains the permitted use of this information.

Please see below response for: Network Rail Line between Harrington and Parton:

- ☐ We hold no detailed modelling for the area requested and therefore we are unable to provide modelled information required for a Product 4.
- ☐ The Flood Zones in this location are based on original JFLOW Data, which is national generalised modelling undertaken in 2004 to map the extent of Flood Zone 2 and 3 for the Flood Map for Planning. This data is available through data.gov.uk as "[modelled fluvial flood depth data created 2004](#)". However, please be aware that this data is not suitable for identifying whether an individual property will flood, for detailed decision making or for use in a site specific Flood Risk Assessment. Where this data is used for anything other than broad catchment scale investigation, further evidence, verification and studies should be undertaken.
- ☐ To view the Flood Zones on the Flood Map for Planning, please navigate to the following website: <https://flood-map-for-planning.service.gov.uk>.
- ☐ The Environment Agency has no record of previous flooding at this site. Please be aware, however, that this does not necessarily mean that flooding has not occurred in the past.
- ☐ For all queries relating to flooding from surface water, ordinary watercourses
and groundwater
flooding, please contact the Lead Local Flood Authority Cumbria County Council in this instance.
- ☐ ~~Surface Water Maps~~ can be viewed online at <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>.

You are welcome to get in touch if you have any further queries or you can contact us within 2 months if you would like us to review the information we have sent to you.

Kind regards,

Mark

Mark Goucher | Customers and Engagement Officer
Customers and Engagement Team | Cumbria and Lancashire



katherine colby hydrologists ltd

8
castlemead road,
stroud, gloucestershire
gl5 3sf

FAO:

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Your Ref: parton to harrington
Our Ref: UUPS-ORD-304664
Date: 09/07/2021

Dear Sirs

Location: parton to harrington

I acknowledge with thanks your request dated 06/07/2021 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. <http://www.unitedutilities.com/work-near-asset.aspx>.

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please [contact us](#).

Yours Faithfully,

Karen McCormack
Property Searches Manager

UUWaterLtd/041/03-15

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP



TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

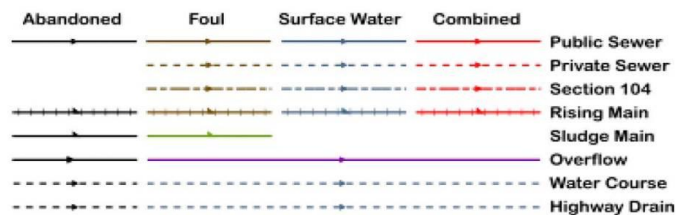
These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited ("UUWL").

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- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
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- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and effect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.
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Wastewater Symbolology



All point assets follow the standard colour convention: **red** – combined **brown** - foul
blue – surface water **purple** - overflow

● Manhole	● Side Entry Manhole
● HS Head of System	● Outfall
● ES Extent of Survey	● Screen Chamber
● RE Rodding Eye	● IC Inspection Chamber
● IN Inlet	● Bifurcation Chamber
● DP Discharge Point	● LH Lamp Hole
● VV Vortex	● T Junction / Saddle
● PE Penstock	● Catchpit
● WC Washout Chamber	● Valve Chamber
● VA Valve	● Vent Column
● AV Air Valve	● Vortex Chamber
● NRV Non Return Valve	● Penstock Chamber
● SO Soakaway	● Network Storage Tank
● GU Gully	● Sewer Overflow
● CA Cascade	● Ww Treatment Works
● FM Flow Meter	● Ww Pumping Station
● HA Hatch Box	● Septic Tank
● OI Oil Interceptor	● Control Kiosk
● SM Summit	▽ Change of Characteristic
● DS Drop Shaft	
● OP Orifice Plate	



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