



**Haweswater Aqueduct Resilience Programme  
Proposed Marl Hill Section  
Ribble Valley Borough Council Application**

**Planning Design and Access Statement**

**RVBC-MH-APP-003**

June 2021



**Water for the North West**



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**Haweswater Aqueduct Resilience Programme - Proposed Marl Hill Section  
Planning, Design and Access Statement**

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# 1. Introduction

## 1.1 Overview

- 1) This Planning, Design and Access Statement has been prepared on behalf of the applicant, United Utilities Water Ltd., to accompany the planning application to Ribble Valley Borough Council for the Proposed Marl Hill Section of the Haweswater Aqueduct Resilience Programme (HARP).
- 2) The overarching development of HARP, referred to as the 'Proposed Programme of Works' is a proposal to replace six existing underground tunnel sections of the 110km Haweswater Aqueduct. The aqueduct takes raw water from the Haweswater Reservoir along a 16km section to a water treatment works (WTW) near Kendal for treatment. From this WTW the aqueduct conveys treated water southward to a WTW near Bury. Along its length there are a number of water mains that branch off the aqueduct supplying treated water to customers in Cumbria, Lancashire and Greater Manchester (see Illustrations 1 and 2).

**Illustration 1 – The Existing Haweswater Aqueduct**

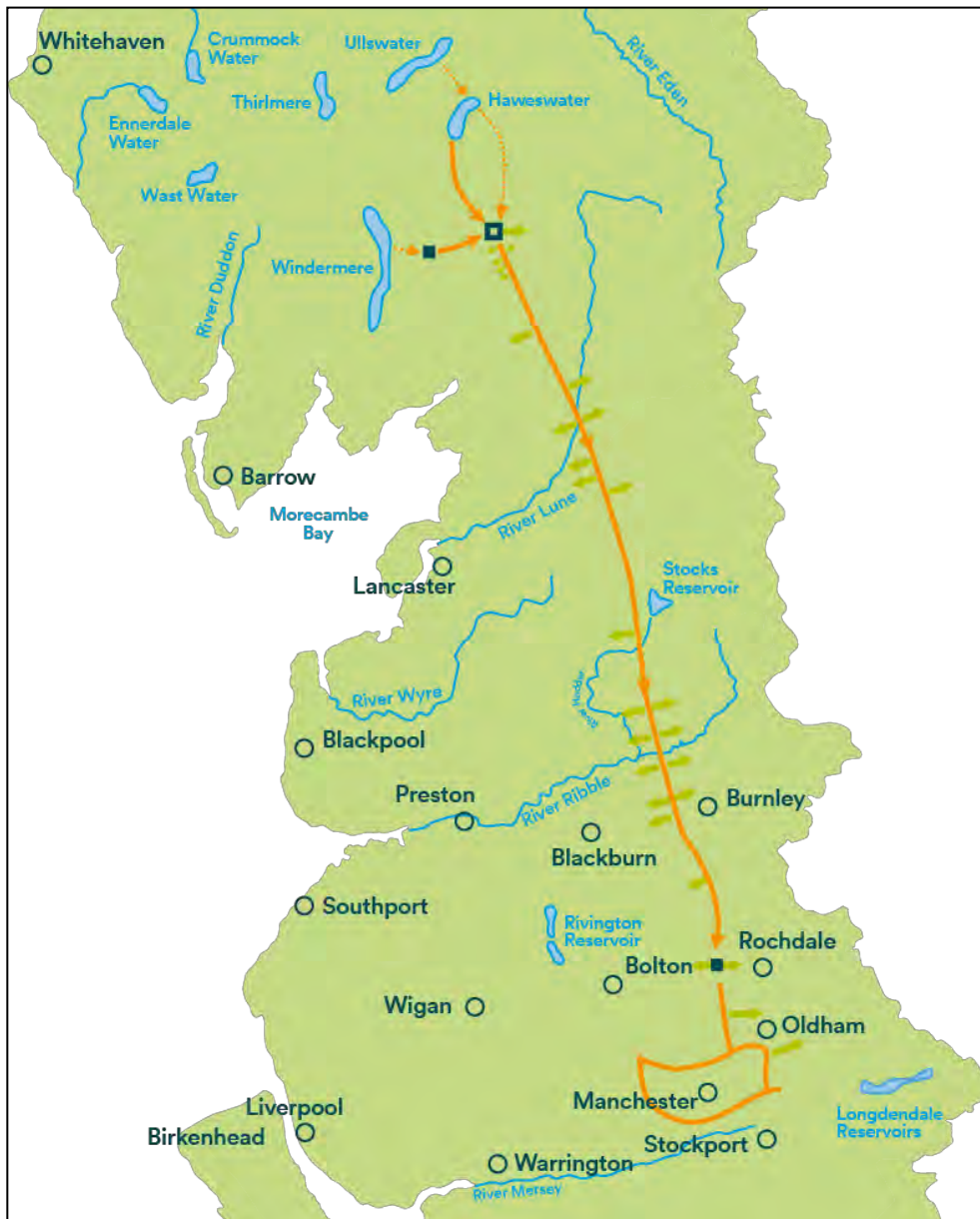
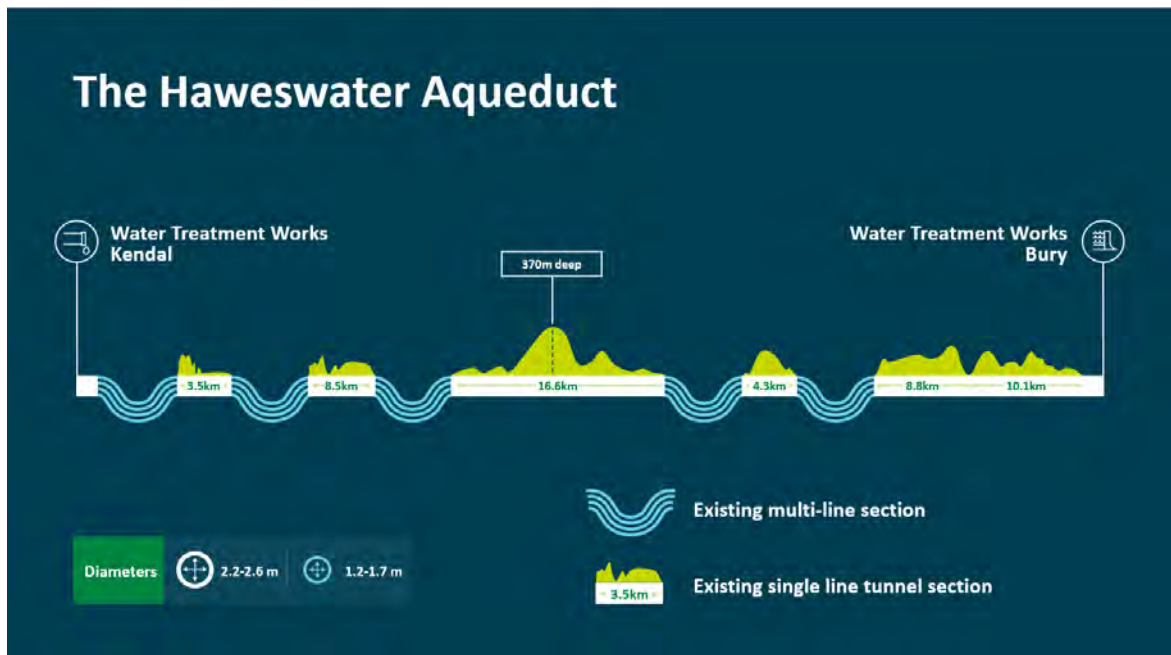


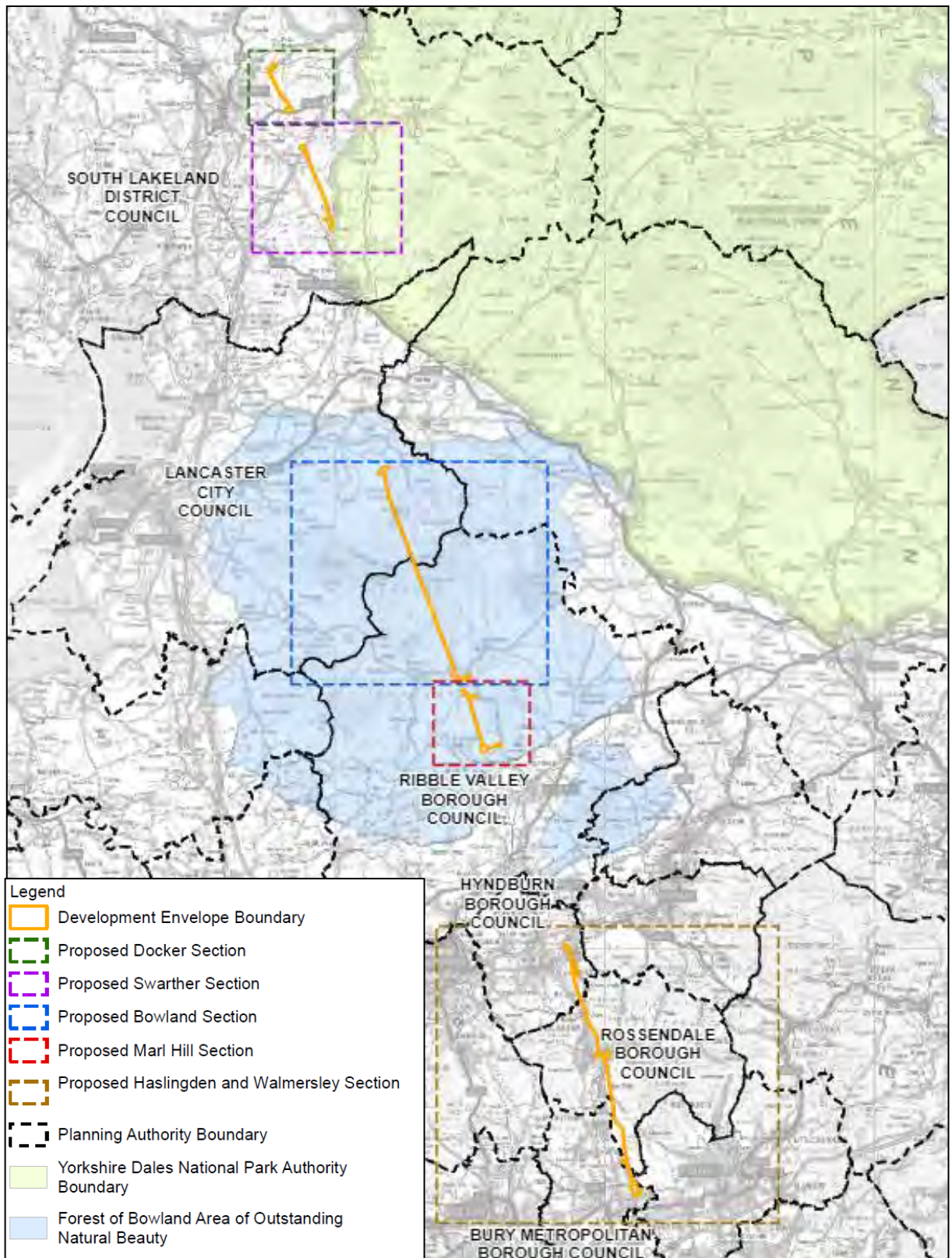
Illustration 2 – Diagram of Existing Multi-line and Tunnel Sections of the Existing Haweswater Aqueduct



- 3) The Proposed Programme of Works is essential to protect future water quality and provide a more resilient supply of clean drinking water. The works would comprise of five new tunnel sections (two replacement tunnel sections combined in the Proposed Haslingden and Walmersley Section) totalling a length of approximately 53km, across seven Local Planning Authorities (LPAs) (see Illustration 3: Proposed Programme of Works). United Utilities is therefore submitting a series of planning applications, for these replacement sections to the corresponding LPAs and these are listed below, from north to south:
- **Proposed Docker Section:** South Lakeland District Council
  - **Proposed Swarther Section:** South Lakeland District Council and Yorkshire Dales National Park Authority
  - **Proposed Bowland Section:** Lancaster City Council and Ribble Valley Borough Council
  - **Proposed Marl Hill Section:** Ribble Valley Borough Council
  - **Proposed Haslingden and Walmersley Section:** Hyndburn Borough Council, Rossendale Borough Council and Bury Metropolitan Borough Council.
- 4) Each tunnel section would have a drive shaft compound and reception shaft compound(s) operating during the construction works. At the compounds, connections between the existing multi-line siphon and proposed tunnel sections would be constructed using an open cut method.



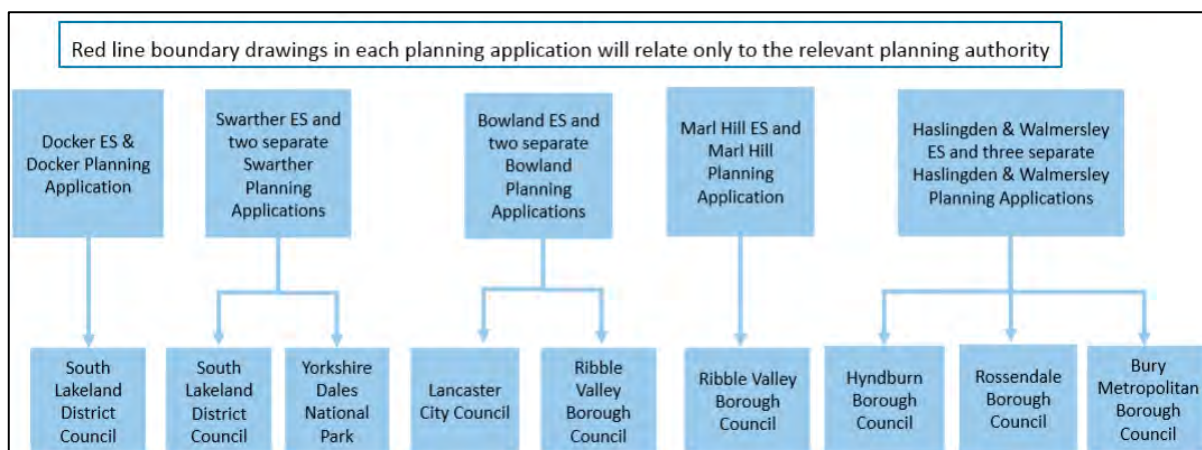
**Illustration 3 – Proposed Programme of Works (LPA Overview)**



- 5) It has been agreed with the LPAs that Environmental Statements (ES) are produced for each of the five sections and, where sections overlap between different local authority areas, to submit a separate planning application to each of the affected LPAs. Consequently, there are nine planning applications in total (Illustration 4 shows the ESs and corresponding planning applications).



**Illustration 4 – Section Environmental Statements and corresponding Planning Applications**



- 6) Applications for planning permission would include both the above and below ground permanent development elements, as well as the temporary working areas, accesses and associated plant and machinery. In certain instances, the proposed details of development are typical or indicative, though are based on “reasonable worst-case” assumptions in the corresponding Environmental Statement where necessary. The planning application drawings incorporate broad areas for compound sites and “limits of deviation” corridors for the proposed accesses and the tunnel alignment. This allows for some flexibility in the final construction layouts and location of proposed permanent assets.
- 7) The Proposed Marl Hill Section is one of the sections of the Proposed Programme of Works and is wholly within the borough of Ribble Valley.
- 8) This Proposed Marl Hill Section – Ribble Valley Borough Council Application Planning, Design and Access Statement relates to the planning application for the Proposed Marl Hill Section (note: a separate Planning, Design and Access Statement and planning application has been prepared for the Proposed Bowland Section, which also falls partly within the borough of Ribble Valley).

## 1.2 Background to the Planning Application

- 9) The existing Haweswater Aqueduct became operational in the mid 1950’s and transfers raw water from Haweswater Reservoir in the Lake District National Park to a Water Treatment Works (WTW) near Kendal for treatment. From the WTW the aqueduct conveys treated (potable) water to customers in Greater Manchester, Cumbria and Lancashire (Illustrations 1 and 2 outline the overall extent and sections of the existing aqueduct).
- 10) Inspections carried out by United Utilities uncovered areas of concern in the single line sections of the Haweswater Aqueduct. It is anticipated that the condition of these single line sections will continue to deteriorate, and therefore a solution is required to address the risks to water supply and water quality. United Utilities has subsequently been looking at different solutions to mitigate these risks and enhance the resilience of the Haweswater Aqueduct. After a comprehensive optioneering process, it was concluded that replacement of the single line sections was the preferred option (see Section 2 for further details of the option selection process).

## 1.3 Summary of Proposed Marl Hill Section

- 11) The description of development for the application to Ribble Valley District Council is:

*‘Proposed works for and use of replacement section of aqueduct, including earthworks and ancillary infrastructure including: new valve house buildings within fenced compounds with permanent vehicular access provision. With the installation of tunnel shafts; open cut connection areas at either end of the replacement section within temporary construction compounds, to include site accesses, storage areas,*

*plant and machinery, and drainage infrastructure. In addition, a temporary haul route with bridge over the River Ribble (as one of two options for vehicular access to the temporary construction compound); a series of local highway works together with a temporary satellite park and ride facility and a vehicle marshalling area.'*

- 12) The Proposed Marl Hill Section would comprise of approximately 4.3 km of replacement pipeline, including connections to existing United Utilities infrastructure, between the Proposed Braddup Compound (the tunnel launch compound) to the south and the Proposed Bonstone Compound (the tunnel reception compound) to the north and be constructed by a tunnel boring machine(TBM).
- 13) The duration of both compounds would be approximately 3 years, with an expected commencement in 2024, although enabling works to facilitate compound establishment works, such as off-site highway works, may start sooner.
- 14) In addition to the new tunnel pipeline, the following permanent works are proposed at both compounds:
  - Valve house buildings and stone access roads (at both the Proposed Braddup and Bonstone compounds)
  - Stone hard standing surrounded with stock proof fencing
  - Raised valve chambers and access
  - Local ground reprofiling over new pipeline(s) and around the proposed valve house building and access at the Proposed Bonstone Compound.
- 15) There are also a number of temporary works proposed (in addition to the main construction compounds mentioned above):
  - The Proposed Ribble Crossing (between the settlements of Waddington and West Bradford), consisting of a temporary clear span bridge and associated haul routes. The Proposed Ribble Crossing is one of the construction traffic route options (Haulage Route Option 2) with use of the existing local highway network forming the other option (Haulage Route Option 1). See Chapter 5 for further detail regarding the construction traffic route options
  - The Clitheroe Park & Ride Facility within an existing car park opposite the Ribblesdale cement works to the west of West Bradford Road and also a Clitheroe Heavy Goods Vehicle (HGV) holding facility, within the Ribblesdale cement works
  - A series of highway works, comprising of passing places and road widening, on the local highway network to facilitate safe access to the compounds. Further detail is included in Chapter 5 of this document.
- 16) A full description of the temporary and permanent works is set out in Chapter 4 of this Statement.

#### **1.4 The Structure of the Planning, Design and Access Statement**

- 17) The content of this Planning Design and Access Statement is as follows:
  - Chapter 2 provides an overview of the need for the Proposed Programme of Works and explains how the preferred option was selected
  - Chapter 3 provides a summary of consultation undertaken with the local community (further details are provided in the Statement of Community Involvement accompanying the application)
  - Chapter 4 describes the development works for the Proposed Marl Hill Section and provides the Design section of the Design and Access Statement
  - Chapter 5 details the proposed haulage route options for the construction works and provides the Access section of the Design and Access Statement
  - Chapter 6 provides a summary of the environmental effects of the Proposed Marl Hill Section

- Chapter 7 details planning policy and other material considerations that are relevant to the determination of the application
- Chapter 8 comprises a planning policy assessment of the key planning considerations
- Chapter 9 sets out the Conclusions
- Appendix A is the Major Development Test Report, Appendix B is the Land Drainage Statement, Appendix C is the SUDS proforma and Appendix D is the Land Stability Report.

## **2. Need for the Development and Option Selection**

### **2.1 Introduction**

- 18) The need for the Proposed Programme of Works stems from United Utilities' requirement to replace parts of an ageing asset, the existing Haweswater Aqueduct, to ensure the continuity of a water supply serving Cumbria, Lancashire and Greater Manchester, and to mitigate potential risks to drinking water quality.
- 19) As a statutory water services undertaker, United Utilities serves its customers, operates and maintains its assets, and invests in new infrastructure within a strict regulatory framework. The Water Industry Act 1991 sets out the duty of water undertakers to supply drinking water that is safe and of a quality acceptable to consumers. The Office of Water Services, or Ofwat, is the statutory body responsible for economic regulation of the privatised water and sewerage industry in England and Wales. The Drinking Water Inspectorate (DWI) is the independent drinking water regulator serving England and Wales. The DWI is responsible for ensuring that water companies supply safe drinking water that is acceptable to consumers and meets the relevant legal standards.
- 20) The process that identified the need and the options selection for the Proposed Programme of Works is described in the following sections.

### **2.2 Identification of Risk**

- 21) The existing Haweswater Aqueduct is a source of water supply for Greater Manchester, Lancashire, and Cumbria. The 110km Haweswater Aqueduct was constructed in the 1930-50s and comprises of 63km of single line tunnel and conduit sections and 47km of multi-line siphons. The Haweswater Aqueduct transfers treated water from a water treatment works near Kendal to customers in Cumbria, Lancashire and Greater Manchester.
- 22) In the early 2000's, United Utilities began planning major investment spanning over ten years to ultimately enable the Haweswater Aqueduct to be taken out of service for the first time in over 60 years in order to undertake an inspection, which would identify any future risk to supply from the asset.
- 23) Tunnel inspections carried out in 2013 and 2016 uncovered areas of concern due to the degradation of concrete lined single line tunnel sections of the aqueduct. It is anticipated that the condition of these single line sections of the existing Haweswater Aqueduct would continue to deteriorate, causing a risk to water supply and water quality. This risk of further deterioration could result in widespread water quality incidents (for example, advice to boil water for drinking purposes) or loss of supply to many thousands of properties for an extended period.

### **2.3 Consideration of Options**

- 24) In 2017, United Utilities commenced an extensive process to identify and assess a full range of options to provide a reduction in the risk to customer supplies. These options were appraised against cost, environmental and technical considerations, and additionally a range of options was tested through extensive customer and stakeholder engagement.
- 25) The Proposed Programme of Works was chosen as the preferred baseline solution following a three stage optioneering exercise, which considered many potential combinations of engineering and operational solutions. The three stages were: Coarse option screening, Coarse solution screening, and Fine solution screening.
- 26) This process involved screening approximately 380 initial options to find the preferred solution.
- 27) The purpose of *Coarse option screening* was to remove unviable options through the following three criteria:

- Technical Feasibility – Options were reviewed in respect of whether the option would be technically possible and buildable
  - Statutory/ Environmental Feasibility – Options were reviewed to evaluate the likelihood of permission being granted for the works to be constructed. United Utilities considered whether each proposed option had the potential to impact on important designated sites
  - Addressing the Need – An assessment was made of the impact that the option could have in supporting the need for improving the resilience of the Haweswater Aqueduct’s supply through Cumbria, Lancashire and Greater Manchester.
- 28) *Coarse solution filtering* grouped options into solutions, calculated simplified bill impacts, assessed risk reduction and screened out solutions using a dominance criterion (solutions with lower risk reduction for higher bill impact were removed).
- 29) *Fine solution filtering* of the options considered Ofwat’s resilience principles, most notably: ‘Resilience in the round’ (Principle 1); ‘Naturally resilient’ (Principle 2); ‘Customer engagement’ (Principle 3); ‘Broad option set’ (Principle 4); and ‘Best value solution’ (Principle 5).
- 30) The approach to robust decision making was to consider three main areas to inform selection of a preferred solution that provides best value for customers. The three areas were as follows:
- Customer engagement; focused customer research to understand customer preferences for risk reduction and associated costs via the impact on their bills
  - Cost benefit assessment: a detailed assessment using specific and standard economic metrics
  - Multi-criteria Decision Analysis: a wider analysis looking at resilience in the round covering metrics beyond those provided by customers and included within the CBA. The five ‘Decision Metrics’ used in the multi-criteria analysis were:
    - Bill Impact
    - Economic Impact
    - Resilience Risk
    - Environmental Impact
    - Willingness to Pay Benefit.
- 31) Every five years, statutory Water Resources Management Plans (WRMPs) set out a water company’s intended approach for at least the next 25 years. With the aid of the processes utilised above, five solutions were chosen as part of the fine filtering process and were presented in United Utilities’ Draft Water Resources Management Plan, which was published for consultation between March and May 2018. These five solutions are described in Table 2.1.

**Table 2.1: Description of Solutions presented in the Draft Water Resources Management Plan**

Solution	Description
Solution A	Targeted repairs of the tunnel sections that are in the worst condition (including additional abstraction requirement)
Solution B	Replacement of the tunnel sections in the worst condition and provide targeted treatment for water quality: UV/Metals Treatment (new and / or modified treatment installations)
Solution C	Construct new water treatment works at Bury and in the Ribble Valley and convert the Haweswater Aqueduct to ‘raw water’ supply
Solution D	Replacement of all Haweswater Aqueduct tunnel sections
Solution E	Replacement of all Haweswater Aqueduct tunnel sections and provide additional water sources (including additional abstraction requirement)

- 32) To support United Utilities' decision making, the solutions were subject to Environmental and Social costings, Strategic Environmental Assessment, Habitats Regulations Assessment and Water Framework Directive Assessment. The outcomes of these assessments, together with consultees' views on the Draft WRMP, were used to inform the selection of the preferred solution.

## **2.4 Selection of Preferred Option**

- 33) The outcome of the options selection process was that Solution D was chosen as the preferred solution to provide resilient long-term water supplies, for the following reasons:
- Cost benefit analysis shows that Solution D is the most cost beneficial
  - Shows that Solution D remains the most robust solution to a range of decision-making criteria including the use of Multi-criteria Decision Analysis: a wider analysis looking at resilience in the round covering metrics beyond those provided by customers and included within the CBA. The five 'Decision Metrics' used in the multi-criteria analysis were:
    - Bill Impact
    - Economic Impact
    - Resilience Risk
    - Environmental Impact
    - Willingness to Pay Benefit.
  - Stakeholders prefer a long-term solution to the problem, for those who expressed a preference generally indicating a preference for Solution D or E
  - Environmental appraisals show that Solutions A and D generally have the lowest environmental risks. In consultation, the Environment Agency raised some concerns about those solutions which included new or changed abstraction patterns (i.e. Solutions A and E)
  - Consultation shows that customers have a clear preference for solutions that reduced the risk to a relatively low level. Solution D had the highest odds ratios (relative preference), and taken together the consultation findings show that customers support either Solution D or E.
- 34) The preferred solution was then presented in the submission of a draft Water Resources Management Plan (February 2019), submitted to the Secretary of State for (Department for Environment, Food and Rural Affairs). Then after receiving approval from the Secretary of State on 23 July 2019, the final Water Resources Management Plan was published in August 2019, including the intention to proceed with the Proposed Programme of Works.



## **3. Consultation**

### **3.1 Introduction**

35) A Statement of Community Involvement (SCI) (Ref: RVBC-MH-APP-006) has been prepared in support of the planning application. The SCI provides a chronological account of the consultation activity that has been undertaken during the pre-application stages of the planning application. This section provides a summary of the SCI. Details of pre-application consultation with statutory consultees to inform the Environmental Impact Assessment are provided in Appendix 4.1 of the Environmental Statement for the Proposed Marl Hill Section.

### **3.2 Objectives**

36) Paragraph 39 of the National Planning Policy Framework (NPPF) emphasises the importance of consultation during the pre-application phase, stating that:

*“early engagement has significant potential to improve the efficiency and effectiveness of the planning application system for all parties. Good quality pre-application discussion enables better coordination between public and private resources and improved outcomes for the community”.*

37) Likewise, Section 4.1 of the Ribble Valley Borough Council Statement of Community Involvement states that:

*“the Council believes that it is better for developers to talk to those who may be affected and refine their proposals while they are at a formative stage. The benefits of early community involvement include:*

- *addressing problems before the planning application is submitted may reduce the chance of a refusal of permission;*
- *refinements to the proposals are made at an early stage, preventing abortive work;*
- *in the long run, reducing the time to reach a successful outcome”.*

38) United Utilities set a number of objectives to guide public consultation, in line with expectations outlined in national and local planning policy. The objectives were:

- To encourage as much input as possible from the local community, including residents, interest groups, councillors and businesses
- To provide the community with a genuine opportunity to provide feedback on the plans
- To allow people to become actively involved in the process
- To identify and where practicable address any issues raised by the local community and stakeholders.

39) Prior to submitting this planning application, United Utilities has undertaken a detailed programme of community consultation, guided by these objectives.

### **3.3 Public Consultation**

#### **3.3.1 Consultation on the overall Programme of Works**

40) In 2017, United Utilities undertook an extensive consultation exercise, involving 2,500 customers and stakeholders across the North West of England. During the consultation, five potential options to address water quality and supply risks affecting the Haweswater Aqueduct were presented and feedback on the option representing the optimum balance of factors such as cost, risk reduction and environmental impact was sought. The majority responded in favour of replacing the existing tunnel sections of the Haweswater Aqueduct. This option was taken forward as preferred and was included in United Utilities Price Review 19 submission to Ofwat in September 2018.

### **3.3.2 Face to face public exhibitions**

- 41) In March 2020, United Utilities undertook a series of public meetings at the following venues in order to showcase the Proposed Programme of Works to the general public:
- Greyrigg, South Lakeland
  - New Hutton, , South Lakeland
  - Mansergh, South Lakeland
  - Wray, Lancaster
  - Newton-in-Bowland, Ribble Valley
  - Waddington, Ribble Valley.
- 42) The information presented at the exhibitions is described in more detail in the SCI, however, in summary, boards setting out the need for the overall programme of works, the plans relevant to the local area and the characteristics and potential impacts of the proposed works were exhibited. Key members of the project team were on hand at the exhibitions to answer questions and seek feedback from members of the public. A further five exhibitions were planned for the Proposed Programme of Works, however, following restrictions imposed as a result of the COVID-19 pandemic, these were replaced with online public consultation through the creation of a virtual exhibition platform.

### **3.3.3 Online, telephone and postal consultation**

- 43) From April 2020 a digital platform was developed in order to continue with the public consultation whilst abiding by social distancing guidelines due to the COVID-19 Pandemic. For the first time for United Utilities, a Virtual Exhibition room was launched on Friday 31 July 2020 displaying similar information to that presented at the face to face exhibitions, along with additional media and features including videos highlighting key aspects of the proposals and an interactive map for members of the public to view the location of the proposals in proximity to them.
- 44) Each tunnel section had a dedicated area, including the Proposed Marl Hill Section, to which this planning application relates. Electronic feedback forms were included, linked to each of the separate tunnel sections, and information presented for the provision of feedback on the proposals. In collecting the feedback, personal data was requested and collated in accordance with GDPR and the 15 questions were a mix of multiple choice and free text allowing the provision of detailed responses. Copies of the online information were made available as hard copies and sent out on request along with feedback forms which could be returned freepost. 27 hard copy packs were issued across the Proposed Programme of Works.
- 45) When the Virtual Exhibition platform was launched there was a communications campaign to ensure awareness and promote the site to communities who may be impacted by the proposals using the following methods:
- Postal – over 20,000 newsletters sent to addresses within 1km of each working area and along the proposed construction traffic access routes. 3,547 of the newsletters were sent to communities directly relating to the Proposed Marl Hill section
  - Email – more than 370 emails sent directly to project stakeholders and community representatives
  - Press releases – to local media outlets in each area that was picked up by and reported on by 10 media outlets
  - Social media – targeted social media campaign with posts over a four-week period
  - A freephone telephone enquiry line.
- 46) A timeframe of six weeks for the consultation was established, with comments being invited up to Friday 18 September 2020. This was to ensure that any comments received could influence the design, prior

to any freeze on amendments for assessment purposes. The feedback facility was retained as a method that members of the public could continue to provide comments after the 18 September. Feedback received after the 18 September 2020 until the facility was removed on 11 February 2021 was reviewed for anything that would influence previous design freeze decisions. This was shared with the planning and design teams and stakeholder relationship owners for information and to support with the continuing engagement through to and including the construction phase.

47) From Friday 31 July to Friday 18 September, the number of unique visitors to the virtual exhibition was 8,123. The area of the virtual exhibition dedicated to the Proposed Marl Hill Section was viewed 1,151 times.

### 3.3.4 Consultation with community representatives, stakeholders and other impacted third parties

48) United Utilities has engaged in ongoing dialogue with a number of community representatives and other stakeholders during the development of this planning application, including (but not limited to):

- Elected members of Lancashire County Council and Ribble Valley Borough Council
- Chatburn, Grindleton, West Bradford, Waddington, Bashall Eaves, Newton-in-Bowland, Slaidburn, and Bolton by Bowland, Gisburn Forest and Sawley Parish Councils
- Clitheroe Town Council
- Other interested stakeholders including, but not limited to the Forest of Bowland AONB Joint Advisory Committee, Hodder Consultative, Ribble Fisheries Consultative Association, Lancashire Fly Fishing Association, Ribble Rivers Trust, The Ramblers Association and Sustrans.

49) Details of consultation with statutory consultees during the development of the proposals for the Proposed Braddup and Bonstone compounds and associated works are set out in Appendix 4.1 of the Proposed Marl Hill Section Environmental Statement

50) Due to Covid-19 restrictions, conversations with these groups has been facilitated by video conferencing media. The key themes raised in these meetings, along with efforts made by United Utilities to resolve concerns as part of the planning application, are summarised below and outlined in greater detail in the SCI.

## 3.4 Summary of Consultation Responses

51) In total, 143 responses were received during the HARP virtual exhibition, with 98 out of 143 respondents (68.53%) in favour of the overall programme of works. Respondents generally noted the importance of HARP for the wider North West region and acknowledged that any local impacts would be temporary.

52) 30 responses were received specifically in respect of the Proposed Marl Hill Section, to which this application relates. 16 respondents (53.33%) were in favour of the Proposed Marl Hill Section, compared to 16.67% who were opposed. Table 3.1 lists the most frequent positive comments received in respect of the Proposed Marl Hill Section.

**Table 3.1 – Most frequent positive comments**

Comment	Frequency
HARP is needed	25
Securing water is vital	21
Supports HARP proposals	16

53) Table 3.2 lists the most frequent negative comments received in respect of the Proposed Marl Hill Section.

**Table 3.2 – Most frequent negative comments**

Comment	Frequency
HARP will increase traffic	11
Highways impact	11
Safety concerns during construction / negative HGV impact	10
Negative impact for pedestrians, cyclists and horse-riders	7

54) Generally, the consultation responses revealed that, whilst there is broad acceptance of the need for and principle of the works associated with the Proposed Marl Hill Section, there remain concerns around likely disruption during construction, particularly associated with increased traffic and resulting highways impacts. For example, in response to the question *"Do you have any issues to raise regarding the compounds in the Marl Hill section?"*, one respondent commented *"any traffic coming through Chatburn will pass our house, so I am concerned about the increase of large vehicles, I do understand your reasons for all the work, so crack on and don't waken me up when I work nights, thank you"*.

55) Following analysis of public and stakeholder comments received during the consultation period, a number of key concerns emerged in relation to the Proposed Marl Hill Section, including:

- Increase on traffic on local roads considering local hospital and schools
- Potential for disruption and nuisance (noise, dust etc.)
- Potential impact on bridges over River Ribble
- Interface with walkers, cyclists and horse riders
- Spoil disposal / material management proposals
- Protection of Broadband for Rural North (B4RN)
- Interface with farm traffic
- Potential landscape and visual impact
- Impact on terrestrial and aquatic biodiversity
- Potential for damage to roads, verges and drainage
- Impact on private water supplies
- Long working days and times (24/7)
- No local benefit but major disruption.

56) The SCI provides a detailed explanation of the actions taken and measures adopted to address these concerns. For example, in response to concerns raised around potential impacts on the local highway network, a number of design amendments have been implemented. A vehicle holding area is now proposed within the Ribblesdale Cement Works. The intention is that large vehicles would be held in this area during peak times (e.g. school drop off and pick up times) before being marshalled along the approved haulage route. In addition, a park and ride facility is proposed within an existing car park opposite Ribblesdale Cement Works. The facility would be used by construction personnel who would

be bused to and from the proposed construction compounds in order to reduce the volume of light vehicles on the local road network.

- 57) The proposed haulage routes presented in the public consultation utilised the existing highway network however, due to concerns raised, United Utilities commissioned a feasibility study to explore an alternative haulage route, involving a temporary crossing of the River Ribble between West Bradford Road in the south (opposite Ribblesdale Cement Works) and West Bradford Road to the north west (to the west of Waddington and West Bradford Primary School). The alternative route offers benefits in terms of allowing construction traffic to bypass Clitheroe, Chatburn, Grindleton, West Bradford and parts of Waddington and it is included as an option (Haulage Route Option 2 – see Chapter 5), alongside a separate option (Haulage Route Option 1 – see Chapter 5) to use the existing road network, in this planning application.
- 58) In order to reduce the volume of construction traffic on the road network south of the Proposed Braddup Compound, United Utilities has engaged with the operators of Waddington Fell Quarry with a view to surplus material extracted from the Proposed Marl Hill Section being transferred to the quarry for use in a revised and enhanced restoration scheme. A planning application to alter the restoration plan for the site has been submitted to Lancashire County Council.
- 59) Finally, a number of highway modifications, mainly comprising passing places and road widening, are proposed along the existing highway network to prevent any conflicts between construction traffic and existing road users.

### **3.5 Conclusion**

- 60) The SCI demonstrates that, despite challenges posed by the Covid-19 pandemic, United Utilities has, through the adoption of innovative techniques and approaches, effectively consulted local communities and interested stakeholders in developing the Proposed Marl Hill Section. Views expressed by members of the local community have been listened to and, where possible, the design has been amended to address concerns raised.

## **4. Design and Development Description**

### **4.1 Background**

- 61) In relation to the overall Proposed Programme of Works, the Proposed Marl Hill Section is south of the Proposed Bowland Section and north of the Proposed Haslingden and Walmersley Section. It comprises a replacement tunnel section measuring approximately 4.3km in length and extends northwards from the launch shaft at the Proposed Braddup Compound to the reception shaft at the Proposed Bonstone Compound.
- 62) The tunnel would be constructed by a tunnel boring machine (TBM) below ground level and the multi-line pipe connections would be constructed by short open-cut surface trenching sections at each end of the tunnel to connect back into the existing aqueduct.
- 63) Once the new section of aqueduct has been constructed, tested and commissioned, the sections of the old aqueduct would be decommissioned.
- 64) This chapter describes the location and detail of the proposed works for the Marl Hill Section. The development is also considered to be 'Major Development' within the Forest of Bowland Area of Outstanding Natural Beauty (AONB) and therefore in accordance with the Major Development Test, as set out at paragraph 172 of the National Planning Policy Framework, a Major Development Test Report has been completed and is included as Appendix A.

### **4.2 The Proposed Marl Hill Section**

- 65) The Proposed Marl Hill Section tunneling works would be launched from the Proposed Braddup Compound on land near Sandy Ford Brook, accessed via an existing track off the B6478 Slaidburn Road and to the north of Cross Lane, then passing under moorland/agricultural areas to the Proposed Bonstone Compound on land northwest of New Laithe Farm accessed via an existing access off the B6478 Slaidburn Road. The proposals also consist of a number of other elements:
- A series of highway modification works at various locations along Ribble Lane/East View and Grindleton Road and then along Slaidburn Road, from the north of Waddington, up to the access to the Proposed Bonstone Compound, as described in Chapter 5
  - The Proposed Ribble Crossing, which comprises a temporary haul route across the River Ribble (with temporary clear span bridge) from land south of West Bradford Bridge to West Bradford Road, west of Healings Farm, West Bradford. The temporary haul route is one of the proposed options for access to the proposed compounds, alongside use of the existing road network, as described in Chapter 5
  - An HGV Holding Area on land within the Ribblesdale Cement Works to the east of West Bradford Road, Clitheroe, as described in Chapter 5
  - A Park and Ride Facility at the existing Ribblesdale Cement Works car park to the west of West Bradford Road, Clitheroe, as described in Chapter 5.
- 66) It is envisaged that the main construction work would begin in 2024. Proposed modifications to the local highway network and the Proposed Ribble Crossing (in the event it is taken forward as part of an approved scheme), may commence sooner in 2023. The main tunnel construction works would start in 2024, with completion anticipated in 2026. The compounds would be reinstated once connection and commissioning works are complete, thus resulting in the compound being in place in some form for approximately 3 years. Reinstatement of associated highway modifications and the Proposed Ribble Crossing (if required) however, would not be carried out until 2030, as they would also serve the Proposed Bowland Section, which has a longer construction programme. Notwithstanding this, it should also be noted that the dates and durations are indicative and may be further developed once a contractor is appointed.



- 67) As indicated in Chapter 1, the planning application drawings incorporate broad areas for compound sites and 'limits of deviation' corridors for the proposed accesses and the tunnel alignment, allowing for flexibility in the final location of such features (above and below ground). Above ground works are shown indicatively and, as discussed with Ribble Valley Borough Council, the locations are subject to detailed siting, with the permanent assets shown subject to a tolerance of up to 10m. If necessary precise details would be finalised and agreed (e.g. by planning condition) with Ribble Valley Borough Council prior to commencement of the relevant construction phase.

### **4.3 The Proposed Braddup Compound**

#### **4.3.1 Overview**

- 68) The Proposed Braddup Compound would be the launch site for the Marl Hill section accessed via an existing access (approximately 1 km long) off Slaidburn Road. It is approximately 15.44 ha in area (including the construction access) and is shown on Planning Drawing: RVBC-MH-APP-004-04-04.

#### **4.3.2 Location**

- 69) The compound is within a rural area, located on agricultural land alongside Sandy Ford Brook and approximately 2.5 km northwest of Waddington. It is to the west of Slaidburn Road where there would be a material laydown area to the north of a modified junction from the public highway and is opposite Bookers Farm at this point.

#### **4.3.3 Compound Layout**

- 70) The compound area would be based around the proposed launch shaft (approximately 15 m in diameter and 10-15 m deep). The indicative layout of the proposed compound area during the construction phase of the tunnel is shown on the Planning Drawings: RVBC-MH-APP-004-05\_03 and 04 and the indicative layout during the connection phase to existing United Utilities infrastructure is shown on Planning Drawings: RVBC-MH-APP-004-06\_03 and 04. The temporary compound would require:

- Creation of site access off the existing access road
- Topsoil stripping, with storage for reinstatement
- Earthworks to create level areas in the site and in particular the creation of platforms for working machinery and haul routes where necessary
- The provision of compound surface run off drainage including packaged water treatment plant and attenuation lagoon
- Site fencing, including hoarding installed around the main compound shaft working area to a height of 2.4m and, where appropriate, heras fencing would be used around any other working/storage areas
- Plant including a transformer, a generator, fuel tanks, facilities for waste storage and 45m high crane at the main shaft
- Temporary site cabins for offices, welfare, workshops and stores
- Material storage areas e.g. tunnel segments and consumables that would enter the tunnels in this location
- Areas of open cut works to connect into existing United Utilities infrastructure
- Culverting works
- Lighting (for details please refer to the Lighting Management Plan ref: RVBC-MH-APP-005).

#### **4.3.4 The Permanent Works**

- 71) In addition to the proposed tunnel, and connections to existing United Utilities infrastructure, the permanent works are shown on Planning Drawings: 80061155-01-JAC-TR4-97-DR-C-00004 and 00012 and would consist of:
- A valve house building (see Illustration 5 showing a typical valve house building)
  - A stoned hardstanding, next to the valve house building, within a compound surrounded by stock proof fencing
  - Raised valve chambers and access
  - Local ground reprofiling over new pipeline
  - Enhanced access road to the proposed valve house building.
- 72) Following completion of construction, the shaft would be backfilled and covered and reinstated into the surrounding area.

#### **4.3.5 Public Rights of Way**

- 73) Two PRow footpaths: 3-43-FP 8 and 3-5-BW 1, would be temporarily affected by the works:
- Bridleway 3-5-BW 1 would require a crossing point (e.g. kissing gates) where the bridleway meets the access track. Signage would be posted at appropriate locations to acknowledge construction traffic movement
  - Footpath 8: Footpath 3-43-FP 8 would require a controlled crossing point (e.g. the use of access gates) where the footpath meets the access track. Signage would be posted at appropriate locations to acknowledge construction traffic movement.

#### **4.3.6 Tree/Hedgerow Removal, Pruning and Protection**

- 74) The clearance of vegetation, including felling of trees and hedge removal, would be required for site preparation and modifications to the access from the public highway. These works would be completed outside of the bird nesting season (unless supervised by a suitably competent ecologist with confirmation that no active nests are present) and re-instated as per the detail on the Environmental Masterplan (ref: RVBC-MH-FIG-021-001 pages 3 and 4).

#### **4.3.7 Material/Waste Arisings**

- 75) The tunnel arisings generated during shaft excavation and the tunnel boring operations would be removed off site and taken to Waddington Fell Quarry for use in in a revised and enhanced restoration scheme (subject to separate planning permission).

### **4.4 The Proposed Bonstone Compound**

#### **4.4.1 Overview**

- 76) The Proposed Bonstone Compound would be the reception site for the Marl Hill section accessed via an existing access off the B6478 Slaidburn Road. It is approximately 9.3 ha in area (including the construction access) and is shown on Planning Drawing: RVBC-MH-APP-004-04-01.

#### **4.4.2 Location**

77) The proposed compound is located approximately 1.5km south of Newton-in-Bowland and approximately 7km north of Waddington, within a rural area and located on agricultural land, between areas of woodland and the settlement of Waddington approximately 600m to the west of Slaidburn Road. Access to the compound would be gained via an access from Slaidburn Road, which is to be modified to accommodate construction traffic.

#### **4.4.3 Compound Layout**

78) The compound area would be based around the proposed reception shaft (approximately 15 m in diameter and 10-15 m deep). The indicative layout of the proposed compound area during the construction phase of the tunnel is shown on the Planning Drawings: RVBC-MH-APP-004-05\_01 and 02 and the indicative layout during the connection phase (connections to existing UU infrastructure) is shown on Planning Drawings: RVBC-MH-APP-004-06\_01 and 02. The temporary compound would require:

- The creation of site access off existing access road
- Topsoil stripping, with storage for reinstatement
- Earthworks to create level areas in the site and in particular the creation of platforms for working machinery and haul routes where necessary
- The provision of compound surface run off drainage including packaged water treatment plant and attenuation lagoon
- Site fencing, including hoarding installed around the main compound shaft working area to a height of 2.4m and, where appropriate, heras fencing would be used around any other working/storage areas
- Plant including a transformer, a generator, fuel tanks, facilities for waste storage and 45m high crane at the main shaft
- Temporary site cabins for offices, welfare, workshops and stores
- Material storage areas e.g. shaft segments
- Areas of open cut works to connect into existing United Utilities infrastructure
- Lighting (for details please refer to the Lighting Management Plan ref: RVBC-MH-APP-005).

#### **4.4.4 The Permanent Works**

79) In addition to the proposed tunnel, and connections to existing United Utilities infrastructure, the permanent works are shown on Planning Drawing: 80061155-01-JAC-TR4-97-DR-C-00002 and 00010 and would consist of:

- A valve house building (see Illustration 5 showing a typical valve house building)
- Stone access road to the proposed valve house building
- A stone hardstanding, next to the valve house building, within a compound surrounded by stock proof fencing
- Raised valve chambers and access
- Area of local ground reprofiling, using shaft arisings, over the new pipeline and to create appropriate levels for the Valve House Building Compound and Access Road.

80) Following completion of construction, and connections to existing United Utilities infrastructure, the shaft would be backfilled, covered and reinstated into the surrounding area.

#### **4.4.5 Public Rights of Way**

- 81) Two PRow footpaths: 3-29-FP 42 and 3-29-FP 43, would be temporarily affected by the proposed works
- Footpath 42: At Footpath 3-29-FP 42 fencing would be used to separate PRow users from the access track to minimise disruption to the PRow
  - Footpath 43: Footpath 3-29-FP 43 would require the use of a controlled crossing point where the footpath meets the access track before joining a fenced off pedestrian walkway to separate PRow users from construction traffic. Signage would be posted at appropriate locations to acknowledge construction traffic movement.

#### **4.4.6 Tree/Hedgerow Removal, Pruning and Protection**

- 82) The clearance of vegetation, including felling of trees and hedge removal, would be required for site preparation and access widening works. These works would be completed outside of the bird nesting season (unless supervised by a suitably competent ecologist with confirmation that no active nests are present) and re-instated as per the detail on the Environmental Masterplan (ref: RVBC-MH-FIG-021-001 pages 1 and 2).

#### **4.4.7 Material/Waste Arisings**

- 83) The tunnel arisings generated during the tunnel boring operations, would be removed off site and taken to the Waddington Fell Quarry for use in a revised and enhanced quarry restoration scheme (subject to separate planning permission).

### **4.5 Highways Works**

- 84) In order to safely access the construction compounds, it would also be necessary to construct a series of road passing places, sections of road widening areas, junction alterations and temporary storage/works compounds. These are described in Chapter 5 and shown on Planning Drawings: RVBC-MH-APP-004-12\_01 to 12.
- 85) In summary, whilst the majority of the works would be constructed within highways land, some would require access to and / or construction on private land. This may require the temporary removal of field boundaries such as dry-stone walls, and the removal of trees and hedgerows. Tree and hedgerow reinstatement plans would be developed in conjunction with the landowners. The highways works would be delivered during the enabling works phase and it has been assumed that:
- All passing places would be reinstated
  - Sections of road widening involving works outside of the highway boundary would be reinstated
  - Sections of road widening within the highway boundary would be retained permanently following completion of the construction works. Hedgerows and / or walls removed to accommodate temporary works would be reinstated
  - All associated temporary compound accesses would be reinstated.
- 86) Further detail regarding proposed highway modification works is provided in Chapter 5.

### **4.6 Proposed Ribble Crossing**

- 87) The Proposed Ribble Crossing forms one of the construction traffic route options (Haulage Route Option 2) for the Proposed Bonstone and Braddup compounds and also the Proposed Newton-in-Bowland Compound (within the Proposed Bowland Section). Alternatively, haulage Route Option 1, described in Chapter 5 below, would utilise 2 routes solely within the existing local highway network. The Proposed Ribble Crossing comprises a dedicated haul route crossing open countryside to the north of Clitheroe, leaving the West Bradford Road near the Ribblesdale Cement Works and crossing the River Ribble via a

temporary clear span bridge in proximity to the existing West Bradford Bridge. The route would head west and then north to re-join West Bradford Road between Waddington village and Waddington and West Bradford Primary School.

- 88) The Proposed Ribble Crossing would be a two lane carriageway some 7.7 m wide and approximately 1.45 km in length. The road and bridge would be temporary structures in place for the duration of the construction of the Proposed Marl Hill Section and the Proposed Bowland Section (the subject of a separate planning application). The road would be fully removed, and the land reinstated once the tunnel construction, commissioning and reinstatement works have been completed. During the construction works the road would be reserved for the use of all construction traffic and would be suitable for HGVs, including exceptional loads.

#### **4.7 Clitheroe Park and Ride Facility and HGV Holding Area**

- 89) The proposed Park and Ride Facility and HGV Holding Area at the Ribblesdale Cement Works, Clitheroe are required for the Proposed Bonstone and Braddup Compounds and also the Newton-in-Bowland compound (within the Proposed Bowland Section and subject of a separate planning Application). They would be required for the duration of the associated works and thus for an approximate period of seven years commencing in 2023.
- 90) The HGV Holding Area would be located on an area of hardstanding within the main Ribblesdale Cement Works site to the east of West Bradford Road, Clitheroe (see Planning Drawing: 80061155-01-JAC-TR4-XX-DR-C-00030).
- 91) It is proposed that large construction vehicles would be held within the HGV holding area for short periods of time before being released back onto the construction traffic routes towards the Proposed Bonstone, Braddup and the Proposed Newton-in-Bowland compound (included in a separate planning application). This would be to alleviate traffic flows on the local road network during busier times of the day, or delivering plant and materials on a 'just in time' basis.
- 92) The Park and Ride Facility would make use of an existing staff car park on the west side of West Bradford Road, opposite the main Ribblesdale Cement Works. The purpose of the Park and Ride Facility would be to reduce flows of private cars and light vehicles further north on the local road network by providing a shuttle bus service to and from the Proposed Bonstone, the Braddup and the Newton-in-Bowland compounds.

#### **4.8 Site Drainage**

- 93) Appendix B provides an overview of the approach and general principles relating to site drainage for the Programme of Works relating to the Proposed Marl Hill Section. It references drainage components, including culverting works at the Proposed Braddup compound, which are shown on the construction phase Planning Drawings: RVBC-MH-APP-004-05\_03 and 04 and connection phase Planning Drawings: RVBC-MH-APP-004-06\_03 and 04.
- 94) It is intended for details of works affecting watercourses, site drainage proposals including surface water and groundwater management, culvert details and mitigation, to be confirmed in response to planning conditions, which would require details to be submitted for acceptance prior to the relevant construction phase.
- 95) A Sustainable Drainage Systems (SuDS) proforma is included as Appendix C.

#### **4.9 Phases of Works**

- 96) The proposed works are to be split into a number of phases. The main activities to be carried out in each Phase are listed in Table 4.1.

Table 4.1: Development Works Phasing

Works Phase	Activities
Enabling Works	<ul style="list-style-type: none"> <li>▪ Vegetation clearance</li> <li>▪ Highway Modification Works, including the Proposed Ribble Crossing (if required)</li> <li>▪ Site Access improvements</li> <li>▪ Public Rights of Way temporary closures and diversions where appropriate</li> <li>▪ Earthworks (to prepare the compounds)</li> <li>▪ Establishing compound working areas including drainage and lighting</li> <li>▪ Diversion of statutory undertakers' equipment where required</li> </ul>
Construction Works	<ul style="list-style-type: none"> <li>▪ Shaft construction</li> <li>▪ Management of material/ surplus arisings</li> <li>▪ Tunnel construction</li> <li>▪ Construction of valve house and other necessary facilities</li> <li>▪ Open-cut pipework construction (for connections to existing United Utilities infrastructure)</li> </ul>
Commissioning Works	<ul style="list-style-type: none"> <li>▪ Commissioning of new aqueduct and transition into operation</li> <li>▪ Land reinstatement</li> <li>▪ Decommissioning of existing Haweswater Aqueduct and reinforcement work</li> </ul>

97) Following completion of the construction and commissioning works for the new aqueduct, there would be a short period where surveys and decommissioning works in the existing aqueduct would be undertaken. This would be carried out using a reduced size of compound local to the existing valve house buildings.

## 4.10 Design

### 4.10.1 General Approach to Design

98) The existing tunnel enables water to be conveyed by gravity flow along its entire length, avoiding the need for pumping. The route of the Proposed Marl Hill Section follows the same approach and generally follows the alignment of the existing aqueduct between the Proposed Braddup and the Bonstone Compound areas. There are various technical, environmental and amenity considerations that have influenced the design of the Proposed Marl Hill Section, including:

- A need for the replacement aqueduct section to be connected to retained sections of pipework
- A need to maintain a gravity flow along its entire length
- A need for the Proposed Programme of Works to be designed, built and operated safely
- A need to minimise where practicable, the impact on the environment and local communities
- A requirement for an aqueduct outage to enable connection of the newly-built infrastructure. This is a considerable undertaking and one that could only be delivered over a short timescale, potentially



four weeks during the month of October (only every two years), such that drinking water supplies to customers can be maintained.

- 99) Site specific design considerations for the Proposed Braddup and Bonstone compounds include:
- Hoarding around the main construction compound to screen activities from surrounding receptors
  - Permanent building/structures to be in keeping with the local landscape.
- 100) The proposed tunnel drive strategy has developed in response to the findings of ground investigation work and also to take account of considerations for mitigating environmental and community impacts.

#### **4.10.2 Proposed Valve House Buildings**

- 101) Illustration 5 shows the typical appearance of an existing valve house building. The proposed valve house buildings at the Proposed Braddup and the Bonstone Compounds would also be single storey and measure approximately 11m long x 12m wide x 7.5m high. They would require permanent access for operation via a hard-surfaced access.
- 102) The proposed valve house buildings would be constructed in natural stone, in keeping with the local vernacular. The buildings would have pitched rooves, finished with Welsh slate. The objective is to ensure the buildings are in keeping with the style of construction of agricultural out-buildings present throughout the local area. Post and rail fencing would be erected to demarcate United Utilities' operational boundary. Further information regarding the scale, design, appearance and materials of proposed buildings is shown on Planning Drawings: 80061155-01-UU-TR4-XX-DR-C-00034 (Braddup Compound) and 80061155-01-UU-TR4-XX-DR-C-00033 (Bonstone Compound). Overall, however, the building is a functional building with entrances and air vents appropriate for its use.
- 103) The location of the proposed valve house building is determined by the location of existing and proposed United Utilities infrastructure.

Illustration 5: Typical Valve House Building



## **5. Access and Highways**

### **5.1 Introduction**

- 104) Two Construction Traffic Management Plans (CTMP) have been produced in support of this planning application. The first CTMP (ref: RVBC-MH-APP-007\_01) relates to Haulage Route Option 1, which is to use two routes along the existing road network, as described in greater detail below. The second CTMP (ref: RVBC-MH-APP-007\_02) relates to Haulage Route Option 2, which incorporates the Proposed Ribble Crossing. It is envisaged that, in the event planning permission is granted, only the CTMP for the Haulage Route Option selected as preferred through the application determination process would be included in the approved working programme.
- 105) The CTMPs provide the framework for the management of construction traffic to the Proposed Braddup and Bonstone Compounds. They outline mitigation embedded in the design of the Proposed Marl Hill Section and detail additional mitigation measures prescribed in the accompanying ES. The measures outlined in the CTMPs are necessary to ensure that construction of the Proposed Marl Hill Section does not give rise to undue adverse impacts on the highway network. The CTMP for the option taken forward as part of the approved scheme would be further developed by the appointed Contractor for submission to, and approval of, Ribble Valley Borough Council and Lancashire County Council prior to the commencement of works.
- 106) Before arriving at the proposed haulage route options, which are outlined below, United Utilities undertook a thorough assessment of all potential options. The type and volume of traffic requiring access to the Proposed Braddup and Bonstone Compounds is detailed in the Transport Assessment for the Proposed Marl Hill Section (Appendix 16.1 of the ES). This information was used to assess the suitability of potential routes, according to physical, environmental and community constraints and guided by the advice of the Lancashire County Council. Further detail regarding the options considered is provided in Appendix 3.1 of the Proposed Marl Hill Section ES.

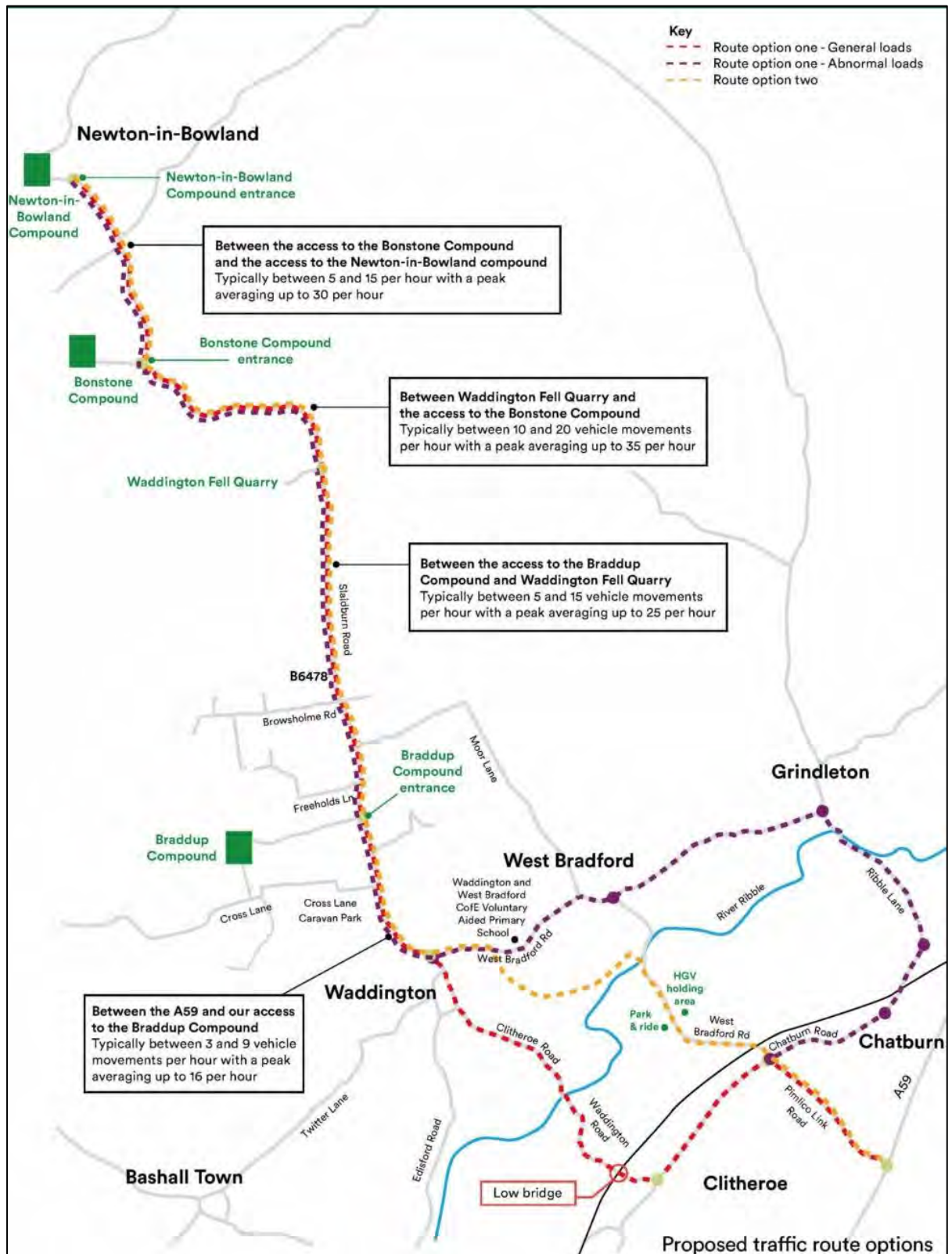
### **5.2 Haulage Routes**

- 107) The two proposed compounds would be accessed via dedicated temporary haul roads from the B6478. The temporary haul road for the Proposed Braddup Compound would require the creation of temporary new junction with the B6478. The temporary haul road facilitating access to the Proposed Bonstone compound would utilise an existing access, which would be modified to accommodate the anticipated construction vehicles.
- 108) The proposed compounds are in excess of 500m from the proposed haul road junctions with the existing highways. Figure A-1-01 in Appendix A1 of the Construction Traffic Management Plans (CTMP) illustrates this. Control of access to site would prevent construction traffic backing up on the existing highway.
- 109) Appendix B2 of the CTMP includes details of the proposed junctions, including swept path analysis and visibility splays. Where possible a conservative approach to visibility splay has been adopted allowing for higher design speeds than the proposed restrictions detailed in Figure B-2-16 of the CTMPs.

### **5.3 Haulage Route Option 1 (Use of existing road network)**

- 110) Illustration 6 presents both Haulage Route Options 1 and 2. The route options are also shown on drawings 80061155-01-JAC-TR4-97-DR-C-00006 and 80061155-01-JAC-TR4-97-DR-C-00007.

Illustration 6 – Proposed Haulage Route Options 1 and 2



- 111) Haulage Route Option 1 uses two routes to access the B6478 at the north of Waddington from the A59 south of Clitheroe. One for construction vehicles that can pass beneath a low railway bridge on the B6478 in Clitheroe (3.5m height restriction) and the other for vehicles over 3.5m high.

### 5.3.1 General Construction Traffic

- 112) Access to and from the Proposed Bonstone and Braddup Compounds for light vehicles and HGVs under 3.5 m in height would be gained via the A59, Pimlico Link Road, Chatburn Road and through Waddington along the B6478 Well Terrace/Waddington Road/Clitheroe Road/Slaidburn Road/Hall Gate Hill (hereafter referred to as "Route 1").

### 5.3.2 HGVs over 3.5 m in height (including Abnormal Indivisible Loads (AILs))

- 113) HGVs over 3.5 m in height and AILs would access the site through Clitheroe via the A59, Pimlico Link Road, Clitheroe Road, Crow Trees Brow, Ribble Lane, East View, Grindleton Road, West Bradford Road and along the B6478 Slaidburn Road (hereafter referred to as "Route 2").
- 114) Between Chatburn and Waddington the route is characterised by stretches of on street parking and narrow sections of road. Along many of the sections the straight alignment enables a safe informal contraflow to operate, however, where it is considered that these informal arrangements are inadequate the following measures are proposed:
- Proposed local road widening (RW01 – RW07 in Planning Drawing: RVBC-MH-APP-004-12\_Sheets 8 to 10)
  - Parking restrictions on Ribble Lane. Additional provisions may be required in Waddington to limit parking to one side of the road. AIL movements, particularly TBM movements, would require much shorter term restrictions in other locations
  - Appropriate speed restrictions to ensure safe stopping distances to allow wider vehicles to slow and pass
  - Selective pruning and removal of vegetation adjacent to the carriageway
  - Consistent messaging about the nature of construction HGV movements warning other road users that vehicles may slow or stop to allow oncoming vehicles to pass. This would include signage on vehicles, road signage and a wide range of communications with residents and any appropriate interest groups
  - Suitable traffic management at locations where physical works are impractical or such measures are considered necessary in conjunction with physical works, including:
    - two way control at East View Bridge (Grindleton)
    - three way control at the junction between Grindleton Road and East View
    - two way control at the pinch point at West Clough Bridge to the west of RW06
    - two way control at the pinch points around the 3 Millstones in West Bradford
    - three way control at the junction between West Bradford Road and the B6478, the Higher Buck, in Waddington.
- 115) Additional road widening and passing places, also utilised by Haulage Route Option 2 (RW08 – RW23 and PP01) are proposed between West Bradford and the Bonstone compound, as shown in Planning Drawings RVBC-BO-APP-004-12\_03 to 07.
- 116) Please refer to the CTMP (ref: RVBC-MH-APP-007\_01) for further details of the mitigation and traffic management proposed to ensure that vehicles are able to safely navigate the route.
- 117) The current proposals are not exhaustive and would be subject to detailed design including appropriate independent safety audits.



## **5.4 Haulage Route Option 2 (the Proposed Ribble Crossing)**

- 118) Haulage Route Option 2 incorporates a proposed temporary haul road crossing the River Ribble adjacent to existing West Bradford Bridge to access the B6478 at the north of Waddington from the A59 south of Clitheroe. The temporary haul road for the Proposed Ribble Crossing would require the creation of temporary new junctions with West Bradford Road (Clitheroe, south of the River Ribble) and West Bradford Road (Waddington, north of the River Ribble).
- 119) For the sections of the haulage route option within the public highway, stretches of on street parking and narrow sections of road through Waddington and along the B6478 present constraints. For this reason, a number of additional measures are proposed, including:
- Proposed local road widening and reinforcement of an existing passing place/parking area (RW08 – RW23 and PP01 in Planning Drawings RVBC-BO-APP-004-12\_03 to 07)
  - Parking restrictions may be required in Waddington to limit parking to one side of the road. All movements, particularly TBM movements would require much shorter term restrictions in other locations
  - Appropriate speed restrictions to ensure safe stopping distances to allow wider vehicles to slow and pass
  - Selective pruning and removal of vegetation adjacent to the carriageway
  - Consistent messaging about the nature of construction HGV movements warning other road users that vehicles may slow or stop to allow oncoming vehicles to pass. This would include signage on vehicles, road signage and a wide range of communications with residents and any appropriate special interest groups.
  - Convoy system to minimise potential for wider construction vehicle to meet in opposing directions.
  - Suitable traffic management to be implemented at locations where physical works are impractical or such measures are considered necessary in conjunction with physical works. Examples could include:
    - three way control at the junction between West Bradford Road and the B6478, the Higher Buck, in Waddington
    - two way control along the B6478 between the Proposed Bonstone Haul Road Junction and the entrance to the quarry.
- 120) Please refer to the CTMP (ref: RVBC-MH-APP-007\_02) for further details of the mitigation and traffic management proposed to ensure that vehicles are able to safely navigate the route.
- 121) The current proposals are not exhaustive and would be subject to detailed design including appropriate independent safety audits.

## **5.5 Operation of the Haulage Routes**

- 122) HGVs would be permitted to use the approved haulage route(s) on weekdays between the hours of 09:00 and 18:45 and on Saturdays between 08:00 to 13:00. There would be no movement of heavy goods vehicles between the hours of 08:00 to 09:00 and 14:45 to 16:00 Monday to Friday, in order to avoid conflict with school drop off and pick up times. It is anticipated that these restrictions would apply to all sections of the route. In addition, there may be a need for abnormal load movements outside of the hours stated above in order to limit the potential for conflict with oncoming traffic. Such movements would be agreed in advance with the Lancashire County Council Highways as part of a special vehicle movement.
- 123) Provision for material stockpile areas has been made within the proposed compounds in order to assist the contractor in managing the daily profile of movements into and out of the sites.



## **5.6 Clitheroe Park and Ride Facility**

- 124) To reduce the number of light vehicle movements on the local road network, a Park and Ride Facility containing 220 spaces would be established within an existing car park opposite the Ribblesdale Cement Works on West Bradford Road. Construction personnel would arrive at the park and ride before leaving their personal vehicle and travelling to site on a minibus along the approved route.

## **5.7 Clitheroe HGV Holding Area**

- 125) A holding area for HGVs is proposed within Ribblesdale Cement Works, West Bradford Road. This is primarily intended for the control of vehicles wider than 2.55m. All such vehicles would assemble here prior to accessing the proposed compounds along the approved route. In addition, the use of escorted convoys is proposed for such vehicles. Communications between the construction compounds and the HGV holding area would ensure that no convoys would be dispatched that have the potential to be travelling in opposing directions along the narrower sections of the local road network.

## **5.8 Surplus Material Arisings**

- 126) Surplus arisings derived from the construction of the proposed Marl Hill Section would be transported to Waddington Fell Quarry for use in a revised and enhanced restoration scheme. Arisings would be brought to surface at the Proposed Braddup compound and transported along the B6478 to the quarry. This results in a significant proportion of anticipated two way movements avoiding the road network south of the Proposed Braddup haul road junction with the B6478.
- 127) It is proposed that the loading of the HGVs would be monitored at the compounds and at Waddington Fell Quarry, to ensure that HGVs exporting surplus arisings are at full capacity. This would optimise the number of HGV movements and ensure that overloaded trucks are prevented from accessing the public highway network.
- 128) The routes between the Proposed Braddup and Bonstone Compounds and Waddington Fell Quarry are characterised by narrow sections of road along the B6478. Along many of the sections, the straight alignment enables a safe informal contraflow to operate at present, however, where it is considered that these informal arrangements are inadequate, the following measures (not exhaustive) would be adopted, as set out in the CTMPs:
- Proposed local road widening and reinforcement of an existing passing place/parking area (as outlined above in relation to Haulage Routes 1 and 2)
  - Appropriate speed restrictions to ensure safe stopping distances to allow wider vehicles to slow and pass (see Appendix B2 of the CTMPs).
  - Selective pruning and removal of vegetation adjacent to the carriageway
  - Consistent messaging about the nature of construction HGV movements warning other road users that vehicles may slow or stop to allow oncoming vehicles to pass. This would include signage on vehicles, road signage and a wide range of communications with residents and any appropriate special interest groups
  - Convoy system to minimise potential for wider construction vehicle to meet in opposing directions
  - Suitable traffic management to be implemented at locations where physical works are impractical or such measures are considered necessary in conjunction with physical works. Examples could include:
    - Two way control along the B6478 between the Proposed Bonstone Haul Road Junction and the entrance to the quarry.

## **5.9 Proposed Highway Modifications**

- 129) Further to discussions with Lancashire County Council Highways and an engineering review of the routes, it was confirmed that modifications to sections of the existing highway network would be required to enable use by construction traffic. Proposed works consist predominantly of localised sections of road widening, however, one passing place is also proposed, consistent to both Haulage Route Options 1 and 2.
- 130) The assessment undertaken to confirm the locations of the highways works included:
- Horizontal swept path analysis using the anticipated largest vehicle – the TBM Articulated Heavy Transport vehicle – overall length of 34.3m and width of 3m
  - Site visits undertaken by United Utilities engineering team
  - Construction traffic consultation with Costain
  - Traffic modelling.
- 131) Some of the highway modifications proposed are relevant only to Haulage Route Option 1, for instance those proposed between the villages of Chatburn and Grindleton. Highway modifications proposed on Slaidburn Road north of Waddington are required for both Haulage Route Option 1 and 2. In total, 1 no. passing place and 16 no. areas of road widening are proposed north of Waddington on Slaidburn Road. In addition, 7 no. additional areas of road widening would be required for Haulage Route Option 1 (Route 2).
- 132) As mentioned in section 4.5, it is important to note that the following assumptions have been made:
- All passing places would be temporary and reinstated on completion of the works
  - All road widening works which fall within the highway boundary would be retained following completion of the works
  - All road widening works which encroach on third party land would be reinstated on completion of the works.
- 133) In terms of traffic management, there may be a requirement for phased short term road closures when constructing the highway works. The detail of when these would be required and their duration would be confirmed by the construction contractor following appointment.

## **5.10 Permanent Accesses**

- 134) Permanent accesses to the proposed access/valve house buildings and ancillary infrastructure proposed at either end of the Proposed Marl Hill Section would be taken from the B6478 Slaidburn Road using existing accesses. New hard surfaced extensions to the accesses would be created to allow operational staff in light vehicles access to the proposed United Utilities infrastructure. The access is not intended for public use.

## 6. Environmental Effects

### 6.1 Introduction

- 135) This chapter provides a summary of the key findings of the Environmental Impact Assessment (EIA) of the Proposed Marl Hill Section, which are described in the ES that accompanies this planning application.
- 136) The nature, scale and sensitive environmental setting of the Proposed Marl Hill Section, means that in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, an EIA is required to assess the likely significant environmental effects.
- 137) United Utilities submitted a request for an EIA scoping opinion to Ribble Valley Borough Council in October 2019. They published their Scoping Opinion in December 2019. A Scoping Addendum was submitted to Ribble Valley Borough Council in February 2021. This request for an updated scoping opinion was required due to the design changes, refinements and alternative methodologies which arose since the first Scoping Opinion was published. Ribble Valley Borough Council published their second scoping opinion in April 2021.
- 138) In developing the proposals through an iterative process of engagement with stakeholders, public consultation and by undertaking an EIA, United Utilities has sought to identify the environmental effects and incorporate suitable mitigation for any significant effects in the proposed designs.
- 139) The Proposed Marl Hill Section would be predominantly below ground and as such the majority of effects would occur during the construction phase of the tunnel. To account for this, a number of measures have been identified and would be implemented through the following documents to mitigate adverse environmental effects arising during construction:
- Construction Code of Practice (CCoP) (ES Appendix 3.3) - The CCoP describes the nature and scope of techniques and management approaches which would be adopted during construction. The information contained in the CCoP has supported the EIA process and the assessment of environmental effects, but it also provides a framework for the planning authorities to develop planning conditions based on the mitigation measures proposed in the ES and for the contractor to develop their detailed Environmental Management Plan
  - Construction Traffic Management Plan (CTMP) (ref: RVBC-MH-APP-007\_01 and RVBC-MH-APP-007\_02) - provides the framework for the management of construction traffic to the proposed compounds, covering proposed vehicle routing, proposed peak traffic flows and traffic management. Two CTMPs have been prepared for the Proposed Marl Hill Section, one for each Haulage Route Option, as explained in Section 5
  - A Mitigation Schedule (ES Appendix 20.1) - Mitigation proposals during the construction phase, operation phase and future requirements for all EIA topic areas are laid out in the Mitigation Schedule
  - An Environmental Masterplan (EMP) (ES Appendix 20.2) - The EMP is comprised of a series of drawings illustrating the locations where site-specific mitigation measures are proposed. Mitigation notes for these topics highlight the design response to reduce or offset identified adverse environmental effects.
- 140) Volume 2 of the ES describes the likely significant effects of the Proposed Marl Hill Section, including the impacts from the Proposed Braddup and Bonstone Compounds.
- 141) Volume 5 of the ES provides a high-level assessment of potential environmental effects to establish whether the proposed highway works would have likely significant effects.
- 142) Volume 6 of the ES contains the assessment of the Proposed Ribble Crossing.

## 6.2 Landscape and Arboriculture

- 143) Chapter 6 of the Proposed Marl Hill Section ES provides a summary of the Landscape and Visual Impact Assessment (LVIA) carried out. The LVIA has considered the potential effects on both landscape and visual amenity within a study area determined by the geographical, cultural and visual context of the surrounding landscape.
- 144) The assessment has identified that activity during the Enabling Works, Construction and Commissioning Phases would cause the greatest changes to, and adverse effects on, landscape character and people's views. These activities would include short to medium term tunnelling operations in combination with other short-term activities including site preparation, access track construction and commissioning of the new pipeline. Tunnelling construction activities and the visual draw of vehicle movements would also alter rural characteristics and result in adverse visual effects within the local landscape.
- 145) A series of measures have been developed that seek to avoid or reduce the impact on landscape features and visual amenity which would reduce the adverse effects during the period when the greatest effects arise. Measures include retaining vegetation and other features along compound boundaries. These measures would reduce the adverse effects and maintain the screening benefits of existing landscape features.
- 146) An Arboricultural Impact Assessment is contained at ES Appendix 6.7, which reports potential tree loss on a precautionary basis for the Proposed Marl Hill Section.
- 147) A total of 15 arboricultural features at the Proposed Bonstone Compound and Braddup Compounds are identified for removal and 3 tree groups are identified for partial removal, i.e. these features are within the indicative core working areas for the construction compounds.
- 148) A further 28 arboricultural features are identified as 'at risk', due to these features being located within the planning application boundary but outside the indicative proposed core working areas. This includes the following notable features:
- One potential veteran tree within the Bonstone Compound
  - Five potential veteran trees and four A grade features at the Proposed Braddup Compound
- 149) 26 arboricultural features at the Proposed Bonstone and Braddup Compounds are considered encroached but retainable subject to pre-construction tree protection measures, including three potential veteran trees and four A grade features at the Proposed Braddup Compound.
- 150) It is anticipated that further consideration shall be given to at risk and notable features as the design process progresses and engineering constraints are further defined.
- 151) Flexibility has been built into the working area of the compounds to allow for further avoidance of features as the design of the compounds develop. Further measures include good construction practice as defined in the CCoP. Where features would be unavoidably lost, for instance where located within the main tunnelling compound, there would be a 'like for like' replacement at completion of the Commissioning Phase to remedy the loss. Where trees are lost, they would be replaced on a 3:1 basis.
- 152) By Year 1 (the first year after construction is completed), due to the reinstatement of grass pasture and field boundaries, including stone walls, the adverse effects on landscape character and people's views would reduce. By Year 5, hedgerows will be sufficiently established, and by Year 15, trees and other vegetation would have established sufficiently that the impacts would have reduced to a point where the residual effects are negligible.
- 153) The new valve house buildings located alongside existing facilities at the Proposed Bonstone Compound and at the Proposed Braddup Compound would be perceptible new features, in keeping with the scale and appearance of the existing buildings. These new buildings would result in a non-significant change to landscape character and visual amenity.

- 154) A detailed Environmental Masterplan is included within the accompanying ES which proposes the reinstatement of removed site features including stone walls, fences, hedgerows, trees and watercourses.
- 155) The assessment of the proposed highways works in ES Volume 5 identifies likely significant effects on relating to landscape and arboriculture. Visual effects may be significant during construction, operation and reinstatement works due to the potential loss of trees, tree groups and other vegetation together with other features such as dry stone walls and fences. However, these effects are deemed to be of relatively short duration and would be mitigated by the replacement planting and reinstatement of permanent features.
- 156) The indicative reporting of tree removals for the proposed highways works contained at ES Volume 5 shows 13 arboricultural features identified for removal, 12 tree groups and 10 hedgerows for partial removal and 17 features identified as at risk.
- 157) The assessment of landscape and visual effects of the Proposed Ribble Crossing at ES Volume 6 concludes that it would have a direct or indirect effect on landscape character areas and alter people's views. It is anticipated that due to the scale and nature of the Proposed Ribble Crossing, there would be significant impacts on landscape character and visual amenity during the construction and operation phases. These effects would reduce once construction activity ceases and there would be no residual significant effects following decommissioning and reinstatement. Reinstated vegetation would establish from Year 1 and by Year 15, it is anticipated that the reinstated vegetation and other landscape features would be sufficiently established to fully integrate within the landscape.
- 158) The indicative reporting of tree removals for the Proposed Ribble Crossing contained at ES Volume 6 shows nine arboricultural features identified for removal, 2 tree groups and 1 hedgerow for partial removal and 3 trees are identified as at risk.

### **6.3 Water Environment**

- 159) Chapter 7 of the ES has considered the potential Water Environment impacts associated with the enabling, construction, commissioning, operation and decommissioning works along the route of the Proposed Marl Hill Section. This has included an assessment of the impacts on fluvial geomorphology, surface water quality, and groundwater.
- 160) The definition of each sub-discipline is as follows:
- Fluvial geomorphology – the forms and functions associated with watercourses and their interaction with the surrounding terrestrial environment including sediment transport, erosion, and deposition
  - Surface water quality – the quality of surface waters and impacts arising from pollution
  - Groundwater – the water contained within the pore spaces of rocks and soils, including quantity and quality and its availability as a water resource.
- 161) The assessment in Chapter 7 of the ES identifies that the Proposed Marl Hill Section across all of its phases would have impacts on the water environment. Some impacts can be reduced through embedded mitigation which is detailed in the CCoP, however other impacts require more specific mitigation measures. A Water Framework Directive (WFD) assessment can be found in Appendix 7.1 of the ES. It concludes that the Proposed Marl Hill Section is compliant with the WFD.
- 162) The assessment has identified that the highest risk of potential impacts is from:
- construction near watercourses (affecting Sandy Ford Brook, Unnamed Watercourse 430, Unnamed Watercourse 463, and Unnamed Watercourse 433)
  - discharge of the commissioning and decommissioning flows to watercourses (affecting Unnamed Watercourse 402, Sandy Ford Brook, and Bashall Brook)
  - construction near private water supplies (PWS) (affecting PWS4-1, PWS4-3, PWS4-4, and PWS4-6)

- dewatering close to watercourses (affecting Bonstone Brook, Cow Hey Brook, and Unnamed Watercourses 403)
  - construction close to groundwater dependent terrestrial ecosystems (GWDTEs) (affecting New Laithe, Braddup House, Whinny Lane East, and Slaidburn Road West).
- 163) Embedded mitigation and good practice measures have been proposed to help manage pollution risk and reduce the potential impacts of the Proposed Marl Hill Section on the water environment. These mitigation measures include, following good construction practice as defined in the CCoP, appropriate design and groundwater borehole monitoring. Additional essential mitigation is also proposed as result of the EIA, including:
- landowner site meetings to confirm the nature and source of private water supplies
  - environmental monitoring prior to construction and during all phases of the work
  - appropriate timing and duration of work
  - site traffic management close to watercourses
  - river bank protection
  - appropriate reinstatement following temporary works
  - spreading the load of heavy vehicles and plant to reduce compaction effects at GWDTEs associated with the Proposed Bonstone Compound
  - minimising topsoil stripping in the Proposed Braddup Compound, and any activity that would have a direct impact on habitats within GWDTEs
  - moving the overflow pipe and connection (associated with the Proposed Braddup Compound) further north, to avoid the need for excavation and reduce potential dewatering impacts on Braddup House GWDTEs
  - use of clay bunds to prevent backfilled open-cut trenches from acting as a groundwater drain within the Proposed Braddup Compound
  - widening the existing access road to the south to avoid topsoil stripping for Proposed Braddup Compound access route.
- 164) A Water Framework Directive (WFD) assessment can be found in Appendix 7.1 of the ES. It concludes that the Proposed Marl Hill Section is compliant with the WFD.
- 165) A water quality monitoring strategy would be developed for the decommissioning phase, as the quality of the groundwater entering the redundant aqueduct is unknown. The proposal would include monthly monitoring and a review of the need for any potential remediation.
- 166) The assessment of the proposed highways works in ES Volume 5 identifies potential effects prior to mitigation at Bonstone Brook (Unnamed Watercourse 2096) at one road widening location due to potential for increased fine sediment input during construction. However, measures included in the CCoP would mitigate the effect, such as using coarse sediment where an impact occurs and supervision of the reinstatement by a geomorphologist or Ecological Clerk of Works.
- 167) The assessment of the Proposed Ribble Crossing at ES Volume 6 concludes that the impact of the temporary haul route and temporary bridge crossings on the River Ribble, Greg Sike and Coplow Book, would be mitigated by measures including the reinstatement of natural bed features (where necessary), stabilising the bank during reinstatement using geotextiles and prioritising the re-planting of riparian vegetation. No residual effects have been identified.
- 168) For surface water quality, no significant effects from the Proposed Ribble Crossing have been identified for any of the watercourses. Mitigation outlined within the CCoP would control any potential impacts to surface water quality arising from the Proposed Ribble Crossing.
- 169) For groundwater, potential impacts to bedrock and alluvium aquifers as a result of piling would be mitigated by a Piling Risk Assessment, to be carried out prior to work commencing to identify specific



risks. No other significant potential impacts to groundwater receptors have been identified from the Proposed Ribble Crossing.

## **6.4 Flood Risk**

- 170) Chapter 8 of the ES presents an assessment of the potential for likely significant effects of the Proposed Marl Hill Section on flood risk. A Flood Risk Assessment has been prepared to support this planning application and is contained at ES Appendix 8.1.
- 171) The Proposed Marl Hill Section is classified as 'water transmission infrastructure' and is therefore considered within the NPPF to be a 'water compatible development' that is suitable in all areas of flood risk providing that it would be safe, can operate in times of flood and does not increase flood risk elsewhere.
- 172) Given the generally low levels of flood risk identified during the scoping phase assessment, the FRA has focussed on the key sources of flood risk and potential impacts that have been confirmed to be present within the study area. These being fluvial, surface water and groundwater flooding.
- 173) For most of the length of the replacement aqueduct, there would be no permanent above-ground structures with much of the new sections of aqueduct being located deep below ground level. The assessment therefore focuses on the activities or features associated with the construction and operation of the Proposed Marl Hill Section that were identified during scoping as having the potential to be at risk of flooding or to result in impacts elsewhere, in addition to the decommissioning of the existing aqueduct. These include:
- Temporary compound site, associated features, access tracks and surface water drainage associated with the enabling and construction phase
  - Management of groundwater intercepted during excavation works including construction of the shafts, tunnelling and the open cut trenches to connect the new tunnel to the existing aqueduct
  - The commissioning of the proposed tunnel by flushing the section through with potable water that would be discharged to local watercourses
  - The operation of permanent above ground infrastructure (valve houses and air valves)
  - Permanent discharge of groundwater from the decommissioned aqueduct.
- 174) The main potential for impacts on flood risk is associated with the commissioning phase where the pipeline would be flushed through with potable water to wash away any debris from the construction phase. This phase would be carefully controlled via an environmental permit to ensure that the risk of flooding does not increase due to discharges into watercourses (tributaries of the River Hodder and Bashall Brook).
- 175) With the implementation of appropriate flood design standards and best practices (referred to as embedded mitigation) to mitigate the flood risks and potential impacts would be mitigated. Whilst the design of the embedded mitigation may not be known in all cases at the time of developing this FRA, the Construction Code of Practice (CCoP) has been produced to provide an overview of appropriate flood design principles, standards and best practice to be considered at later stages of the design process. With this appropriate embedded mitigation within the design of these assets and activities it is assumed that they would remain safe from flooding and would not impact flood risk elsewhere.
- 176) The assessment of likely significant effects associated with off-site highways works in ES Volume 5 has not identified any further flood risk issues.
- 177) The assessment of the Proposed Ribble Crossing at ES Volume 6 has identified the potential for significant potential effects relating to the constriction of floodplain flows and the loss of floodplain storage, which would require further mitigation measures which would be informed by a detailed FRA. The Proposed Ribble Crossing would be designed using appropriate flood design standards and good practice to mitigate the flood risks and potential scheme impacts. The CCoP provides an overview of

appropriate flood design principles, standards and best practice to be considered at later stages of the design process.

- 178) In conclusion, the Proposed Marl Hill Section has been assessed to have a low risk of flooding and would have a negligible impact on the risk of flooding elsewhere based on the implementation of embedded mitigation.

## **6.5 Ecology**

- 179) Chapter 9A and 9B of the ES together with the Habitats Regulation Assessment and SSSI Report considers the potential terrestrial and aquatic ecology impacts associated with enabling works, construction, commissioning and operational phases along the route of the Proposed Marl Hill Section.
- 180) No significant residual impacts on international, national or local designations are predicted.
- 181) Significant impacts on species would be avoided through embedded mitigation measures and potential impacts would be reduced following habitat reinstatement and through installation of bat boxes to provide alternative roosting habitats. With the potential exception of bats (tree roosts) it is anticipated that no protected species licences would be required.
- 182) Embedded mitigation, best practice measures and essential mitigation will avoid or reduce most adverse effects on habitats to non-significant. Within main compounds habitat loss would be temporary with very small exceptions and the majority of habitats that would be lost and reinstated are common and widespread and these include semi-natural broad-leaved woodland, scattered trees, hedgerows and grassland (semi-improved neutral and marshy). Veteran tree loss is the only significant adverse residual effect predicted on terrestrial ecology as a result of the Proposed Marl Hill Section. However, further consideration has been given to protection of veteran trees and the design process is progressing to enable avoidance of these losses. A less than local positive residual effect is predicted for hedgerows as a result of additional onsite planting.
- 183) In addition to habitat reinstatement, United Utilities is committed to habitat improvements equating to approximately 10% net gain in biodiversity. Baseline value and loss has been measured using Natural England Metric 2.0 and offsetting sites have been sought as close to the impact and within the same LPA area wherever possible.
- 184) No significant effects upon terrestrial ecology features is anticipated during the operation of the new asset. Temporary disturbance effects on habitats and species would be no greater than experienced during existing agricultural practices or routine maintenance of existing above-ground infrastructure for the aqueduct.
- 185) One likely significant effect identified within Volume 5 for the proposed off-site highways works is permanent loss of scattered broad-leaved trees and woodland. This would be considered a Significant Adverse Effect at the Local level.
- 186) The assessment of the Proposed Ribble Crossing at ES Volume 6 confirms that, in the absence of embedded and site specific mitigation it has the potential to cause effects on ecology including temporary loss of habitats, damage to habitats through changes to groundwater and surface water, and disturbance of species through noise, dust, visual, lighting or vibration effects; and
- 187) A series of embedded mitigation measures are proposed to avoid and reduce significant effects on ecological features. These include targeted pre-construction surveys undertaken by an experienced ecologist to update existing data, oversight of ecologically sensitive works by an Ecological Clerk of Works, temporary fencing to avoid incursion into sensitive retained habitats, implementation of the Environment Agency's Pollution Prevention Guidelines and adherence to industry-standard environmental safeguards as detailed in the CCoP, AMS, and lighting strategy. In addition, enabling and construction works would be undertaken wherever practicable outside of breeding and / or hibernation

seasons (e.g., for fish, birds and bats). Wherever practicable, all habitats would be restored to pre-construction conditions with elements of enhancement included where feasible.

- 188) In the long term, no significant effects upon ecology features are anticipated to arise from the Proposed Ribble Crossing.

## **6.6 Cultural Heritage**

- 189) Chapter 10 of the ES presents an assessment of the likely effects of the Marl Hill Section on cultural heritage assets. In this context, cultural heritage refers to archaeological remains (buried, or above ground), historic buildings and historic landscapes associated with the Proposed Bonstone and Braddup Compounds. The main impact to cultural heritage assets would be associated to the enabling and construction phases of the Marl Hill Section. Chapter 10 of the ES identifies that there would be no impacts to these assets for the commissioning and operational phases of the Marl Hill Section.

### **6.6.1 Archaeological Remains**

- 190) No permanent physical impacts on known archaeological remains are predicted during the enabling and construction phases of works for the Proposed Bonstone and Braddup Compound. The potential to permanently impact unknown archaeological remains at both Compounds has been assessed to be low. This is in consideration of the largely rural and undeveloped nature of the study area but also recognising the paucity of known archaeological remains within the study area.
- 191) The enabling and construction phases of works for the Proposed Bonstone Compound would introduce a new temporary source of visual intrusion into the setting of Ashnott Lead Mine and Lime Kiln, a Scheduled Monument, however, the significance of effect has been assessed to be slight and would not detract from the ability to understand the Scheduled Monument nor from the largely rural nature of its setting.
- 192) The assessment of the Proposed Ribble Crossing at ES Volume 6 identifies that there is potential for groundworks within the proposed laydown area north of the River Ribble to truncate or partially remove archaeological remains associated with the palaeochannel North of Bradford Bridge. The magnitude of this permanent impact on the low value asset has been assessed to be minor and the significance of effect has been assessed to be slight.
- 193) Proposed mitigation prior to the enabling works which would involve archaeological trial trenching and excavation in line with the Chartered Institute for Archaeologists (CIfA) standard and to make a permanent record of any surviving archaeological remains. Depending on the results of the trial trenching further mitigation works comprising either detailed archaeological excavation, strip map and sample or an archaeological watching brief may be required.

### **6.6.2 Historic Buildings**

- 194) The potential impact to Historic Buildings would mainly occur during the enabling and construction phases of the Proposed Bonstone and Braddup Compounds. Across both Compounds, seven assets would be affected which are detailed in Chapter 10 of the ES. Overall, for the significance of effect is identified as Slight and Neutral and these temporary works would not detract from the ability to understand these assets nor from the largely rural nature of their setting.
- 195) Proposed construction traffic movements would have the potential to give rise to adverse, direct effects on cultural heritage assets through impacts on their settings. Construction vehicles would use these public highway routes from the early stages of the enabling works through to completion of the commissioning phase, although the largest number of vehicle movements would be associated with the construction phase.

- 196) There are 21 Listed Buildings and one Conservation Area within 50 m of the proposed traffic routes for the Proposed Marl Hill Section on the part of the local road network serving the Proposed Bonstone and Braddup Compounds. Of these, 20 are Grade II Listed and one is Grade II\* Listed. There are no Grade I Listed Buildings within the 50 m proposed traffic routes assessment area. The operation of the proposed traffic routes would not physically impact on any of the Listed Buildings within the 50 m assessment area, though temporary noise and visual intrusion would affect their setting. The effect on these listed buildings has been assessed as a magnitude of negligible/minor and a significance of slight.
- 197) The Waddington Conservation Area is located at the convergence of haulage route options 1 and 2 prior to the traffic route continuing in a northerly direction along the Slaidburn Road. The effect on the setting of Waddington Conservation area would be through the temporary presence of construction traffic going through the village presenting noise and visual intrusion in the village. The effect on Waddington Conservation Area has been assessed in the ES as a magnitude and significance of moderate.
- 198) The assessment of the Proposed Ribble Crossing at ES Volume 6 identifies that there would be noise and visual intrusion into the setting of the non-designated Bradford bridge, the setting of the non-designated Lillands barn and the setting of the Grade II Listed Brungerley Farmhouse. The magnitude of this temporary impact on these assets has been assessed to be negligible/minor and the significance of effect has been assessed to be slight.
- 199) Proposed mitigation measures would be based on Good Practice measures which would mitigate noise and visual impacts from these affected assets

### **6.6.3 Historic Landscapes**

- 200) The ES identifies that at the Proposed Bonstone Compound and Braddup Compound there would be minor changes to a loss of elements to four Historic Landscape Types. The assessment of the Proposed Ribble Crossing at ES Volume 6 identifies effects of negligible significance on two Historic Landscape Types. Overall the significance of effect has been identified as negligible to slight.

## **6.7 Soils, Geology and Land Quality**

- 201) Chapter 11 of the ES considers the potential Soils, Geology and Land Quality impacts associated with enabling works, construction, commissioning and operational phases along the route of the Proposed Marl Hill Section.
- 202) Embedded and good practice mitigation measures for Soils, Geology and Land Quality were identified for inclusion within the CCoP. For human health (in relation to land contamination) the embedded and good practice mitigation measures included assessing and managing any land contamination in accordance with *Land Contamination: Risk Management and Model Procedures for the Management of Land Contamination (CLR11)*, which would include ground investigation followed by human health risk assessment and remediation where required; the use of bespoke design tunneling machinery and operations to mitigate potential risks to construction workers; an unexpected contamination plan; and a construction environmental management plan with pollution prevention measures and environmental controls to prevent new contamination during works. For soil quality the embedded and good practice mitigation measures included, but were not limited to, the management of soil during stripping, handling, storage and reinstatement by suitably qualified and experienced persons; the contractor following guidance within *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites* and *Good Practice Guide for Handling Soils*; and the undertaking of soil resource surveys.
- 203) The potential for adverse impacts to arise on Soils, Geology and Land Quality receptors was considered, but taking into account the embedded and good practice measures set out within the CCoP, there were no adverse effects identified requiring additional mitigation.

- 204) The assessment of the proposed off-site highways works at ES Volume 5 concludes that there are no likely significant effects anticipated in relation to soils, geology or land quality.
- 205) The potential for adverse impacts from the Proposed Ribble Crossing to arise on Soils, Geology and Land Quality receptors has also been considered at ES Volume 6. Taking into account embedded and good practice mitigation measures, no adverse effects were identified requiring additional mitigation.

## **6.8 Materials and Waste**

- 206) The assessment of the Proposed Marl Hill Section has evaluated a worst case scenario, whereby all waste would be sent to landfill; the assessment concluded that even in such a scenario, the vast majority of materials would be inert and that the overall significance would be Negligible to Low. However, in practice, the worst-case scenario would be highly unlikely to occur, as multiple mitigation measures would be applied to reduce this impact further still.
- 207) The waste hierarchy has been applied throughout the design process for the Proposed Marl Hill Section in order to minimise waste to landfill and identify and harness opportunities to reuse and recycle surplus excavated materials and waste. For example, the tunnelling methodology would allow the recovery of material with some processing, minimising overall potential waste arisings.
- 208) In the worst case-scenario where all waste would be diverted to landfill, the impact on the region's landfill capacity would be low or neutral. However, the worst-case scenario is only designed to demonstrate the biggest possible impact; in practice, material recovery is expected in several forms that would mitigate this low or neutral impact further still. A Site Waste Management Plan (SWMP) would be employed in alignment with a Material Management Plan in order to process materials under the CL:AIRE regime, allowing them to be reused on site, or if surplus to requirements, offsite in the form of recovered materials for beneficial reuse.
- 209) For example, surplus excavated material generated from the tunnelling would be 95% inert, therefore appropriate opportunities for the reuse of the excavated material would be identified in line with the waste hierarchy employed through the SWMP. Where appropriate the preference is to reuse these inert materials on site as backfill, in locations like open cut trenches or reinstatement of launch shafts.
- 210) Waddington Fell Quarry has been identified as a location near the Proposed Bowland Section and the Proposed Marl Hill Section that could accommodate the surplus excavated material. The use of Waddington Fell Quarry in combination with backfill would result in surplus excavated material being diverted from landfill.
- 211) Throughout the contractors' design and construction planning, opportunities to reuse and recover surplus material would be continually reassessed. If feasible alternatives are identified, then they may provide alternative uses for waste allowing for increased recovery, reuse and recycling.
- 212) The impacts of the worst-case scenario are considered insignificant and assessed as either neutral or low impacts, further management procedures would further mitigate and reduce this impact.
- 213) Materials and waste was scoped out of the environmental assessment of the proposed off-site highways works reported in Volume 5 on the basis that the off-site highways works are anticipated to comprise relatively minor works and excavations, and would seek to achieve a neutral materials balance.
- 214) The impact of the Proposed Ribble Crossing at ES Volume 6 has been evaluated as not significant.

## **6.9 Public Access and Recreation**

- 215) Chapter 13 of the accompanying ES provides the assessment of effects on public access, taking into account changes in accessibility to Public Rights of Ways (PRoWs) and changes in the amenity experienced by walkers, cyclists and equestrians. PRoWs refers to public footpaths, bridleways, permissive routes, railway paths, National Cycle Networks (NCNs), cycle routes and open access land.

- 216) The Proposed Marl Hill Section would intersect a total of five PRowS which would be directly or indirectly affected during the construction period. Throughout the enabling, construction and commissioning phases three PRowS would be affected by the use of controlled crossing points and two PRowS would require fencing to separate PRow users from construction traffic, these would then be reinstated to original alignments once the works are complete. All reasonable steps would be taken to keep the footpaths open at all times and there are no current plans to implement footpath closures.
- 217) There are three cycle routes which would be affected by the construction traffic routes of the Proposed Marl Hill Section. These comprise of one NCN and two recreational routes within Ribble Valley Borough Council.
- 218) It is anticipated that due to the nature of the Proposed Marl Hill Section, there would be no significant operational impacts on public access and recreational facilities. Operational activities would generally be limited to site walkovers and remedial works, which may be required during the lifetime of the pipeline.
- 219) All temporary PRow closures would be in accordance with Lancashire County Council's Right of Way Guidance and agreed with the relevant local authorities. In addition, access to recreational receptors would be maintained throughout the construction period. United Utilities would maintain ongoing contact with the affected communities to mitigate any potential effects on future events or activities.

## **6.10 Communities and Health**

- 220) Chapter 14 of the ES assesses the potential disturbance, tourism, severance and health effects arising from the construction and operation of the Proposed Marl Hill Section. Disturbance and severance effects were assessed across three community areas Waddington, Bashall Eaves and Newton-in-Bowland. Health and tourism accommodation effects were assessed for the Regional Community Assessment Area of the Proposed Marl Hill Section.
- 221) The assessment finds that during the enabling works, which would include the construction of off-site highways works serving the traffic routes for the main compounds, and the main construction programme at the Newton-in-Bowland Compound for the Proposed Bowland Section (subject to a separate planning application) and the Proposed Bonstone and Braddup Compounds for the Proposed Marl Hill Section, some local communities would experience significant disturbance effects. Disturbance would arise mainly from the movement of heavy goods vehicles through settlements and past individual properties fronting onto the highway. A degree of disturbance is an unavoidable consequence of constructing a major infrastructure project. Some of the community disturbance would be short-term and reversible, while other disturbance may continue throughout the duration of the construction programme.
- 222) Some stakeholder groups have already provided feedback to United Utilities expressing their concerns about the level and duration of community impacts. In response to this feedback, United Utilities has developed alternative access proposals for some of the main HARP construction compounds – for example, the Proposed Ribble Crossing could alleviate impacts on communities in the Chatburn, Grindleton and West Bradford areas; the proposed Park and Ride facility at the Ribblesdale Cement Works would alleviate the volume of private vehicles travelling beyond the Clitheroe area. In contrast, however, some of these solutions may not fully avoid community disturbance impacts, or could give rise to other impacts.
- 223) In addition to ongoing engineering investigations to alleviate potential impacts on transport routes, United Utilities has developed Construction Traffic Management Plans (CTMP), outlining measures to be implemented to further mitigate community disturbance. Through ongoing consultation with local people, local councils and highways authorities, United Utilities will continue to develop and refine mitigation proposals prior to the commencement of the enabling works and during the construction



phase. A community liaison officer would be appointed to act as a point of contact for community engagement.

- 224) The assessment also considered the ability of communities to access land, agricultural land, property, infrastructure, businesses, and community facilities, as a result of new infrastructure, road closures, or delays imposed by traffic management measures. For all communities, severance effects were assessed as either negligible or slight adverse and not significant.
- 225) Based on the estimated peak workforce and the bed space capacity within the community area, effects on tourism accommodation were considered not significant.
- 226) The health assessment, presented in Appendix 14.1, considered health outcomes within the context of the regional community area. During enabling, construction and commissioning, the potential for adverse health outcomes has been identified as a result of combinations of health stressors which can contribute to disturbance of local communities. No adverse health outcomes have been identified during operation.

### **6.11 Major Accidents**

- 227) Chapter 15 of the ES considers the potential for a major accident or disaster during construction or operation of the Proposed Marl Hill Section. The assessment considered the risk of highly unlikely or extreme incidences not reasonably covered by other topic chapters of this ES.
- 228) There are no identified major accident installations identified within 2 km of the Proposed Marl Hill Section route or site compounds.
- 229) Two major accident installations were identified within 2km of the Proposed Off-site Highways Works (Volume 5 of the ES) and/or the Proposed Ribble Crossing (Volume 6 of the ES):
- An ethylene pipeline (MAHP) crosses the alignment of the Proposed Ribble Crossing. A design solution would be developed to enable the Proposed Ribble Crossing to be constructed safely over the existing ethylene pipeline without compromising the safe day-to-day operation of the infrastructure.
  - A Johnson Matthey site in Clitheroe producing catalyst products for use in the chemicals, oil, gas and agrochemicals industries is notified as a COMAH site by HSE. This is within 2 km of Clitheroe Park and Ride Facility and the HGV holding area at Ribblesdale Cement Works forming part of the Proposed Off-site Highways Works, and is also within 2 km of the Proposed Ribble Crossing. No additional potential for major accidents was identified in relation to off-site highways works, however consultation will be undertaken with the site operators.
- 230) On a precautionary basis, diesel fuel storage was identified as a risk, as the exact storage volume requirements for diesel fuel have not been confirmed at this stage. Essential mitigation has therefore been proposed to ensure that volumes and detail of pollution controls are agreed in advance of construction with the Environment Agency.
- 231) No natural hazards were identified that could present a risk of a major accident or disaster.
- 232) Taking into account embedded mitigation, good practice and essential mitigation, no major accident threat to the environment has been identified, and no significant residual effects are therefore predicted within the scope of the assessment of environmental risk due to a major accident or disaster.

### **6.12 Transport Planning**

- 233) Chapter 16 of the accompanying ES details an assessment of traffic and transport impacts on the local and strategic road networks from traffic associated with the Compound required for the Proposed Marl Hill Section during the construction period (2023 to 2030). The method of assessment has been agreed through discussions with Lancashire County Council as the Local Highway Authority and Highways England as the Strategic Highways Authority.

- 234) The identified potential effects of the Proposed Marl Hill Section have been reviewed over an extensive area to ensure that the strategic routes would convey materials to/from the construction compound area. A total of 25 traffic 'links' have been quantified for the Proposed Marl Hill Section, based on surveys undertaken in October / November 2019, DfT traffic counts and Lancashire County Council traffic counts.
- 235) Each link provides two-way flows over a 12-hour period in which the effects of additional traffic have been assessed against the criteria identified within the IEMA guidance. A total of seven locations within this section have been identified for further assessment of which no locations exceed a 30 % increase in total traffic. However, all seven links for further assessment exceed a 30 % increase in HGVs, of which the majority are set against low background flows.
- 236) A mitigation strategy is proposed to reduce potentially slight impacts over a short period of time in locations which are most sensitive to an increase in traffic. They aim to ensure that effects on local receptors are limited, noting that the works are progressive and of mainly short-term duration at a single location. The mitigation strategy includes:
- A CTMP which will be agreed with Lancashire County Council and Highways England, with a view to defining the most suitable access routes to/from locations chosen by the contractor(s) for the import of materials and export of waste
  - An Interim Travel Plan will help manage vehicle trips to/from the compound areas, which would ensure that car parking demand does not exceed beyond the limits of the compound onto neighbouring streets
  - The need of a Highway Stakeholder Group has been identified to ensure that concurrent construction operations associated with other major sites do not create significant cumulative impacts during any periods where parts of the local highway network may be closed due to the Proposed Marl Hill Section
  - The Proposed Ribble Crossing to provide an alternative haulage route avoiding the village of Waddington
  - To improve the safety for general road users, highway improvements will be implemented along some sections of the proposed routes.
- 237) These mitigation measures should ensure that effects upon local receptors are limited, noting that the works are progressive and of mainly long-term duration, except for specific locations with short term activities.
- 238) There are no specific issues identified by the Environmental Statement or Transport Assessment which considers that impacts would generally be Negligible to Slight when reviewed against the key indicators of severance, pedestrian delay and amenity. Larger volumes of traffic associated with construction are generally present where background traffic is already high therefore the overall impact of the Proposed Marl Hill Section during construction is identified as minimal.
- 239) The Transport Assessment has demonstrated that whilst some locations are sensitive to traffic increases the amount of additional traffic expected at these locations would only result in a slight change in local amenity. Furthermore, any impacts would only occur for a temporary period during construction and would not significantly increase journey lengths.
- 240) The construction of the proposed Ribble Crossing and the off-site highways works could cause impacts in terms of driver delay and severance due to traffic management requirements, which may involve sections of the highway being closed for short periods of time during construction of the offsite highways works and at peak construction periods, however these works are unlikely to result in a significant effect.

## **6.13 Noise and Vibration**

- 241) Chapter 17 of the ES provides an assessment of the Noise and Vibration effects associated with the Proposed Marl Hill Section. The assessment has considered the potential Noise and Vibration impacts of constructing the Proposed Marl Hill Section on residential properties and other sensitive receptors at the temporary drive and reception compounds as well as construction traffic movements on the existing highway and the impact of tunneling.
- 242) Existing levels of background noise were established by sound level monitoring. The assessment areas are rural, with noise contribution expected from local roads, railways and local activities.
- 243) Elevated construction noise levels are predicted, however, it is unlikely that potential significant noise and vibration effects would occur during construction works at the Proposed Bonstone and Braddup compounds. The highest construction noise levels are predicted to occur during the enabling (and reinstatement) works.
- 244) Piling would be undertaken at both the Proposed Bonstone and Braddup compounds, however, elevated noise levels would be below noise trigger levels for adverse impacts. Given the large distances between piling locations and receptors, ground-borne vibration generated is not predicted to result in significant effects.
- 245) The ES identifies that there is the potential for adverse vibration impacts during vibratory compaction at both compounds. Appropriate mitigation measures to control vibration impacts during compaction are included in the CCoP and would be adopted by the construction contractor. With the adoption of these measures detailed in the CCoP, it is anticipated that vibration impacts would not result in significant adverse effects. The damage to buildings is not predicted from vibration impacts.
- 246) Specific routes would be used for construction vehicles to access the compounds and work areas and no adverse traffic noise impact is predicted.
- 247) A range of mitigation measures included in the CCoP would be implemented during construction and where possible, these measures have been included in the noise prediction modelling. Other mitigation measures are adopting Best Practicable Means (BPM) for mitigating noise and vibration emissions and would be adopted by the contractor during construction. Embedded mitigation is presented within Appendix 17.2, while essential topic-specific mitigation is presented in section 17.7 in Chapter 17 of the ES.
- 248) The highways works would give rise to temporary disruption and disturbance to five residential properties and the settlement of Waddington, together with multiple properties along Ribble Lane and Chatburn, three farms and Clitheroe Community Hospital due to noise during construction and reinstatement. However, measures contained in the CCoP relating to control of construction noise, and in the CTMP, Travel Plan, and / or identified through the Highways Stakeholder Group in relation to construction traffic (as described in Chapter 16: Transport Planning), would mitigate these effects.
- 249) The assessment of the Proposed Ribble Crossing at ES Volume 6 has modelled potential noise and vibration impacts, covering enabling works, construction of the Proposed Ribble Crossing, the movement of construction vehicles once it becomes operational, and the decommissioning of the haul route prior to returning it to pre-construction conditions. Potential significant noise impacts have been identified at a nearby school. However, these would be mitigated through the deployment of established mitigation techniques and physical noise reduction solutions. Wherever reasonably practicable, the noisiest activities would be undertaken outside normal school hours or during the school holidays. Construction road traffic is not anticipated to result in significant effects during the operation of the Proposed Ribble Crossing.

## **6.14 Air Quality**

- 250) Chapter 18 of the ES considered the potential air quality impacts and residual effects associated with construction and operation at human and ecological locations in relation to the construction compounds, generator locations, and the construction haulage route, along the route of the Proposed Marl Hill Section.
- 251) The air quality assessment includes the potential air quality impacts associated with emissions from diesel generators at the compounds required for construction. The assessment also included consideration of the impact of road traffic emissions due to the additional vehicle movements on the local road network during construction. The predicted impacts were assessed against the relevant air quality standards and guidelines for the protection of human health (referred to as EQSs) and protected designated ecological sites (referred to as critical levels and critical loads).
- 252) The detailed dispersion modelling results indicate that emissions to air from the diesel generators and additional road traffic are unlikely to result in any significant air quality effects at sensitive human locations or at the designated sites identified in the assessment.
- 253) Appropriate good practice dust mitigation measures will be included in the CCoP to prevent significant effects occurring at off-site locations which will be adopted by the contractor. These would also be agreed with Ribble Valley Borough Council prior to construction works commencing.
- 254) There are no operational sources of air emissions which would be of similar scale or duration as the construction works. These were scoped out of the assessment and the air quality effects would be not significant.
- 255) The assessment of the potential air quality effects of the Proposed Ribble Crossing at ES Volume 6, including the impact of road traffic emissions due to the additional vehicle movements on the local road network, has concluded that all traffic flow changes are likely to have imperceptible impacts at sensitive locations. On this basis, the Proposed Ribble Crossing would not have a significant effect on air quality.
- 256) It is therefore concluded that the air quality effects associated with the construction and operation of the Proposed Marl Hill Section would be not significant.

## **7. Planning Policy Context**

### **7.1 Introduction**

- 257) This chapter describes the planning policy framework for the Proposed Marl Hill Section.
- 258) Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that applications for planning permission are determined in accordance with the development plan unless material considerations indicate otherwise. The National Planning Policy Framework (NPPF) (2019) provides the strategic guide for Planning Policy in England and Wales, and thus local planning policy should conform with this.
- 259) During the pre-application phase, United Utilities has been working closely with local authorities and other stakeholders, such as Natural England and the Environment Agency, to assist pre-application consultations concerning the land use planning aspects of the Proposed Marl Hill Section.

### **7.2 Local Planning Policy**

- 260) The Proposed Marl Hill Section is within the administrative boundary of Ribble Valley Borough Council. It is therefore the local planning authority (LPA) with responsibility for determining the planning applications for the Proposed Marl Hill Section.
- 261) Lancashire County Council is the 'upper-tier' authority for Ribble Valley and therefore is a key statutory consultee in relation to a number of matters including minerals, waste, highways, archeology and Public Rights of Way.

#### **7.2.1 Development Plan Documents (DPD)**

- 262) The Development Plan for Ribble Valley Borough Council comprises:
- Ribble Valley Core Strategy (Adopted December 2014)
  - Housing and Economic Development DPD (2019).
- 263) The Proposed Marl Hill Section is not a minerals or waste development, however there is the potential for both waste and minerals considerations to be relevant, particularly during construction. The corresponding policies from Lancashire County Council's development plan are considered relevant. The development plan for minerals and waste planning in Lancashire are:
- Lancashire Joint Minerals and Waste Local Plan – Core Strategy (Adopted March 2009)
  - Lancashire Joint Minerals and Waste Local Plan – Site Allocations and Development Control Policies (Adopted September 2013)

#### **7.2.2 Forest of Bowland AONB Management Plan**

- 264) Forest of Bowland was designated in 1964 as an Area of Outstanding Natural Beauty (AONB) in order to conserve and enhance its natural beauty. The AONB is managed by a partnership of landowners, farmers, voluntary organisations, wildlife groups, recreation groups, local councils and government agencies. Representatives from these groups (which includes United Utilities) sit on the Forest of Bowland AONB Joint Advisory Committee (JAC).
- 265) Management plans for AONBs do not form part of the statutory development plan, but they help to set out the strategic context for development. They are however a material consideration when assessing planning applications.
- 266) The Forest of Bowland AONB JAC assist in the delivery of the AONB Management Plan and the current Forest of Bowland AONB Management Plan consists of a policy framework for the area for a period of 2019 – 2024.

## **7.3 National Planning Policy**

### **7.3.1 National Planning Policy Framework (NPPF)**

267) The Government published the revised NPPF in July 2018 and added minor updates in February 2019. It sets out the Government's strategic overview of planning policies for England and how they are expected to be applied in Local Plan making and is therefore a material consideration in planning decisions (NPPF paragraph 2).

268) The NPPF sets out a 'presumption in favour of sustainable development' (paragraph 11), which means LPAs should approve development without delay where it accords with the development plan and in cases where there are no relevant development plan policies or the development plan is out of date, granting planning permission unless:

*'the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or*

*any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.'*

269) Relevant policies from the NPPF are set out in Chapter 8 Planning Assessment.

### **7.3.2 Planning Practice Guidance**

270) The Department for Communities and Local Government (DCLG) established a web-based resource (<http://planningguidance.communities.gov.uk>) in March 2014, which gives Planning guidance for a number of different topics. Matters addressed include air quality, climate change, conserving and enhancing the historic environment, design, environmental impact assessment, flood risk and coastal change, health and well-being, land contamination, land stability, light pollution, natural environment, noise, planning obligations, water supply, and waste water and water quality.

271) Of particular relevance to the Proposed Programme of Works, regarding 'Planning for water infrastructure', the PPG states:

*'When identifying sites it is important to recognise that water and wastewater infrastructure can have specified locational needs (and often consists of engineering works rather than new buildings). This means exceptionally otherwise protected areas may have to be considered, where this is consistent with their designation'* (Reference ID: 34-005-20140306).

## **7.4 Other Material Considerations**

### **7.4.1 Draft National Policy Statement for Water Resource Infrastructure (November 2018)**

272) In November 2018, the National Policy Statement (NPS) for Water Resource Infrastructure was published for consultation by Defra. The Draft NPS sets out the need and government's policies for the development of projects for water resources in England. Specifically, the NPS will be used as the primary basis of assessment for projects examined under a separate regime - the Planning Act 2008. Under the Planning Act 2008, projects classified as 'Nationally Significant Infrastructure Projects' are required to apply for a Development Consent Order, and decisions are made by a Secretary of State.

273) The Proposed Programme of Works is not a Nationally Significant Infrastructure Project and as such requires planning applications to local planning authorities under the Town and Country Planning Act 1990. The draft NPS can still be a material consideration in the decision-making on the Proposed Programme of Works, however. This is confirmed in Paragraph 1.1.9 of the draft NPS:

*'In England, this NPS may also be a material consideration in making decisions on applications for development that fall within local authority planning regimes (for example under the Town and Country*



*Planning Act 1990). Whether, and to what extent this NPS is a material consideration, will be judged on a case by case basis.'*

274) This is also confirmed in the NPPF at paragraph 5:

*'National policy statements form part of the overall framework of national planning policy, and may be a material consideration in preparing plans and making decisions on planning applications.'*

275) The Draft NPS for Water Resource Infrastructure is therefore considered to be a material consideration for the Proposed Marl Hill Section, and reference to the Draft NPS is made in the Planning Assessment Chapter with regards to the need and principle of the Proposed Marl Hill Section.

#### **7.4.2 National Infrastructure Assessment (2018) and National Infrastructure Strategy (2020)**

276) The NPPF also confirms at paragraph 6 that:

*'Other statements of government policy may be material when preparing plans or deciding applications, such as relevant Written Ministerial Statements and endorsed recommendations of the National Infrastructure Commission'*

277) The National Infrastructure Commission (NIC) was set up by the Government in 2015, with the aim of providing impartial, expert advice on major long-term infrastructure priorities.

278) In April 2018, the NIC published a standalone report, 'Preparing for a drier future: England's water infrastructure needs', which sets out a recommendation for a twin-track approach to manage water supply and demand.

279) The NIC published the first National Infrastructure Assessment in July 2018, which sets out the NIC's assessment of the UK's infrastructure needs over the next 30 years and makes a series of recommendations to the government across all areas of economic infrastructure, including water supply infrastructure.

280) In November 2020, the government published the National Infrastructure Strategy, which provides the government's formal response and endorsements following the NIC recommendations.

281) In line with NPPF paragraph 6 therefore, it is considered that the National Infrastructure Strategy (2020) and the endorsed recommendations of the NIC, as set out in the National Infrastructure Assessment are a material consideration in the determination of the planning application.

## **8. Planning Assessment**

### **8.1 Introduction**

- 282) This Chapter provides a detailed assessment of the Proposed Marl Hill Section against all relevant policies of the Development Plan, along with identified material considerations including national planning policy and relevant guidance.
- 283) Following an assessment of the general principle of the development in the context of its type, scale and the designation status, this Chapter considers in turn the effects of the development according to its impact on the surrounding environment and local amenity, which broadly reflect those topics identified in the accompanying ES.

### **8.2 Principle of Proposed Development**

#### **8.2.1 Introduction**

- 284) The Proposed Marl Hill Section is a water supply infrastructure development, which forms part of an essential upgrade to the North West's water supply resilience. Relevant national and local planning policies are set out in the sections below.

#### **8.2.2 NPPF**

- 285) The NPPF places a strong emphasis on the provision of appropriate infrastructure, which is a thread running through the sections on plan-making and decision-taking.
- 286) Paragraph 8 outlines the three overarching objectives of the NPPF for achieving sustainable development:
- the economic objective – 'to help build a strong, responsive and competitive economy', which includes 'identifying and coordinating the provision of infrastructure'
  - The social objective - '*to support strong, vibrant and healthy communities*', which includes the need for services that reflect current and future needs
  - The environmental objective – '*to contribute to protecting and enhancing our natural, built and historic environment*', which includes, making effective use of land, using natural resources prudently, and mitigating and adapting to climate change.
- 287) Paragraph 20 requires local planning authorities to make sufficient provision for infrastructure, including for water supply.
- 288) Under the heading 'Planning for climate change', Paragraph 149 requires plans to take a proactive approach to mitigating and adapting to climate change, including by taking into account the long-term implications for water supply.

#### **8.2.3 Draft National Policy Statement for Water Resource Infrastructure**

- 289) As set out in Chapter 6, the Draft NPS is considered to be a material consideration in the determination of the planning application.
- 290) Chapter 2 of the Draft NPS sets out the government policy and the need for water resource infrastructure. Paragraph 2.1.2 is unequivocal that: '*There is an immediate need to build resilience in the water sector to address pressures on water supplies*'. The paragraph goes on to set out the government's vision as: '*a water industry that works for everyone; providing reliable, robust services now and in the future, without compromising the needs of the environment*'.
- 291) The main priorities are listed as:

*'Securing long-term resilience: Customers expect resilient services, now and in the future – but some regions are exposed to substantial risks from service failures, for example due to drought.'*

*'Protecting customers: Every home and business depends on a resilient water industry – but not everyone can afford their water bill.'*

292) Paragraph 2.1.3 states that *'Securing long term resilience involves planning for future events (e.g. drought events) as effectively as we can, to mitigate the impacts whilst ensuring value for money for consumers'*.

293) Paragraph 2.3.1. states that *'the government is committed to a twin track approach to securing resilient water supplies, which requires both new water resources infrastructure and further action to reduce the demand for water'*.

#### **8.2.4 National Infrastructure Assessment (2018) and National Infrastructure Strategy (2020)**

294) As set out in Chapter 7, the endorsed recommendations of the National Infrastructure Commission (NIC) and the government's National Infrastructure Strategy (2020) are material planning considerations and set out the government's priorities and plans for delivering infrastructure for the UK.

295) *'Preparing for a drier future: England's water infrastructure needs'* (NIC, April 2018), sets the need to ensure the capacity of the water supply system in England is increased to boost the country's resilience to drought whilst also managing demand and reducing leakage. The report recommends that this can be achieved through: delivering a national water transfer network and additional water supply by the 2030s; and halving leakage by 2050, together with greater smart metering.

296) The National Infrastructure Assessment (July 2018) sets out the NIC's assessment of the UK's infrastructure needs over the next 30 years and makes a series of recommendations to the government across all areas of economic infrastructure, including water supply infrastructure. Recommendation 47 is:

*'The Commission recommends that government should ensure that plans are in place to deliver additional supply and demand reduction of at least 4,000 ML/day. Action to deliver this twin-track approach should start immediately.'*

297) The National Infrastructure Strategy provides the government's formal response to the NIC recommendations, and also the government's approach to infrastructure, which was to fully endorse the recommendation. Page 62 of the National Infrastructure Strategy states:

*'The government agrees with the NIC that there must be a twin track approach to delivering additional water supply and demand reduction to increase the resilience of water supplies. Water companies are responsible for planning to meet future supply requirements through the production of water resource management plans. For the next round of plans due in 2024, the government will require the water industry to plan to deliver resilience to a one in 500-year drought.'*

#### **8.2.5 Planning Assessment – Principle of Development**

298) There is a national need for water supply infrastructure to increase the resilience of water supplies. This is set out in the government's National Infrastructure Strategy and follows recommendations from the National Infrastructure Commission. The draft NPS (a material consideration) restates the government's priorities to secure long-term resilience in the water supply, including planning for future events, to mitigate the impacts whilst ensuring value for money for consumers. Whilst the NPPF requires the coordination of the provision of infrastructure to support the economy, society and the environment. It also requires development to mitigate and adapt to climate change, including taking into account the long-term implications for water supply.

299) The need for the Proposed Programme of Works is set out in full in Chapter 2 of this Statement. It can be summarised as: addressing the requirement to replace parts of an ageing asset, the existing

Haweswater Aqueduct, to ensure the continuity of a water supply serving areas of Cumbria, Lancashire and Greater Manchester, and to mitigate potential risks to drinking water quality.

- 300) As part of the Water Resource Management Plan process, the Proposed Programme of Works has been through an extensive options identification and appraisal process to select the only feasible solution to address this critical risk to the North West's water supply
- 301) It is considered that this essential upgrade to the water supply infrastructure is fully supported by national planning policy.

### 8.3 Major Development within Forest of Bowland Area of Outstanding Natural Beauty

#### 8.3.1 National Planning Policy Framework (2019)

- 302) The Major Development Test is set out at Paragraph 172 of the NPPF, which states:

*'Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:*

- a) *the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;*
- b) *the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and*
- c) *any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.'*

- 303) Footnote 55 in the NPPF confirms, with reference to Paragraph 172, that whether a proposal is considered as a 'major development' is a matter for the decision maker: *'taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined'*. For the purposes of this assessment, it is considered that the Proposed Marl Hill Section does constitute Major Development within a designated area and therefore has to demonstrate exceptional circumstances and that it is in the public interest.

#### 8.3.2 Forest of Bowland AONB Management Plan 2019-2024

- 304) There is no specific policy in the Ribble Valley Borough Council Local Development Plan reflecting the major development test, however the Forest of Bowland AONB Management Plan 2019-2024, which is not a Local Development Plan document but is a material consideration for applications within the AONB, confirms that the policy tests of NPPF Paragraph 172 should be applied in relation to major development in the Forest of Bowland AONB.

#### 8.3.3 Policy Assessment

- 305) Appendix A: Major Development Test Report contains a comprehensive assessment of the Proposed Marl Hill Section against the requirements of the major development test. The assessment has demonstrated the following key considerations:
- **the need for the development and impact on the local economy** - there is a proven requirement to replace part of the Haweswater Aqueduct to secure a water supply serving Cumbria, Lancashire and Greater Manchester, and to mitigate potential risks to drinking water quality. A resilient water supply, which would be provided by the Proposed Programme of Works is essential to the growth and vitality of the region's economy
  - **alternatives outside the designated area** – the Proposed Programme of Works was selected through a comprehensive option identification and appraisal process and has been tested through extensive

consultation with stakeholders. Alternative options outside the designated areas of the Forest of Bowland AONB offered insufficient risk reduction to water quality and risk of supply interruptions. The only feasible means of securing a long term resilient water supply is therefore through replacement all of the tunnel sections of the existing Haweswater Aqueduct (i.e. the Proposed Programme of Works), which requires a connection into the existing infrastructure within the Forest of Bowland AONB

- **the development's impact on the environment** - The majority of the proposed works is underground, with the only permanent above ground features being two valve house buildings and accesses. The environmental effects are therefore mainly associated with the construction phase of the development. The temporary construction effects would be carefully controlled through the Construction Code of Practice, the development of Construction Environmental Management Plans and detailed Method Statements to ensure that any adverse effects on the environment, the landscape and recreational opportunities are minimised.

306) It is considered therefore that the Proposed Programme of Works has been demonstrated as '*in the public interest*', and that '*exceptional circumstances*' exist in support of the Proposed Marl Hill Section. It is considered therefore that the requirements of Paragraph 172 of the NPPF have been met.

## 8.4 Landscape and Arboriculture

### 8.4.1 NPPF

307) Section 12: Achieving well-designed places sets out the Governments approach for creating high quality buildings and places with an emphasis on good design. Paragraph 131 places emphasis on good design promoting '*high levels of sustainability*' and '*weight should be given*' when determining proposals that demonstrate this.

308) Section 15: Conserving and Enhancing the Natural Environment states the importance of contributing and enhancing the natural and local environment. Paragraph 170 sets out that '*policies should contribute to and enhance the natural and local environment by...protecting and enhancing valued landscapes...recognise the intrinsic character and beauty of the countryside*'.

309) Paragraph 172 states that '*great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks*'.

310) Paragraph 172 continues and states '*planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest*'.

311) Paragraph 180 sets out that policies and decisions should ensure new development is appropriate for its siting, including that developments should '*limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation*'.

### 8.4.2 Ribble Valley Core Strategy (Adopted December 2014)

312) Policy DMG1: General Considerations requires that all proposals consider the environmental implication to SSSIs, County Heritage Sites, Local Nature Reserves, Biodiversity Action Plan, habitats and species, Special Areas of Conservation and Special Protected Areas, protected species, green corridors and other sites of nature conservation. The policy requires that '*the principles of the mitigation hierarchy be followed... 1) enhance the environment 2) avoid the impact 3) minimise the impact 4) restore the damage 5) compensate for the damage 6) offset the damage*'.

313) Policy DMG2: Strategic Considerations requires development within open countryside to '*be in keeping with the character of the landscape and acknowledge the special qualities of the area by virtue of its size, design, use of materials, landscaping and siting*'.

- 314) Policy DME1: Protecting Trees and Woodlands states that *'there will be a presumption against the clearance of broad-leaved woodland for development proposes. The council will seek to ensure that woodland management safe guards the structural integrity and visual amenity value of woodland'...and...'the council encourages successional tree planting to ensure tree cover is maintained into the future'*.
- 315) Policy DME1 continues and states that *'where applications are likely to have a substantial effect on tree cover, the borough council will require detailed arboricultural survey information and tree constraint plans including appropriate plans and particulars'*.
- 316) Policy DME1 requires that any work to a Tree Protection Order (TPO) will be expected to accord with the modern arboricultural practices and current British Standard. In respect of Ancient Woodlands *'development proposals that would result in loss or damage to ancient woodlands will be refused unless the need for, and the benefits of, the development in that location outweigh the loss of the woodland habitat'*. For Veteran and Ancient Trees, the Policy states that *'the borough council will take measures through appropriate planning conditions, legislation and management regimes to ensure that any tree classified identified as veteran/ancient tree is afforded sufficient level of protection and appropriate management in order to ensure its long term survivability'*. For hedgerows, the Council will seek to protect and enhance hedgerows through the use of planning condition to ensure appropriate management regimes and planting are implemented.
- 317) Policy DME2: Landscape and Townscape Protection states that significant harm to important landscape or landscape features including; traditional stone walls, ponds, characteristic herb rich meadows and pastures, woodlands, copses, hedgerows and trees, upland landscape and associated habitats and botanically rich roadside verges will result in development being refused.

#### **8.4.3 Forest of Bowland AONB Management Plan 2019-2024**

- 318) Objective 1.1: Landscape states that this objective is to *'apply the guiding principles of the European Landscape Convention, using landscape characterisation as the basis for policy- and decision making for land and development management, to conserve and enhance natural beauty of the landscape'*.
- 319) Objective 1.2: Habitats and Species aims to *'conserve, enhance and restore the AONB's characteristic mosaic of habitats by improving their connectivity, extent and condition; whilst taking targeted action to conserve key species and improving understanding of the biodiversity of the AONB'*.
- 320) Objective 1.3: Historic Environment aims to *'support the conservation, restoration and management of the historic environment and wider cultural landscape'*.

#### **8.4.4 Policy Assessment**

- 321) Due to the nature of the Proposed Marl Hill Section as an essential major infrastructure project, it is unavoidable that there will be temporary significant landscape and visual effects during construction. However, the short-term effects are outweighed by the considerable benefits of the Proposed Marl Hill Section in securing future water supply for the region. The mitigation measures proposed help to reduce the overall impact as far as feasibly possible. In addition, the design of the proposed valve houses are similar to agricultural buildings in the area and would not be significantly visible in the wider area.
- 322) Therefore, the Proposed Marl Hill Section accords with Paragraphs 131, 170, 172 and 180 of the NPPF, Policies DMG1, DMG2, DME1 and DME2 of the Ribble Valley Core Strategy regarding landscape and visual impacts and Objectives 1.1, 1.2 and 1.3 of the Forest of Bowland AONB Management Plan.



## **8.5 Water Environment**

### **8.5.1 NPPF**

323) Section 15: Conserving and Enhancing the Natural Environment within Paragraph 170 states that planning policies and decision should '*prevent new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable level of...water pollution. Developments should wherever possible help to improve local environmental conditions such as...water quality...taking into account relevant information such as river basin management plans*'.

### **8.5.2 Ribble Valley Core Strategy (Adopted December 2014)**

324) Policy DME6: Water Management states that '*development will not be permitted where the proposal would be at an unacceptable risk of flooding or exacerbate flooding elsewhere*'. The policy continues and requires developments to include appropriate measures for the protection and management to prevent pollution of surface and/or groundwater, reduce water consumption and reduce risk of surface water flooding. In addition, the policy states in parallel to water management issues and flood management, the authority will seek the protection of water courses for their biodiversity value.

325) Policy DME6 states that '*all applications for planning permission should include details for surface water drainage and means of disposal based on sustainable drainage principles. The use of the public sewerage system is the least sustainable form of surface water drainage and therefore development proposals will be expected to investigate and identify more sustainable alternatives to help reduce the risk of surface water flooding and environmental impact*'.

### **8.5.3 Forest of Bowland AONB Management Plan 2019-2024**

326) Objective 1.4: Natural Capital and Ecosystem Services aims to '*seek to better understand and promote the value of the natural capital of the landscape and the public benefits derived from these assets; guiding land and development management decision-making to increase the natural capital of the AONB*'.

### **8.5.4 Policy Assessment**

327) Chapter 6 of the ES has identified that the Proposed Marl Hill Section would have varied impacts across all identified areas of the water environment. It is identified that mitigation would be required through embedded mitigation detailed in the CCoP to help manage the overall impact. Certain specific mitigation measures would also be required at some locations, which is detailed in Chapter 7 of the ES.

328) It is considered that alongside the mitigation measures proposed and through further investigation and monitoring throughout the construction works, the impacts would not be so significant to result in the Proposed Marl Hill Section being unacceptable. Therefore, the proposal would comply with Paragraph 170 of the NPPF, Policy DME6 of the Ribble Valley Core Strategy and Objective 1.4 of the Forest of Bowland Draft AONB Management Plan.

## **8.6 Flood Risk**

### **8.6.1 NPPF**

329) Paragraphs 155 to 163 set out the Governments approach to managing flood risk, stating that '*inappropriate development in areas of flooding should be avoided*'. Paragraph 157 states that all plans should apply a sequential, risk-based approach to the location of development '*to avoid where possible flood risk to people and property*'.

- 330) If it is not possible for development to be located in low risk flooding area through the sequential test, Paragraph 159 states that an *'exception test may have to be applied'*. The Paragraph continues and states that *'the need for the exception test will depend on the potential vulnerability of the site and the development proposed'*.
- 331) Paragraph 160 states that for an exception test to be passed it should demonstrate that the benefit of the development outweighs the flood risk and that the development will be safe and not increase flood risk and/or reduce flood risk overall.
- 332) Paragraph 163 states that planning applications should be supported by a Flood Risk Assessment (FRA) and development should only be allowed in areas at risk from flooding (in addition to sequential and exception tests) if its demonstrated that *'the most vulnerable development is location in the areas of lowest flood risk, the development is appropriately flood resistant and resilient, incorporates sustainable drainage systems...any residual risk can be safely managed and safe access and escape routes are included'*. Adding to this, Paragraph 165 makes it clear that all major developments should include sustainable drainage systems, unless evidence is provided that it would be inappropriate.

#### **8.6.2 Ribble Valley Core Strategy (Adopted December 2014)**

- 333) Key Statement EN3: Sustainable Development and Climate Change states that development proposals will be required to demonstrate *'how sustainable development principles and sustainable construction methods, such as the use of sustainable drainage systems, will be incorporated'*...and...*'all developments should...address any potential issues relating to flood risk'*.
- 334) Policy DME6 Water Management states that *'development will not be permitted where the proposal would be at an unacceptable risk of flooding or exacerbate flooding elsewhere'*
- 335) Policy DME6 continues and requires developments to include appropriate measures for the protection and management to prevent pollution of surface and/or groundwater, reduce water consumption and reduce risk of surface water flooding.
- 336) Policy DME6 also states that *'all applications for planning permission should include details for surface water drainage and means of disposal based on sustainable drainage principles. The use of the public sewerage system is the least sustainable form of surface water drainage and therefore development proposals will be expected to investigate and identify more sustainable alternatives to help reduce the risk of surface water flooding and environmental impact'*.

#### **8.6.3 Forest of Bowland AONB Management Plan 2019-2024**

- 337) Objective 1.4: Natural Capital and Ecosystem Services aims to *'seek to better understand and promote the value of the natural capital of the landscape and the public benefits derived from these assets; guiding land and development management decision-making to increase the natural capital of the AONB'*.

#### **8.6.4 Policy Assessment**

- 338) The Flood Risk Assessment (ES Appendix 8.1) identifies that the Proposed Marl Hill Section is classified as water transmission infrastructure and is therefore considered within the NPPF to be a water compatible development that is suitable in all areas of flood risk providing that it is safe, can operate in times of flood and does not increase flood risk elsewhere.
- 339) With embedded mitigation implemented and further assessment and mitigation undertaken to ensure that commissioning phase discharges to watercourses are managed effectively, the Proposed Marl Hill Section would have a low risk of flooding throughout its operational life and would not increase the risk of flooding elsewhere. Therefore, according with Paragraphs 155-163 of the NPPF, Key Statement EN3

and Policy DME6 of the Ribble Valley Core Strategy, and Objective 1.4 of the Forest of Bowland Management Plan.

## 8.7 Ecology

### 8.7.1 NPPF

- 340) Section 15: Conserving and Enhancing the Natural Environment focuses on the Government's aim for planning policies and decision to contribute and enhance the natural and local environment which includes biodiversity and geodiversity.
- 341) Paragraph 170 requires that '*sites of biodiversity or geological value*' are protected and enhanced. The policy also requires that developments recognize '*the intrinsic character and beauty of the countryside and the wider benefits from natural capital and ecosystem services*'. Part d) of this policy continues and requires that developments minimise '*impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*'.
- 342) Paragraph 175 lists a number of principles, which local planning authorities should apply when determining planning applications. Including that, '*if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused*'.
- 343) Paragraph 176 states that sites such as Special Protection Areas and Special Areas of Conservation, Ramsar Sites should be given the same protection as habitat sites.
- 344) Paragraph 177 states that developments with the justification of The Presumption of Sustainable Development does not apply where...'*the plan or project is likely to have a significant effect on a habitats site*'...

### 8.7.2 Ribble Valley Core Strategy (Adopted December 2014)

- 345) Key Statement EN3: Sustainable Development and Climate Change states that '*new development in vulnerable areas should ensure that risks can be managed through suitable measures, including through the conservation of biodiversity, improvement of ecological networks and the provision of green infrastructure*'.
- 346) Key Statement EN4: Biodiversity and Geodiversity states that the Council will conserve and enhance the areas biodiversity and geodiversity. The policy continues and states '*negative impacts on biodiversity through development proposals should be avoided*'...and...'*development proposals that adversely affect a site of recognised environmental or ecological importance will only be permitted where a developer can demonstrate that the negative effects of a proposed development can be mitigated, or as a last resort, compensated for*'...'*It will be the developer's responsibility to identify and agree an acceptable scheme, accompanied by appropriate survey information, before an application is determined. There should, as a principle be a net enhancement of biodiversity*'.
- 347) Policy DMG1: General Considerations requires that proposals '*consider the environmental implications such as SSSIs, County Heritage Sites, Local Nature Reserves, Biodiversity Action Plan (BAP) habitats and species, Special Areas of Conservation and Special Protected Areas, protected species, green corridors and other sites of nature conservation*'. The policy requires that '*the principles of the mitigation hierarchy be followed... 1) enhance the environment 2) avoid the impact 3) minimise the impact 4) restore the damage 5) compensate for the damage 6) offset the damage*'.
- 348) Policy DME1: Protecting Trees and Woodlands states that '*the council will seek to ensure that woodland management safeguards the structural integrity and visual amenity value of woodland, enhances biodiversity and provides environmental health benefits for the residents of the borough*'.

- 349) Policy DME3: Site and Species Protection and Conservation states that sites designated as Wildlife species protected by law, SSSI's, Priority habitats or species identified in the Lancashire Biodiversity Action Plan, local Nature Reserves, County Biological Heritage Sites, Special Areas of Conservation, Special Protected Areas and any acknowledged nature conservation value of sites or species that are adversely affected by development proposals will be refused unless *'where it can clearly be demonstrated that the benefits of a development at a site outweigh both the local and the wider impacts'*... The policy continues and requires that *'developers are encouraged to consider incorporating measures to enhance biodiversity where appropriate that will complement priority habitats and species identified in the Lancashire BAP'*.
- 350) Policy DME6: Water Management states that *'as a part of the consideration of water management issues, and in parallel with flood management objectives, the authority will also seek the protection of the Borough's water courses for their biodiversity value'*.

### **8.7.3 Forest of Bowland AONB Management Plan 2019-2024**

- 351) Objective 1.2: Habitats and Species states aims to *'conserve, enhance and restore the AONB's characteristic mosaic of habitats by improving their connectivity, extent and condition; whilst taking targeted action to conserve key species and improving understanding of the biodiversity of the AONB'*.
- 352) Objective 1.4: Natural Capital and Ecosystem Services aims to *'seek to better understand and promote the value of the natural capital of the landscape and the public benefits derived from these assets; guiding land and development management decision-making to increase the natural capital of the AONB'*.

### **8.7.4 Policy Assessment**

- 353) Chapter 9 of the ES together with the Habitats Regulation Assessment and SSSI report considers the potential terrestrial and aquatic ecology impacts associated with enabling works, construction, commissioning and operational phases of the Proposed Marl Hill Section.
- 354) No significant residual impacts on international, national or local designations are predicted.
- 355) Significant impacts on species would be avoided through embedded mitigation measures and potential impacts would be reduced following habitat reinstatement and through installation of bat boxes to provide alternative roosting habitats. With the potential exception of bats (tree roosts) it is anticipated that no protected species licences would be required.
- 356) Embedded mitigation, best practice measures and essential mitigation will avoid or reduce most adverse effects on habitats to non-significant. Within main compounds habitat loss would be temporary with very small exceptions and the majority of habitats that would be lost and reinstated are common and widespread and these include semi-natural broad-leaved woodland, scattered trees, hedgerows and grassland (semi-improved neutral and marshy). Veteran tree loss is the only significant adverse residual effect predicted on terrestrial ecology as a result of the Proposed Marl Hill Section. However, further consideration has been given to protection of veteran trees and the design process is progressing to enable avoidance of these losses
- 357) The Proposed Marl Hill Section is committed to achieving a 10% net gain in Biodiversity. A Biodiversity Net Gain report submitted alongside the ES concludes that additional habitat creation and/or enhancement measures off site would be required to achieve the 10% net gain. These sites would be secured through planning conditions and S106 agreements with the local planning authority to secure suitable sites.
- 358) It is therefore considered that the Proposed Marl Hill Section would accord with Paragraphs 170, 175, 176 and 177 of the NPPF and Policies EN3, EN4, DMG1, DME1, DME3 and DME5 of the Ribble Valley Core Strategy and Objectives 1.2 and 1.4 of the Forest of Bowland AONB Management Plan.

## **8.8 Cultural Heritage**

### **8.8.1 NPPF**

- 359) Section 16: Conserving and enhancing the historic environment provides guidance in respect of the relationship between development proposals and heritage assets.
- 360) Paragraph 189 requires that applicants describe the significance of any heritage assets affected. The policy requires that *'at a minimum the relevant historic environment records should have been consulted and the heritage assets assessed'*. Where developments affect heritage assets with archaeological interest, the applicant should submit a desk-based assessment and/or a field evaluation.
- 361) Paragraph 190 states that *'Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal'*.
- 362) Paragraph 192 makes it clear that local planning authorities when making decision on proposals affecting heritage assets should take account of *'the desirability of sustaining and enhancing the significance of the heritage asset...the positive contribution the conservation of heritage assets can make'...and...the desirability of new development making a positive contribution'*.
- 363) Paragraphs 193 to 202 set out the consideration of potential impacts to heritage assets with Paragraph 193 stating *'great weight should be given to the asset's conservation...when considering proposed developments that affect the significance of a heritage asset'*.
- 364) Paragraph 196 states: *'Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.'*

### **8.8.2 Ribble Valley Core Strategy (Adopted December 2014)**

- 365) Key Statement EN5: Heritage Assets states that *'there will be a presumption in favour of the conservation and enhancement of the significance of heritage assets and their settings'*.
- 366) Key Statement EN5 continues and states *'the Historic Environment and its Heritage Assets and their settings will be conserved and enhanced in a manner appropriate to their significance for their heritage value; their important contribution to local character, distinctiveness and sense of place; and to wider social, cultural and environmental benefits'*.
- 367) Policy DME4: Protecting Heritage Assets states that for conservation areas *'proposals within, or affecting views into and out of, or affecting the setting of a conservation area will be required to conserve and where appropriate enhance its character and appearance and those elements which contribute towards its significance'*.
- 368) Policy DME4 continues and states *'development which makes a positive contribution and conserves and enhances the character, appearance and significance of the area in terms of its location, scale, size, design and materials and existing buildings, structures, trees and open spaces will be supported'*.
- 369) Policy DME4 sets out the Councils approach to Listed Buildings and other buildings of significant heritage interest and states *'development proposals on sites within their setting which cause harm to the significance of the heritage asset will not be supported'...and...any proposals involving the demolition or loss of important historic fabric from listed buildings will be refused unless it can be demonstrated that exceptional circumstances exist'*.
- 370) Policy DME4 sets out the Councils approach for developments affecting scheduled monuments and other archaeological remains. The policy states that *'applications for development that would result in harm to the significance of a scheduled monument or nationally important archaeological sites will not be supported'*.



- 371) Policy DME4 continues and requires that *'developers will be expected to investigate the significance of non-designated archaeology prior to determination of an application'*. Should it be the case the significance is equivalent to a designated asset, proposals which cause harm to the non-designated asset will not be support.
- 372) Policy DME4 states that where the harm or loss of a non-designated heritage asset can be outweighed by the proposal resulting in substantial public benefit, the Council *'will seek to ensure mitigation of damage through preservation of remains in situ as the preferred solution'*...*'proposals should also give adequate consideration of how the public understanding and appreciation of such sites could be improved. In line with NPPF, Ribble Valley aims to seek positive improvements in the quality of the historic environment'*.

### **8.8.3 Forest of Bowland AONB Management Plan 2019-2024**

- 373) Objective 1.3: Historic Environment aims to *'support the conservation, restoration and management of the historic environment and wider cultural landscape'*

### **8.8.4 Policy Assessment**

- 374) Chapter 10 of the ES assesses the impact the Proposed Marl Hill Section would have during the enabling, construction, commissioning and operational phases of the Project. The impact to heritage assets would mainly occur during the enabling and construction phases of the works. Overall, it is considered with appropriate mitigation detailed in the CCoP that the significance of effects on Cultural Heritage in association with the Proposed Marl Hill Section is assessed as slight for archaeology, slight/neutral for Historic Buildings and slight/negligible for Historic Landscape Types.
- 375) A significant effect on the setting of Waddington Conservation area has been identified and would be caused from the temporary presence of construction traffic going through the village presenting noise and visual intrusion in the village. The magnitude of this temporary effect on the conservation has been assessed as moderate; in terms of policy compliance, this is considered to be less than 'substantial' harm to the designated heritage asset. In this case Paragraph 96 of the NPPF requires that the harm to the conservation area be weighed against the public benefits of the proposal. It is considered that benefits and need for the Proposed Marl Hill Section (as set out in full in Chapter 2 of this Statement), which would address the requirement to replace parts of an ageing asset, the existing Haweswater Aqueduct, to ensure the continuity of a water supply serving areas of Cumbria, Lancashire and Greater Manchester, and to mitigate potential risks to drinking water quality, outweigh temporary harm caused by haulage traffic to the setting of the conservation area.
- 376) Therefore, the Proposed Marl Hill Section accords with Paragraphs 189, 190, 192 and 193-202 of the NPPF, Key Statement EN5 and Policies DME4 of the Ribble Valley Core Strategy and Objective 1.3 of the Forest of Bowland AONB Management Plan.

## **8.9 Soils, Geology and Land Quality**

### **8.9.1 NPPF**

- 377) Section 15: Conserving and Enhancing the Natural Environment sets out the Governments approach in respect of policies and decisions affecting the natural environment with respect to soils and geology. Paragraph 170 states that planning policies and decisions should *'protect and enhance sites of...geological value and soils'*...and...*'prevent new and existing development from contributing to...unacceptable levels of soil pollution and land instability'*. Part f) requires that proposals should remediate and mitigate despoiled, degraded, derelict, contaminated and unstable land.



378) Paragraph 178 that planning policies and decisions should ensure that *'a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining'*.

379) Paragraph 179 continues and requires the responsibility for securing a safe development where a site is affected by contamination or land stability rests with the developer/landowner.

### **8.9.2 Ribble Valley Core Strategy (Adopted December 2014)**

380) Policy DMG1: General Considerations requires developments to *'to take into account the risks arising from former coal mining and, where necessary, incorporate suitable mitigation measures to address them'...and...'achieve efficient land use and the reuse and remediation of previously developed sites where possible. Previously developed sites should always be used instead of greenfield sites where possible'*.

### **8.9.3 Policy Assessment**

381) The potential for adverse impacts to arise on Soils, Geology and Land Quality receptors has been considered in Chapter 11 of the ES which includes impacts associated with enabling works, construction, commissioning and operational phases along the route. Embedded and good practice measures are set out within the CCoP and it concludes that there would be no adverse effects identified requiring additional mitigation.

382) Based upon the assessment presented in Chapter 11 of the ES with the application of mitigation measures detailed in the CCoP, no adverse effects on Soils, Geology and Land Quality receptors are predicted. Therefore, the Proposed Marl Hill Section would accord with Paragraphs 170, 178, 179 of the NPPF and Policy DMG1 of the Ribble Valley Core Strategy.

## **8.10 Materials and Waste**

### **8.10.1 NPPF**

383) Section 2: Achieving Sustainable Development sets out the three priorities for achieving sustainable development with Paragraph 8 and in part c) setting out an environmental objective which highlights *'minimising waste'*.

### **8.10.2 Ribble Valley Core Strategy (Adopted December 2014)**

384) Key Statement EN3: Sustainable Development and Climate Change states that the Council will *'liaise with the County Council over development within Mineral Safeguarding Areas (MSAs) in both proposing future site allocations and in determining planning applications. This liaison will include consideration of the issue of preventing the unnecessary sterilisation of mineral resources within MSAs and, where feasible and practicable, the prior extraction of mineral resources'*.

### **8.10.3 Lancashire Joint Minerals and Waste Local Plan – Core Strategy (Adopted March 2009)**

385) Policy CS2: Minimising the Need for Mineral Extraction requires that all developments should maximise the use of recycled and secondary materials. Developments should *'reduce, reuse and recycle and recover the waste they produce during construction and demolition...maximise the use of recycled and secondary materials'...and...'maximise the potential for recovering and recycling construction materials at the end of the developments life'*.

386) Policy CS6: Promoting Waste Minimisation and Increasing Waste Awareness requires that *'all major developments proposals will be required to include details of measures to minimise the potential amounts of waste generated during construction'...and...'on-site waste management solutions will be encouraged during construction'*.

- 387) Policy CS7: Managing our Waste as a Resource sets out that '*an integrated waste management strategy will be planned for that relies on the 'top end' of the waste hierarchy to improve waste prevention and maximise re-use, recycling and composting*'. The policy continues and requires that...'*proposals for all new developments...will be required to provide suitable facilities for the handling, storage and collection of segregated wastes*'.

#### **8.10.4 Lancashire Joint Minerals and Waste Local Plan – Site Allocations and Development Control Policies (Adopted September 2013)**

- 388) Policy M2: Safeguarding Lancashire's Mineral Resources states that planning permission will not be supported for any development that falls within the mineral safeguarded areas identified on the Policies Map. The Council will expect applicants to demonstrate that '*the mineral concerned is no longer of any value or has to be fully extracted...the full extent of the mineral can be extracted satisfactorily prior to the...development taking place...the...development is of a temporary nature*'...and...'*there is an overarching need for the development that outweighs the need to avoid the sterilisation of the mineral resource*'.

#### **8.10.5 Policy Assessment**

- 389) The waste hierarchy has been applied throughout the design process for the Proposed Marl Hill Section. The tunnelling methodology would allow the recovery of material, minimising overall potential waste arisings.
- 390) Within the ES a 'worst-case' scenario has been applied which assumes that all excavated surplus materials would be treated as waste that cannot be recovered and would require disposal within the regional landfill capacity; this equates to landfilling 99.88% of the waste. The impacts of this 'worst-case' scenario are considered in the ES as insignificant and assessed as either negligible or low. A Site Waste Management Plan (SWMP) would be employed in alignment with a Material Management Plan in order to process materials under the CL:AIRE regime, allowing them to be reused on site, or if surplus to requirements, offsite in the form of recovered materials for beneficial reuse. Throughout the contractors' design and construction planning, opportunities to reuse and recover surplus material would be continually reassessed. If feasible alternatives are identified, then they may provide alternative uses for waste allowing for increased recovery, reuse and recycling.
- 391) Waddington Fell Quarry has been identified as a location near the Proposed Bowland Section (subject to a separate planning application) and the Proposed Marl Hill Section that could accommodate the surplus excavated material. The use of Waddington Fell Quarry in combination with backfill would result in surplus excavated material being diverted from landfill.
- 392) Therefore, it is considered that the Proposed Marl Hill Section is compatible with Paragraph 8 of the NPPF, Key Statement E3 of the Ribble Valley Core Strategy, Policies CS2, CS6 and CS7 of the Lancashire Joint Minerals and Waste Local Plan (Core Strategy) and Policy M2 of the Lancashire Joint Minerals and Waste Local Plan (Site Allocations and Development Control Policies).

### **8.11 Public Access and Recreation**

#### **8.11.1 NPPF**

- 393) Section 8: Promoting healthy and safe communities and within the 'Open space and recreation' section highlights the importance of high-quality open spaces for the health and well-being of communities. Paragraph 98 requires that '*planning policies and decisions should protect and enhance public rights of way and access*'.

### **8.11.2 Ribble Valley Core Strategy (Adopted December 2014)**

- 394) Policy DMG1: General Considerations requires that developments '*consider the potential traffic and car parking implications...ensure safe access can be provided which is suitable to accommodate the scale and type of traffic likely to be generated...and...consider the protection and enhancement of public rights of way and access*'.
- 395) Policy DMB5: Footpaths and Bridleways states that '*the Borough Council will seek to ensure the retention, maintenance and improvement of by-ways and un-surfaced/unclassified roads as part of the public rights of way network*'.

### **8.11.3 Forest of Bowland AONB Management Plan 2019-2024**

- 396) Objective 1.4: Natural Capital and Ecosystems Services aims to '*seek to better understand and promote the value of the natural capital of the landscape and the public benefits derived from these assets; guiding land and development management decision-making to increase the natural capital of the AONB*'.
- 397) Objective 3.1: Countryside Access aims to '*maintain and improve access to the countryside in a sustainable way for a diverse range of people and that promotes responsible, safe and quiet enjoyment*'.

### **8.11.4 Policy Assessment**

- 398) The Proposed Marl Hill Section would intersect a total of five PRowS which would be directly or indirectly affected during the construction period. Throughout the enabling, construction and commissioning phases three PRowS would be affected by the use of controlled crossing points and two PRowS would require fencing to separate PRow users from construction traffic, these would then be reinstated to original alignments once the works are complete. All reasonable steps would be taken to keep the footpaths open at all times and there are no current plans to implement footpath closures.
- 399) The majority of impacts on public access and recreation would be Negligible/Slight or Slight. Discussions would be held with PRow officers regarding the need for temporary closures and diversions. The construction contractor would work in consultation with all parties to limit disruption during construction and Rights of Way would be reinstated and 'made-good' following construction
- 400) Therefore, the Proposal would accord with Paragraph 98 of the NPPF, Policies DMG1 and DMB5 of the Ribble Valley Core Strategy and Objectives 1.4 and 3.1 of the Forest of Bowland AONB Management Plan.

## **8.12 Communities and Health**

### **8.12.1 NPPF**

- 401) Section 8: Promoting healthy and safe communities sets out policies to '*achieve healthy, inclusive and safe communities*'. Paragraph 91 requires that planning decisions should achieve places which promote social interaction, are safe and accessible and enable and support healthy lifestyles.
- 402) Paragraph 92 states that '*to provide the social, recreational and cultural facilities and services the community needs,*' planning decisions should '*guard against the unnecessary loss of valued facilities and services, particularly where this would reduce the community's ability to meet its day-to-day needs*'.
- 403) Section 15: Conserving and Enhancing the Natural Environment and notably Paragraph 182 requires that '*planning policies and decisions should ensure that new development can be integrated effectively with existing business and community facilities*'.

### **8.12.2 Ribble Valley Core Strategy (Adopted December 2014)**

- 404) Key Statement EC2: Development of Retail, Shops and Community Facilities and Services states that *'proposals that have an adverse impact on existing community facilities would only be permitted as an exception where the proposed development would bring defined and demonstrable benefits'*.
- 405) Policy DMG1 also states that developments should *'not result in the net loss of important open space, including public and private playing fields without a robust assessment that the sites are surplus to need'*.
- 406) Policy DMB4: Open Space Provision states that *'the Borough Council will refuse development proposals which involve the loss of existing public open space, including private playing fields which are in recreational use. In exceptional circumstances and following a robust assessment where the loss of a site is justifiable because of the social and economic benefits a proposed development would bring to the community, consent may be granted where replacement facilities are provided, or where existing facilities elsewhere in the vicinity are substantially upgraded'*. The policy continues requiring that existing recreational areas are to be protected from development.

### **8.12.3 Policy Assessment**

- 407) The assessment finds that during the enabling works, which will include the construction of off-site highways works serving the traffic routes for the compounds serving the Proposed Bowland and Marl Hill Sections, and the main construction programme itself, some local communities would experience significant disturbance effects. Disturbance would arise mainly from the movement of heavy goods vehicles through settlements and past individual properties fronting onto the highway. A degree of disturbance is an unavoidable consequence of constructing a major infrastructure project. Some of the community disturbance would be short-term and reversible, while it is acknowledged that other disturbance may continue throughout the duration of the construction programme.
- 408) In response to community feedback, United Utilities has developed alternative access proposals for some of the main HARP construction compounds – for example, the Proposed Ribble Crossing could alleviate impacts on communities in the Chatburn, Grindleton and West Bradford areas; the proposed Park and Ride facility at the Ribblesdale Cement Works would alleviate the volume of private vehicles travelling beyond the Clitheroe area. In contrast, however, some of these solutions may not fully avoid community disturbance impacts, or could give rise to other impacts.
- 409) In addition to ongoing engineering investigations to alleviate potential impacts on transport routes, United Utilities has developed Construction Traffic Management Plans (CTMP), outlining measures to be implemented to further mitigate community disturbance. Through ongoing consultation with local people, local councils and highways authorities, United Utilities will continue to develop and refine mitigation proposals prior to the commencement of the enabling works and during the construction phase. A community liaison officer would be appointed to act as a point of contact for community engagement.
- 410) For all communities, severance effects were assessed as Negligible or Slight and not significant and effects on tourism accommodation were also considered not significant.
- 411) The Health Assessment, presented in Appendix 14.1, considered health outcomes within the context of the RCAA. During enabling and construction works, the overall effect on health was assessed as not significant. Similarly, during commissioning works, health impacts were also considered as not significant. No adverse health outcomes have been identified during operation.
- 412) The effect of the Proposed Marl Hill Section on communities and health is assessed as not significant and where required, appropriate mitigation measures would be introduced and included in the CCoP to minimise adverse impacts as far as feasibility possible. The Proposal therefore accords with

Paragraphs 91, 92 and 182 of the NPPF, Key Statement EC2 and Policies DMG1 and DMB4 of the Ribble Valley Core Strategy.

## **8.13 Major Accidents**

### **8.13.1 NPPF**

413) Section 8: Promoting healthy and safe communities and specifically Paragraph 95 requires decisions should take account of public safety through anticipating and addressing possible natural hazards. The policy continues and requires appropriate and proportionate steps to reduce vulnerability, increase resilience and ensure public safety and security.

### **8.13.2 Policy Assessment**

414) Chapter 15 of the ES assesses the potential for a major accident or disaster to result in a risk of a significant effect on the environment.

415) There is one Control of Major Accident Hazard (COMAH) installation – a Johnson Matthey facility in Clitheroe – whose consultation zone encompasses the Proposed Ribble Crossing and the proposed park and ride and HGV holding areas at the Ribblesdale Cement Works. The COMAH zone does not encompass any of the main construction compounds associated with tunnelling operations.

416) A high pressure ethylene pipeline owned and operated by SABIC and classified as a Major Accident Hazard Pipeline (MAHP) runs along the Ribble Valley and would be crossed by the Proposed Ribble Crossing. A design solution would be developed to enable the Proposed Ribble Crossing to be constructed safely over the existing ethylene pipeline without compromising the safe day-to-day operation of the infrastructure. With these measures in place, no additional potential for major accidents was identified.

417) Taking into account embedded mitigation, good practice and essential mitigation, the assessment considers that the Proposed Marl Hill Section would be unlikely to create the potential for a major accident or disaster. The Proposed Marl Hill Section therefore accords with paragraph 95 of the NPPF.

## **8.14 Transport Planning**

### **8.14.1 NPPF**

418) Section 9: Promoting sustainable transport sets out transport related planning policies. Paragraph 102 requires that transport should be considered in the early stages of development proposals so that *'the potential impact of developments on transport networks can be addressed'...*and....*'the environmental impacts of traffic can be identified'*.

419) Paragraph 108 requires that development proposals ensure that *'appropriate opportunities to promote sustainable transport modes can be taken up'...*the site is...*'safe and suitable'...*to access for all users and...*'any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree'*.

420) Paragraph 109 clearly states that development proposals that have an unacceptable impact on highway safety or impact the road network should be refused.

421) Paragraph 110 continues and states that applications for development should *'create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles'...*and...*'allow for the efficient delivery of goods, and access by service and emergency vehicles'*.

422) Paragraph 111 requires that all developments that result in a significant amount of vehicle movement should be required to submit a travel plan alongside a transport statement.

### **8.14.2 Ribble Valley Core Strategy (Adopted December 2014)**

- 423) Policy DMG1: General Considerations states that developments must '*consider the potential traffic and car parking implications*'...and...'*ensure safe access can be provided which is suitable to accommodate the scale and type of traffic likely to be generated*'.
- 424) Policy DMG3 continues and attaches weight to '*the relationship of the site to the primary route network and the strategic road network*'.

### **8.14.3 Policy Assessment**

- 425) Construction traffic would be one of the key issues associated with the Proposed Marl Hill Section; Chapter 5 of this statement details the approach to mitigate the potential impacts associated with construction traffic. United Utilities has developed, in consultation with local communities and Lancashire County Council, alternative access proposals for the construction compounds:
- Modifications to sections of the existing local highway network including road widening and passing places would be required to enable use by construction traffic
  - The Proposed Ribble Crossing could alleviate construction traffic impacts on communities in the Chatburn, Grindleton and West Bradford areas
  - Surplus arisings derived from the construction of the Proposed Marl Hill Section would be transported to Waddington Fell Quarry for use in the implementation of a revised and enhanced restoration scheme. This results in a significant proportion of anticipated two way movements avoiding the road network south of Waddington Fell Quarry.
- 426) The Construction Traffic Management Plans (CTMPs) provide the framework for the management of construction traffic to the construction compounds. The measures outlined in the CTMPs are necessary to ensure that construction of the Proposed Marl Hill Section does not give rise to undue adverse impacts on the highway network. Before arriving at the proposed haulage route options, United Utilities undertook a thorough assessment of all potential options, according to physical, environmental and community constraints and guided by the advice of the Lancashire County Council.
- 427) Chapter 16 of the accompanying ES details an assessment of traffic and transport impacts on the local and strategic road networks from traffic required for the Proposed Marl Hill Section during the construction period. It is concluded that with the measures contained within the CTMPs, effects would generally be negligible to slight when reviewed against the key indicators of severance, pedestrian delay and amenity.
- 428) Overall, some locations are sensitive to traffic increases, however, the amount of additional traffic expected at these locations would only result in a slight change in local amenity. In addition, any impacts would only occur for a temporary period during construction and would not significantly increase journey lengths. Therefore, it is considered that the Proposed Marl Hill Section would accord with Paragraphs 102-111 of the NPPF and Policies DMG1 and DMG3 of the Ribble Valley Core Strategy.

## **8.15 Noise and Vibration**

### **8.15.1 NPPF**

- 429) Section 15: Conserving and Enhancing the Natural Environment requires planning policies and decisions to '*prevent new and existing development from contributing to...unacceptable levels of...noise pollution*'. Adding to this, Paragraph 180 requires that new development should be appropriate for its location taking in account the likely effects of pollution on health, living conditions and the natural environment and the sensitivity of the development on the wider area. The development should '*mitigate and reduce to a minimum potential adverse impacts resulting from noise...and...avoid noise*'.



*giving rise to significant adverse impacts on health and quality of life'. The paragraph also requires that developments... 'protect tranquil areas which have remained undisturbed by noise'.*

### **8.15.2 Ribble Valley Core Strategy (Adopted December 2014)**

430) Policy DMG1: General Consideration states that developments must *'not adversely affect the amenities of the surrounding area'*.

### **8.15.3 Policy Assessment**

431) Chapter 17 of the ES provides an assessment of the Noise and Vibration assessment for the construction of the Proposed Marl Hill Section. The assessment has considered the potential Noise and Vibration impacts on residential properties and other sensitive receptors at the temporary drive and reception compounds as well as construction traffic movements on the existing highway and the impact of tunneling.

432) With the application of appropriate mitigation measures included in the CCoP, it is concluded that the noise and vibration effects associated with the construction and operation of the Proposed Marl Hill Section would not result in unacceptable harmful impacts. Therefore, the Proposal would accord with Paragraphs 180 of the NPPF and Policy DMG1 of the Ribble Valley Core Strategy.

## **8.16 Air Quality**

### **8.16.1 NPPF**

433) Paragraph 170 requires planning policies and decisions to contribute and enhance the natural and local environment by *'preventing new and existing development from contributing to... unacceptable levels of air pollution'*. The paragraph continues and requires that developments should help improve conditions such as air quality.

434) Paragraph 180 requires that new development should be appropriate for its location taking in account the likely effects of pollution on health, living conditions and the natural environment and the sensitivity of the development on the wider area

435) Paragraph 181 requires that developments should comply with *'relevant limit values or national objectives of pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones'*. The paragraph continues and states that *'opportunities to improve air quality or mitigate impacts should be identified'* with planning decisions to ensure that new development in Air Quality Management Areas and Clean Air Zones is *'consistent with the local air quality action plan'*.

### **8.16.2 Ribble Valley Core Strategy (Adopted December 2014)**

436) Policy DMG1: General Considerations requires that development proposals *'consider air quality and mitigate adverse impacts where possible'*.

### **8.16.3 Policy Assessment**

437) Chapter 18 of the ES considered the potential air quality impacts and residual effects associated with the Proposed Marl Hill Section. With the application of appropriate good practice dust mitigation measures included in the CCoP, it is concluded that the residual air quality effects associated with the construction and operation of the Proposed Marl Hill Section would be not significant. Therefore, it is considered the works would comply with Paragraphs 170, 180, 181 of the NPPF and Policy DMG1 of the Ribble Valley Core Strategy.

## 9. Summary and Conclusions

- 438) United Utilities manages the water supply network across the North West of England and has a statutory duty to supply drinking water that is safe and of a quality suitable for its consumers.
- 439) The existing Haweswater Aqueduct is approximately 110km long and consists of a number of underground water supply pipelines taking raw water from the Haweswater Reservoir in the Lake District National Park to a water treatment works (WTW) near Kendal, where it is treated (potable water) and then to United Utilities' customers in Cumbria, Lancashire and Greater Manchester.
- 440) Following detailed inspections of the tunnel sections of the existing aqueduct between 2013 and 2016, a number of the sections showed evidence of degradation that could lead to leakage and a risk to water quality. United Utilities is therefore proposing the Haweswater Aqueduct Resilience Programme (HARP) in order to replace the six existing underground tunnel sections, totalling a length of 53km, of the Haweswater Aqueduct, across seven local authorities, to provide a more resilient supply of clean drinking water.
- 441) As part of the Water Resource Management Plan (WRMP) process, which defines United Utilities' strategy to achieve a long-term, best value and sustainable plan for water supplies in the North West, the Proposed Programme of Works has been through an extensive options identification and appraisal process to select the only feasible solution to address this risk to the North West's water supply. This document has been through an extensive consultation process with regulators and has been included within a WRMP approved by the Secretary of State and Ofwat.
- 442) The Proposed Programme of Works has been developed in conjunction with extensive stakeholder and community consultation and in particular regular liaison has taken place with the affected local planning authorities and other statutory consultees. Public consultation has also been held involving public exhibitions, meetings with parish councils and other key stakeholders, and from April 2020, due to the Covid-19 pandemic, a digital platform was developed in order to continue with the public consultation and support the Proposed Programme of Works.
- 443) The Proposed Marl Hill Section is within the central section of the Proposed Programme of Works and would involve replacing the water supply tunnel from the Proposed Braddup Compound on land near Sandy Ford Brook, accessed via an existing track off the B6478 Slaidburn Road and to the north of Cross Lane, to the Proposed Bonstone Compound on land northwest of New Laithe Farm accessed via an existing access off the B6478 Slaidburn Road. It also consists of a number of associated temporary works including a series of highway mitigation works and a haul route option across the River Ribble (with temporary bridge), a vehicle marshalling facility and a Park and Ride Facility on land at the Ribblesdale Cement Works in Clitheroe.
- 444) In addition to the tunnel, the proposed permanent works at each of the Proposed Braddup and Bonstone Compounds would consist of a valve house building and hard standing within a fenced compound, ground reprofiling and a number of raised chambers.
- 445) An Environmental Impact Assessment has been undertaken for the proposed Marl Hill Section, the findings of which are reported in the accompanying Environmental Statement. The key conclusions are summarised and assessed, in planning policy terms, within this Planning, Design and Access Statement. The nature of the Proposed Marl Hill Section, where the development is predominantly under the ground, means the majority of the effects from the development on the surrounding environment and local amenity would occur during the highway enabling works and the construction phase of the tunnel rather than during the operation of the new proposed infrastructure. To account for this, the construction effects would be carefully controlled through a suite of documents, to be approved as part of the planning process, which set out measures to be implemented to ensure that any adverse effects on the environment, the landscape, public amenity and recreational opportunities etc. are mitigated. These documents include:

- A Construction Code of Practice
- A Construction Traffic Management Plan
- A Mitigation Schedule
- An Environmental Masterplan.

446) Although it is recognised that the construction of a project of this scale would involve a degree of disruption to both people and the environment, the development of the Proposed Marl Hill Section along with the mitigation and compensation proposals ensure that the impacts are largely temporary and acceptable in planning policy terms and ultimately provide for a resilient, sustainable water supply to serve the needs of the North West of England.

447) Overall, it is considered that this essential upgrade to the water supply infrastructure is fully supported by national and local planning policies.

## Appendix A. Major Development Test

### A.1 Background

- 1) The Proposed Marl Hill Section is within the boundary of Forest of Bowland Area of Outstanding Natural Beauty (AONB). National planning policy, contained within the National Planning Policy Framework 2019 (NPPF), affords National Parks, the Broads and AONBs the highest status of protection and 'great weight' should be given to conserving and enhancing landscape and scenic beauty. Applications for major development within these areas will be considered against planning policy known as the 'Major Development Test'. This Report sets out the policy requirements of the Major Development Test from the, and the assessment of the Proposed Marl Hill Section against these requirements.

### A.2 Major Development Test - Planning Policy

#### A.2.1 National Planning Policy Framework (2019)

- 2) The Major Development Test is set out at paragraph 172 of the NPPF, which states:

*'Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:*

- a) *the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;*
- b) *the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way; and*
- c) *any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.'*

- 3) Footnote 55 in the NPPF confirms, with reference to paragraph 172, that whether a proposal is considered as a 'major development' is a matter for the decision maker: *'taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined'*. For the purposes of this assessment, it is considered that the Proposed Marl Hill Section does constitute Major Development within a designated area and therefore has to demonstrate exceptional circumstances and that it is in the public interest.

#### A.2.2 Local Development Plan Policies

##### The Forest of Bowland AONB Management Plan

- 4) There is no specific policy in the Ribble Valley Borough Council Local Development Plan reflecting the major development test, however the Forest of Bowland AONB Management Plan 2019-2024, which is not a Local Development Plan document but is a material consideration for applications within the AONB, confirms that the policy tests of NPPF paragraph 172 should be applied in relation to major development in the Forest of Bowland AONB.

### A.3 Assessment

#### A.3.1 Introduction

- 5) Paragraph 172 of the NPPF requires that consideration should be given to a number of matters in determining whether or not an application for major development in a designated area has

demonstrated exceptional circumstances and that the grant of permission would be in the public interest.

- 6) The sections below provide an assessment of the Proposed Marl Hill Section against each of the specific requirements of the Major Development Test, as set out in paragraph 172 of the NPPF, relating to:
- A. the need for the development
  - B. the cost of and scope for alternatives outside the designated area and
  - C. any detrimental impact of the development on the purposes of the designation and the extent to which that could be moderated.

### **A.3.2 Need for the Development**

- 7) This section provides an assessment of the first matter (Part A) required to be considered by Paragraph 172 of the NPPF: *'Need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy'*. The section takes into consideration, in turn, the need for the Haweswater Aqueduct Resilience Programme (HARP) (referred to as the 'Proposed Programme of Works'), the specific need for the Proposed Marl Hill Section, and also the impact on the local economy.

#### **Need for the Proposed Programme of Works**

- 8) The need for the development stems from United Utilities' requirement to replace parts of an ageing asset, the existing Haweswater Aqueduct, to ensure the continuity of a water supply serving Cumbria, Lancashire and Greater Manchester, and to mitigate potential risks to drinking water quality.
- 9) As a statutory water services undertaker, United Utilities serves its customers, operates and maintains its assets, and invests in new infrastructure within a strict regulatory framework. The Water Industry Act 1991 sets out the duty of water undertakers to supply drinking water that is safe and of a quality acceptable to consumers. The Office of Water Services, or Ofwat, is the statutory body responsible for economic regulation of the privatised water and sewerage industry in England and Wales. The Drinking Water Inspectorate (DWI) is the independent drinking water regulator serving England and Wales. The DWI is responsible for ensuring that water companies supply safe drinking water that is acceptable to consumers and meets the relevant legal standards.
- 10) The process that identified the need for the Proposed Programme of Works and its significance is described in detail in the following sections.

#### **Identification of Risk**

- 11) The existing Haweswater Aqueduct is a source of water supply for Greater Manchester, Lancashire, and Cumbria. The 110km Haweswater Aqueduct was constructed in the 1930-50s and comprises of 63km of unpressurised single line tunnel and conduit sections and 47km of multi-line siphons. The Haweswater Aqueduct transmits treated water from a treatment works near Kendal to customers in Cumbria, Lancashire and Greater Manchester.
- 12) In the early 2000's United Utilities began planning major investment spanning over ten years to ultimately enable the Haweswater Aqueduct to be taken out of service for the first time in over 60 years in order to undertake an inspection, which would identify any future risk of supply from the asset.
- 13) Tunnel inspections carried out in 2013 and 2016 uncovered areas of concern due to the degradation of concrete lined single line tunnel sections of the aqueduct. It is anticipated that the condition of these single line sections of the existing Haweswater Aqueduct would continue to deteriorate, causing a risk to water supply and water quality. This risk of further deterioration could result in widespread water quality incidents (for example, advice to boil water for drinking purposes for over a million properties) or loss of supply to many thousands of properties for an extended period.

- 14) United Utilities subsequently carried out extensive risk analysis covering a range of failure modes and consequences, with the risk increasing as the asset ages and deteriorates over the coming years. This risk is considered as the most significant water service resilience risk for United Utilities within its total catchment area. The company therefore began an extensive and robust options appraisal process in order to select a proposal to mitigate this risk to the water supply and which is described in Section 2.3 below. The outcome was the selection of a preferred solution of a full replacement of each of the six single line sections of the existing aqueduct.

### **Proposed Marl Hill Section**

- 15) The need for the Proposed Marl Hill Section is driven by the same need as the overall Proposed Programme of Works: there is a requirement to replace part of an ageing strategic asset to secure water supply serving Cumbria, Lancashire and Greater Manchester, and to mitigate potential risks to drinking water quality.
- 16) The existing Haweswater Aqueduct is composed of single line sections through higher ground and multi-line siphon sections through the shallower extents. The scope of the Proposed Programme of Works is to provide the full replacement of the six single line sections, which would be constructed predominantly by tunnel boring, with short sections of open-cut surface trenching at the connection points. The proposed replacement single line sections need to connect into the existing aqueduct at the end of each existing multi-line siphon section. The location of the proposed tunnel shafts, and associated compounds, is therefore determined by the location of the existing connection points between the single line sections and the multi-line siphons sections.
- 17) The Proposed Marl Hill Section would involve the replacement of the existing Marl Hill Tunnel, which is entirely within the Forest of Bowland AONB including the connection points into the multi-line siphons to the north and south. The existing aqueduct was constructed in the 1930s-1950s, which was before the designation of the Forest of Bowland AONB in 1964. The need for the Proposed Marl Hill Section to be within the Forest of Bowland AONB Park is therefore determined by the need to connect into the two existing multi-line siphons in the AONB.
- 18) The Proposed Marl Hill Section, would comprise of two temporary construction compounds, required to facilitate the construction of the new tunnel and the connection points into the existing aqueduct. The Proposed Braddup Compound would be the launch compound for the tunnel boring machine and the Proposed Bonstone Compound would incorporate a reception shaft receiving the tunnel boring machine. The new tunnel would be constructed belowground by tunnel boring machine with a short section of open-cut surface trenching which would connect the new tunnel into the existing pipe infrastructure. In addition, a number of passing places are required along the road network in the interests of highway safety, which have been developed in consultation with Lancashire County Council Highways Department.
- 19) A permanent valve house, with vehicular access is proposed for the future operation and control of the aqueduct. These are required to be situated at the connection to the multi-line siphon.

### **A.3.3 Impact on Local Economy**

- 20) The last element of Part A) of Paragraph 172 required for consideration is the impact of permitting the proposed development, or refusing it, upon the local economy.
- 21) A resilient water supply, which would be provided by the Proposed Programme of Works is essential to the growth and vitality of the region's economy. On the corollary, interruption in supply or degradation of the quality of water is likely to have detrimental impacts on the existing local economy and knock-on effects in terms of regional/national supply chains. The Proposed Programme of Works would reduce the risk of supply interruptions and water quality problems to the region's residents and businesses, and



each proposed section provides incremental improvements, reducing the risk of supply interruptions and the risk to water quality.

- 22) The Water Resources Management Plan (WRMP) 2019 sets out United Utilities' strategy to achieve a long-term, best value and sustainable plan for water supplies in the North West. This includes establishing a baseline forecast of demand for water, taking into account economic growth scenarios for the North West of England and local authority plans for growth to ensure that future economic growth and development can be accommodated. The WRMP defines the interventions necessary to ensure long term resilient supply of water, of which HARP is a key component. The provision of future-proofed infrastructure is vital for commercial customers who rely on the uninterrupted supply of water, and increases resilience to climate change and extreme droughts, which negatively impact different industry sectors, such as construction and tourism.
- 23) In addition, the Programme of Works would bring investment in the region's economy and employment opportunities. During the construction phase, capital investment associated with the Programme of Works would generate supply chain benefits, employment opportunities and increased spend in the local economy by contractors and construction workers.

#### **A.4 Alternatives outside the AONB**

- 24) The second matter (Part B) required by Paragraph 172 of the NPPF to be considered is an assessment of:  
*'the cost of, and scope for, developing elsewhere outside the designated area, or meeting the need for it in some other way'.*
- 25) This Section examines the alternatives that were considered to the overall Programme of Works and the reasons why these were discounted.

##### **A.4.1 Alternatives to the Proposed Programme of Works**

- 26) During 2017, United Utilities undertook an extensive process to identify and assess a full range of options to provide a reduction in the risk to customer supplies. These options were appraised against cost, environmental and technical considerations, and additionally a range of options were tested through extensive customer and stakeholder engagement.
- 27) The Proposed Programme of Works was chosen as the preferred solution following an extensive three stage optioneering exercise which considered many potential combinations of engineering and operational solutions. The optioneering process followed three steps and involved screening approximately 380 options to find the preferred solution:
- Coarse option screening
  - Coarse solution screening
  - Fine solution screening.
- 28) Coarse option screening looked to remove unviable options through the following three criteria:
- Technical feasibility – Options were reviewed in respect of whether the option would be technically possible and buildable
  - Statutory/ Environmental feasibility – Options were reviewed to evaluate the likelihood of permission being granted for the works to be constructed. United Utilities considered whether each proposed option had the potential to impact on important designated sites
  - Addressing the need – An assessment was made of the impact that the option could have in supporting the need for improving the resilience of the Haweswater Aqueduct's supply through Cumbria and Lancashire and into Greater Manchester.

- 29) Coarse solution screening grouped options into solutions, calculated simplified bill impacts (costs), assessed risk reduction and screened out solutions using a dominance criterion, (solutions with lower risk reduction for higher bill impact were removed).
- 30) Fine solution screening of the options considered Ofwat’s resilience principles, most notably: ‘resilience in the round’ (Principle 1); ‘Naturally resilient’ (Principle 2); ‘Customer engagement’ (Principle 3); ‘Broad option set’ (Principle 4); ‘Best value solution’ (Principle 5).
- 31) The approach to Robust Decision Making was to consider three main areas to inform selection of a preferred solution that provides best value for customers. The three areas were as follows:
- Customer engagement; focused customer research to understand customer preferences for risk reduction and associated costs via the impact on their bills
  - Cost benefit assessment (CBA): a detailed CBA using specific and standard economic metrics
  - Multi-criteria Decision Analysis: a wider analysis looking at resilience in the round covering metrics beyond those provided by customers and included within the CBA. The five ‘Decision Metrics’ used in the multi-criteria analysis were:
    - Bill Impact (cost)
    - Economic Impact
    - Resilience Risk
    - Environmental Impact
    - Willingness to pay benefit.
- 32) Every five years, statutory Water Resources Management Plans (WRMPs) set out a water company’s intended approach for at least the next 25 years. Five solutions were chosen as part of the fine filtering process and were presented in United Utilities’ Draft Water Resources Management Plan, which was published for consultation between March and May 2018. These five solutions are described in Table A.1.

**Table A.1: Description of Solutions presented in the Draft Water Resources Management Plan**

Solution	Description
Solution A	Targeted repairs of the tunnel sections that are in the worst condition: The Haslingden and Walmersley Section
Solution B	Replacement of the tunnel sections in the worst condition: The Haslingden and Walmersley Section and provide targeted treatment for water quality: UV/Metals Treatment (new and / or modified treatment installations).
Solution C	Construct new water treatment works at Bury and in the Ribble Valley and convert the Haweswater Aqueduct to ‘raw water’ supply.
Solution D	Replacement of all Haweswater Aqueduct tunnel sections
Solution E	Replacement of all Haweswater Aqueduct tunnel sections and provide additional water sources

- 33) To support United Utilities’ decision making, the solutions were subject to Environmental and Social costings, Strategic Environmental Assessment, Habitats Regulations Assessment and Water Framework Directive Assessment. The outcomes of these assessments, together with consultees’ views on the Draft WRMP19, were used to inform the selection of the preferred solution.
- 34) An analysis of Solutions A to E, whether they would involve development within a National Park or AONB and their evaluation is presented in Table A.2.

**Table A.2: Evaluation of Solution**

Solution	Description	Within AONB / National Park? (Assumptions based on SEA)	Evaluation
A	Targeted repairs of the tunnel sections that are in the worst condition: the Haslingden and Walmersley Section, supported by upgrading the West East Link Main (WELM) from Prescott WTW with a new abstraction from the River Irwell and an associated new water treatment works.	No	<p><b>DISCOUNTED</b> – Unrepaired sections of Haslingden and Walmersley and all upstream sections would continue to deteriorate with associated risk to water quality and supply.</p> <p><b>Estimated annual bill impact: £2</b></p>
B	Replacement of the tunnel sections in the worst condition: the Haslingden and Walmersley Section and the installation of partial UV and metals treatment at existing United Utilities facilities along the length of the existing Haweswater Aqueduct.	Yes – solution would involve the development of new aboveground infrastructure of a Water Treatment Works in Forest of Bowland AONB due to the UV and Metals Treatment installations. A new Water Treatment Works would also be required within, or close to the Yorkshire Dales National Park National Park.	<p><b>DISCOUNTED</b> – Unrepaired upstream sections continue to deteriorate with associated risks to water quality and supply.</p> <p><b>Estimated annual bill impact: £8</b></p>
C	Convert the Haweswater Aqueduct to ‘raw (untreated) water’ supply and construct new water treatment works at Bury and in the Ribble Valley.	Yes - solution would involve the development of new aboveground infrastructure of a Water Treatment Works at Newton-in-Bowland in the Forest of Bowland AONB, which would be required to convert raw water to drinking water. No development required in YDNP, however.	<p><b>DISCOUNTED</b> – Addresses the water quality resilience concerns by providing additional downstream treatment. However, all sections would continue to deteriorate structurally and the risk to supply interruptions would not be resolved.</p> <p><b>Estimated annual bill impact: £7</b></p>

Solution	Description	Within AONB / National Park? (Assumptions based on SEA)	Evaluation
D	Replacement of all six Haweswater Aqueduct tunnel sections	Yes – solution replacement of tunnel sections would involve construction works in the YDNP and Forest of Bowland AONB. Permanent, above ground buildings would however be limited to smaller buildings such as valve house buildings.	<b>THE PROPOSED SOLUTION -</b> Addresses the risk to both water quality and of supply interruptions.  <b>Estimated annual bill impact: £11</b>
E	Replacement of all Haweswater Aqueduct tunnel sections (same as Solution D) and provide additional water sources including new Water Treatment Works.	Yes – as for Solution D. Would also include the construction of a new Water Treatment Works at Newton-in Bowland in the Forest of Bowland AONB.	<b>DISCOUNTED –</b> Essentially the same as Option D with the added resilience benefits of providing additional water supplies. However, the marginal resilience benefit provided not considered to justify the significant additional costs.  <b>Estimated annual bill impact: £15</b>

- 35) As shown by Table A.2, of the five solutions considered, only Solution A involved no development works in an area designated as AONB or National Park. Solution A, however, was assessed as being insufficient in reducing the risk to water quality and supply interruptions. Only Solutions D and E addressed both the water supply and water quality resilience concerns of the deteriorating condition of the tunnel sections of the Haweswater Aqueduct. The Proposed Programme of Works is common to both Options D and E and there is no other feasible way of securing a resilient water supply. Replacing all of the tunnel sections of the aqueduct requires connecting into the existing infrastructure at locations within the designated areas of the Yorkshire Dales National Park and Forest of Bowland AONB and these designated areas cannot be avoided.
- 36) Option D was selected as the preferred option as it delivers the long-term resilience benefits and delivers the best value to customers. The additional costs of Option E were considered not to be justified.
- 37) This was presented in the submission draft Water Resources Management Plan (WRMP) (February 2019), submitted to the Secretary of State for (Department for Environment, Food and Rural Affairs). After receiving approval from the Secretary of State on 23 July 2019, the final Water Resources Management Plan was published in August 2019, including the intention to proceed with the Proposed Programme of Works.
- 38) United Utilities' comprehensive option identification and appraisal process means that, from a very large pool of options, only the most appropriate has been selected in the final WRMP. This has been through Strategic Environmental Assessment and an extensive consultation process with regulators and customers, and has been included within a WRMP approved by the Secretary of State and Ofwat. It has shown that alternative options outside the National Park / AONB offered insufficient risk reduction to water quality and risk of supply interruptions. The only feasible means of securing a long term resilient

water supply is therefore through replacement all of the tunnel sections of the existing Haweswater Aqueduct, which requires connection into the existing infrastructure at locations within the designated areas of the Yorkshire Dales National Park and Forest of Bowland AONB .

## **A.5 Effects on the Environment, the Landscape and Recreational Opportunities**

39) The third matter (Part C) required to be considered by Paragraph 172 of the NPPF is: *'detrimental effects on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated'*.

40) The ES that accompanies the planning application provides an assessment of the effects of the Proposed Marl Hill Section upon the environment, landscape and recreational opportunities and has informed environmental mitigation measures. Effects relevant to the AONB are, in summary:

- Environment - The majority of the proposed works are underground, with the only permanent above ground features being a Valve House and vehicular access. The environmental effects are therefore mainly associated with the construction of the tunnel. Embedded mitigation during the design process has sought to avoid environmental features. The Environmental Masterplan (EMP) comprises series drawings illustrating the locations where both generic and site-specific mitigation measures are proposed. An outline Construction Code of Practice (CCoP) has also been developed by United Utilities to direct its contractors towards sustainable construction approaches, and providing a basis for the development of further, site-specific mitigation proposals.
- Landscape - The LVIA finds that during the construction period there will be significant effects on landscape character and people's views at the Proposed Bonstone Compound and the Proposed Braddup Compound, which will have a duration of approximately 4 years. A series of measures have been developed that seek to avoid or reduce the impact on landscape features and visual amenity, including retaining vegetation and other features along compound boundaries which are included within the CCoP. A detailed Environmental Masterplan is included within the accompanying ES which proposes post-construction reinstatement and restoration activities, including mitigation planting, the reinstatement of field boundaries and land reprofiling, in order to return the landscape back to its original setting/character.
- Once construction is finished, the permanent valve house building would be the only additional feature remaining, which is an unobtrusive building and would be perceived only locally and within a relatively discrete landscape context. The LVIA finds that once the vegetation has established sufficiently, the landscape and visual impacts would have reduced to a point where they are barely noticeable. As a result of the reinstatement and mitigation measures, the sensitive landscape of the Forest of Bowland AONB would be conserved and largely unaffected by the proposals. The distinctiveness, sense of place and tranquility of this important landscape would, therefore, not be altered in the long-term.
- Recreational opportunities – Chapter 13 of the ES presents an assessment of the likely significant effects of the Proposed Marl Hill Section on public access and access to recreational facilities.

The majority of residual impacts for public access and recreational facilities, recreational activities and events would be Negligible or Minor Adverse. The Proposed Marl Hill Section would affect three PRow during the construction period which would require temporary closure and diversion around the compound boundary. Access to recreational receptors would be maintained throughout the construction period. There would be no impacts on public access and recreational facilities after the construction period.

## **A.6 Conclusion**

41) This Report has undertaken a comprehensive assessment of the Proposed Marl Hill Section against the requirements of the major development test. This assessment has demonstrated the following key considerations:

- **the need for the development** - there is a requirement to replace part of the Haweswater Aqueduct to secure a water supply serving Cumbria, Lancashire and Greater Manchester, and to mitigate potential risks to drinking water quality.
- **alternatives outside the designated area** – the Proposed Programme of Works was selected through a comprehensive option identification and appraisal process, and has been tested through extensive consultation with stakeholders. Alternative options outside the designated areas of the Yorkshire Dales National Park and the Forest of Bowland AONB offered insufficient risk reduction to water quality and risk of supply interruptions. The only feasible means of securing a long term resilient water supply is therefore through replacement all of the tunnel sections of the existing Haweswater Aqueduct (i.e. the Proposed Programme of Works), which requires connection into the existing infrastructure at locations within the designated areas of the Yorkshire Dales National Park and Forest of Bowland AONB .
- **the development's impact on the environment** - The majority of the proposed works are underground, with the only permanent above ground features being Valve House buildings and accesses. The environmental effects are therefore mainly associated with the construction phase of the development. The temporary construction effects would be carefully controlled through the Construction Code of Practice, the development of Construction Environmental Management Plans and detailed Method Statements to ensure that any adverse effects on the environment, the landscape and recreational opportunities are minimised.

42) It is considered therefore that the essential upgrade and replacement of the Haweswater Aqueduct can be classed as '*in the public interest*', and that '*exceptional circumstances*' exist in support of the development. It is considered therefore that the requirements of paragraph 172 of the NPPF have been met.



## Appendix B. Land Drainage Statement

### B.1 Drainage Strategy

- 1) The following text provides an overview of the approach and general principles relating to site drainage for the Haweswater Aqueduct Resilience Programme (HARP). For further details relating to site drainage, please refer to Chapter 3 (Design Evolution and Development Description), Chapter 7 (Water Environment) and Chapter 8 (Flood Risk) of the Environmental Statement (ES), Volume 2. Please also refer to the Construction Code of Practice (CCoP), ES Volume 4, Appendix 3.3. Drainage components, including culverts, set out in section 1.4 below are indicated in the Environmental Masterplans found in Chapter 20 (Environmental Mitigation) of the Environmental Statement (ES), Volume 3.
- 2) It should be noted that it is intended for details of works affecting watercourses, site drainage proposals including surface water and groundwater management, culvert details and mitigation to be confirmed in response to planning conditions which would require details to be submitted for acceptance prior to the relevant construction phase. Additionally, the appointed contractor would be responsible for obtaining any flood risk permits and consents for works affecting ordinary watercourses associated with the temporary works. Necessary consents would be secured from the relevant authorities following determination of the planning application but prior to commencement of development.

### B.2 Flood Risk Assessment

- 3) Paragraph 163 of the National Planning Policy Framework NPPF states: *"When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment"*.
- 4) A Flood Risk Assessment (FRA) report for the Proposed Marl Hill Section has been produced in accordance with the requirements of the National Planning Policy Framework. This is a stand-alone document to support the planning applications for the Proposed Marl Hill Section and is included within Appendix 8.1 of the ES Technical Appendices, Volume 4. The findings of the FRA are summarised in Chapter 8 of the ES, Volume 2.

### B.3 Sustainable Drainage Systems (SuDS)

- 5) Paragraph 165 of the National Planning Policy Framework NPPF states: *"Major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate"*.
- 6) The nature of the development proposals is such that permanent above ground development is relatively minor with the main impacts of the development proposals being associated with the proposed temporary construction works. Therefore, ground infiltration methods such as swales and basins are not considered practical where proposed development land is to be returned to previous use on completion of development. Nevertheless, the proposals seek to discharge surface run off as high up the hierarchy of drainage options as reasonably practicable.
- 7) Embedded mitigation to limit the potential effects of site drainage during construction is detailed within the Construction Code of Practice (CCoP) and mitigation includes, but is not limited to:
  - The Contractor assessing requirements for management of surface water runoff from working areas. Sediment traps, settlement ponds and buffer strips would be incorporated into the drainage system as necessary and would serve the dual purpose of attenuating flows, by slowing the flow of runoff through the drainage system, and allowing sediment to settle before being discharged.
  - Drainage receiving runoff, which is expected to contain sediment, would be directed towards a suitably sized temporary settlement pond or other facility that provides sufficient treatment before being discharged to a watercourse.

- Construction SuDS would be appropriately designed for the volume of drainage and the level of treatment required prior to discharge. To reduce the impact on the natural hydrological regime, the site drainage would mimic the greenfield runoff response through the adoption of sustainable drainage principles.
- 8) The details contained within the planning application include for the provision of attenuation lagoons or tanks at the proposed tunnel compounds. The size of the attenuation lagoons has been estimated using the *Surface water storage requirements for sites SuDS estimation tool*<sup>1</sup>.
- 9) Indicative attenuation volumes and rates for compound drainage are provided below.

#### **B.4 Drainage Components of the Marl Hill Section**

- 10) The drainage for the Proposed Marl Hill Section includes:
- Compound drainage
  - Temporary access road drainage
  - Culverts
  - Highways Works
  - Satellite Compounds
  - Ribble Crossing
  - Overflow connection
  - Commissioning flows
  - Permanent building, hardstanding and access road drainage
  - Operational flows
  - Decommissioning flows
- 11) The following sections give details on each drainage component.

##### **B.4.1 Compound Drainage**

- 12) The figures stated below have been used as the basis for the Environmental Impact Assessment undertaken for the Proposed Marl Hill Section. Discharge rates represent a reasonable worst case. Storage volumes provide an approximate indication of anticipated attenuation requirements, which will be subject to confirmation or refinement following contractor appointment.
- 13) The drainage infrastructure at the compounds would be constructed during the enabling phase and would be operational during the enabling and construction phases.
- 14) At the Proposed Bonstone Compound a 370 m<sup>3</sup> gravity-fed attenuation storage lagoon and water treatment plant (e.g. settlement tanks) would be provided for the tunnelling compound. Treated water would be discharged to Unnamed Watercourse 402 at a rate of 6 l/s, via a temporary pipeline to the ordinary watercourse.
- 15) At the Proposed Braddup Compound a 710 m<sup>3</sup> gravity-fed attenuation storage tank and water treatment plant (e.g. settlement tanks) would be provided for the tunnelling platform. Treated water would be discharged to Sandy Ford Brook at a rate of 9 l/s.
- 16) If required, scour protection measures would be implemented local to the outfalls in order to reduce the potential for erosion. It is anticipated that such measures would be included in a surface water management plan, to be developed by the contractor and agreed in writing by the local planning

<sup>1</sup> <https://www.uksuds.com/drainage-calculation-tools/surface-water-storage>

authority, in consultation with the Environment Agency and Lead Local Flood Authority, prior to any discharges being made. Such details would also be included in an application for consent from the Lead Local Flood Authority.

#### **B.4.2 Temporary Access Road Drainage**

- 17) At the Proposed Bonstone Compound surface water from the temporary access routes would be collected via filter drains and allowed to soakaway to adjacent land.
- 18) At the Proposed Braddup compound there is already an existing access road which will require upgrading. Surface water will be collected via filter drains and allowed to soakaway to adjacent land.
- 19) The access routes would be constructed during the enabling phase and would be operational during the enabling and construction phases.

#### **B.4.3 Culverts**

- 20) Where temporary, culverts would be constructed during the enabling phase and would be removed at the end of the construction phase.
- 21) The compound access between Slaidburn Road and the Proposed Braddup Compound would cross Sandy Ford Brook, and Unnamed Watercourses 430, 431, 433 and 463. Temporary extensions of existing culverts would be required in these locations. Cow Hey Brook would be affected within the compound area and a temporary culvert would be required.
- 22) A permanent culvert extension would be required to facilitate proposed highway improvement works along the access route to the Proposed Bonstone and Braddup Compounds at Unnamed Watercourse 2096.
- 23) Temporary culverts would also be required to facilitate a temporary haul route with bridge over the River Ribble (Proposed Ribble Crossing see B.4.7 below) at Unnamed Watercourse 2097, Greg Syke and Coplow Brook.

#### **B.4.4 Highways Works**

- 24) To allow for access to the site compounds, off-site highway works would be required to the surrounding highways network. The proposals include road widening and passing places. Road widening falling within the existing highway boundary would be retained following the works. All other road widening and passing places would be temporary. The works would include appropriate roadside drainage. Culvert works would be as set out in B.4.3.

#### **B.4.5 Satellite Compounds**

- 25) At the proposed construction vehicle holding area within the curtilage of the Ribblesdale Cement Works, no change to surface materials and existing drainage arrangements are proposed.
- 26) At the proposed Park and Ride Facility making use of the existing Ribblesdale Cement Works staff car park on the west side of West Bradford Road, an existing car park would be utilised with no change to surface materials and existing drainage arrangements proposed.

#### **B.4.6 Proposed Ribble Crossing**

- 27) For the proposed dedicated Proposed Ribble Crossing haul route, bypassing most of the communities in the local area that would otherwise be affected by traffic using the public highway, surface water would be collected via swales and filter drains and would be discharged into the River Ribble through four temporary outfalls and into Coplow Brook through one temporary outfall. Culvert works are covered in B.4.3 above.

#### **B.4.7 Overflow Connection**

- 28) To allow the Proposed Marl Hill Section to make use of the existing overflow structure at the south end of the existing aqueduct, excavations would be required within the Proposed Braddup Compound to allow a connection to be made to the existing overflow pipework. This could have an impact on groundwater levels, due to dewatering for the excavation.

#### **B.4.8 Commissioning Flows**

- 29) During the commissioning phase of the Proposed Marl Hill Section there would be a discharge of flows from the proposed aqueduct.
- 30) At the north of the Proposed Marl Hill Section the discharge would be to Unnamed Watercourse 402, via the temporary outfall used for construction drainage and surface water run-off from the Proposed Bonstone Compound. The discharge would be at a rate of 25 l/s, which is likely to be higher than baseline flows in the watercourse.
- 31) At the Proposed Braddup Compound the discharge would be to Sandy Ford Brook via the temporary outfall used for construction drainage and surface water run-off from the Proposed Braddup Compound. The discharge would be at a rate of 25 l/s.

#### **B.4.9 Permanent Buildings, Hardstanding and Access Road Drainage**

- 32) Valve House Buildings would drain to soakaway. Permanent access routes would be required to the new valve houses for maintenance of the Haweswater Aqueduct. Access to the north end of the Proposed Marl Hill Section would make use of the existing access track, across the agricultural fields. Access would comprise of a gravel running surface. Access to the south end of the Proposed Marl Hill Section would make use of an existing access track, stemming from Slaidburn Road. Providing that these access tracks would not require upgrading or widening, there would be no change from the baseline conditions.

#### **B.4.10 Operational Flows**

- 33) The overflow from the proposed aqueduct would discharge at the existing outfall location on Bashall Brook.
- 34) The discharge of water during the operation of the proposed aqueduct would be the same as the operational regime for the existing aqueduct (i.e. emergency discharges as required). Therefore, there would be no change from baseline conditions.

#### **B.4.11 Decommissioning Flows**

- 35) Following completion and commissioning of the new aqueduct, sections of the existing aqueduct would be taken out of service. Current design proposals indicate that the existing section of aqueduct would be left in situ and would not be grouted or sealed once the Proposed Marl Hill Section has been commissioned. Therefore, it is likely that groundwater would enter the decommissioned aqueduct.
- 36) The existing aqueduct creates a flow pathway for groundwater ingress to reach the surface through the redundant tunnel structure. It is proposed this groundwater ingress would be discharged to the Bashall Brook through the existing outfall location. This outfall would remain in place after the commissioning of the Proposed Marl Hill Section.
- 37) The estimated groundwater ingress rate is 26.5 l/s, which United Utilities have estimated based on observations made during inspections carried out in 2016 and includes an allowance for how this rate could increase over time.

### **B.5 Assessment of likely significant effects**

- 38) Assessment of likely significant effects on the water environment and flood risk from each phase of the Proposed Marl Hill Section is addressed in Chapters 7 and 8 of the Proposed Marl Hill Section ES, Volume 2. Effects that are mitigated through embedded mitigation measures, listed in the Construction Code of Practice, are also detailed in Chapter 7 and Chapter 8 of the Proposed Marl Hill Section ES, Volume 2.

## **Appendix C. SUDS Proforma**



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# NORTH WEST SuDS PRO-FORMA

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This pro-forma is a requirement for any planning application for major development<sup>1</sup>.

It supports applicants in summarising and confirming how surface water from a development will be managed sustainably under current and future conditions.

Your sustainable drainage system should be designed in accordance with [CIRIA The SuDS Manual C753](#) and any necessary adoption standards.

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## HOW TO COMPLETE

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Blue Box	Instruction/ Question
Orange Box	Evidence Required
White Box	To be completed by Developer / Consultant

1. Complete ALL white boxes
2. Submit this pro-forma to the Local Planning Authority, along with:
  - Sustainable Drainage Strategy
  - Site Specific Flood Risk Assessment (if required)
  - Minimum supporting evidence, as indicated in orange boxes of this pro-forma.

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## GUIDANCE TO SUPPORT YOU

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The pro-forma should be completed in conjunction with 'Completing your SuDS Pro Forma Guide.'

The pro-forma can be completed using freely available tools such as [Tools for Sustainable Drainage Systems](#) or appropriate industry standard surface water management design software.

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<sup>1</sup> as defined in Section 2 of [Statutory Instrument 2015 No. 595](#) or on sites of 0.5 hectares in Critical Drainage Areas.

## SECTION 1. APPLICATION & DEVELOPMENT DETAILS

<b>Planning Application Reference</b> <i>(if available)</i>	TBC
<b>State type of planning application</b> <i>i.e. Pre-application, Outline, Full, Hybrid, Reserved Matters*</i> <i>*Information only required if drainage is to be considered as part of reserved matters application</i>	Full
<b>Developer(s) Name:</b>	United Utilities
<b>Consultant(s) Name:</b>	Jacobs
<b>Development Address</b> <i>(including postcode)</i>	Proposed development at: From land northwest of New Lai the Farm off the B6478 Slaidburn Road; and land north of Cross Lane, near Sandy Ford Brook, off the B6478 Slaidburn Road; with highway mitigation works at various locations from Pimlico Link Road, Clitheroe to Slaidburn Road, north of Waddington, via Chatburn Road, Ribble Lane and Grindleton Road; a haul route from land south of West Bradford Bridge to West Bradford Road, west of Healings Farm, West Bradford; a vehicle marshalling facility on land at the Ribblesdale Cement Works, West Bradford Road, Clitheroe and a park and ride facility at the existing Ribblesdale Cement Works car park to the west of West Bradford Road.
<b>Development Grid Reference</b> <i>(Eastings/Northings)</i>	368980 ; 450292
<b>Total Development Site Area (Ha)</b>	Bonstone – 0.1 ha Braddup - 0.06 ha Total – 0.16 ha
<b>Drained Area (Ha)* of Development</b>	Bonstone – 0.1 ha Braddup - 0.06 ha Total – 0.16 ha
<b>Please indicate the flood zone that your development is in. Tick all that apply.</b> <i>Based on the Environment Agency Flood Map for Planning and the relevant Local Authority Strategic Flood Risk Assessment (to identify Flood Zones 3a/3b).</i>	Flood Zone 1 <input checked="" type="checkbox"/> Flood Zone 2 <input checked="" type="checkbox"/> Flood Zone 3a <input checked="" type="checkbox"/> Flood Zone 3b <input type="checkbox"/>
<b>What is the surface water risk of the site? Tick all that apply.</b> <i>Based on the Environment Agency Surface Water Flood Map.</i>	High <input checked="" type="checkbox"/> Medium <input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/>
<b>Have you submitted a Site Specific Flood Risk Assessment (FRA)?</b> <i>See separate guidance notes for clarification on when a FRA is required</i>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Have you submitted a Sustainable Drainage Strategy?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Does your drainage proposal provide multi-functional benefits via SuDS?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Expected Lifetime of Development ( <i>years</i> ) <i>Refer to Planning Practice Guidance "Flood Risk and Coastal Change" Paragraph 026</i>	100 years
Development Type:	State Proposed Number of Units
<b>Greenfield Site</b> <ul style="list-style-type: none"> <li>Site is wholly undeveloped, and a new drainage system will be installed</li> </ul>	<input checked="" type="checkbox"/> N/A
<b>Previously Developed/ Brownfield Site</b> <ul style="list-style-type: none"> <li>Site is already developed, and the <u>entirety</u> of the existing surface water drainage system will be used to serve the new development (evidence must be provided to prove existing surface water drainage system is reusable); <b>OR</b></li> <li>Where records of the previously developed system are not available so that the hydraulic characteristics of the system cannot be determined or where the drainage system is not in reasonable working order i.e. broken, blocked or no longer operational for other reasons, then one of the approaches outlined in Section 24.5 of The SuDS Manual (C753) should be adopted.</li> </ul>	<input checked="" type="checkbox"/> N/A
Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 1.	N/A

## SECTION 2: IMPERMEABLE AREA AND EXISTING DRAINAGE

	Existing (E)	Proposed (P)	Change (P – E)
State Impermeable Area (Ha)	0	0.16	0.16
<b>Evidence Required:</b> Plans showing development layout of site with existing and proposed impermeable areas.			<input checked="" type="checkbox"/>

Are there existing sewers, watercourses, water bodies, highway drains, soakaways or filter drains on the site?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Don't Know <input type="checkbox"/>
<b>Evidence Required:</b> Plan(s) showing existing layout to include all: <ul style="list-style-type: none"> <li>Watercourses, open and culverted</li> <li>Water bodies – ponds, swales etc.</li> <li>Sewers, including manholes</li> <li>Highway drains, include manholes, gullies etc.</li> <li>Infiltration features - soakaways, filter drains etc.</li> </ul>	<input checked="" type="checkbox"/> Drawings RVBC-BO-APP-004-05_01 and RVBC-BO-APP-004-05_0  Figures in Volume 3 (Ref Chapter 7) of the Proposed Bowland Section Environmental Statement

<b>Drainage Design</b> <i>Outline planning applications should be able to demonstrate that a suitable drainage system is achievable.</i> <i>All other type of planning application should provide full details or reference to previous planning application where drainage details have been submitted or approved.</i>
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<b>1 in 100 Year Event*</b> <i>(Approach 1)</i>			
<p>* Total discharge at the 1 in 100 year rate should be restricted to the greenfield runoff volume for the 1 in 100 Year 6 hour event with additional volumes (long-term storage volume) released at a rate no greater than 2 l/s/ha where infiltration is not possible. The climate change allowance should only be applied to the proposed rate and not the existing or green field rate.</p>			
<b>Evidence Required:</b> Methodology used to calculate peak runoff rate clearly stated and justified.  Impermeable areas plan, supported by topographical survey confirming positive drainage .  Hydraulic calculations and details of software used.		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	
		See Drawing Numbers RVBC-MH-APP-004-05_01, RVBC-MH-APP-004-05_02, MH-APP-004-05_03 and MH-APP-004-05_04. Also, see IH124 Method through the online HR Wallingford calculation tool.	

<b>State the hydraulic method used in your calculations</b> <i>(Refer to Table 24.1 of The SuDS Manual)</i>	IH124 Method through the online HR Wallingford calculation tool. <a href="http://www.ukSUDS.com">www.ukSUDS.com</a>
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<b>Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 3.</b>	N/A
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**SECTION 4: DISCHARGE VOLUME – TECHNICAL STANDARDS S4, S5 AND S6  
(UNLESS S1 APPLIES)**

Rainfall Event	Existing Volume (m <sup>3</sup> )	Greenfield Volume (m <sup>3</sup> )	Proposed Volume (m <sup>3</sup> )
1 in 100 Year 6 Hour Event <i>(Approach 1)</i>			
<b>Does the below statement apply to your development proposal?</b> Long term storage is not achievable on this site and, in accordance with S6 of the Non Statutory Technical Standards for SuDS, the surface water discharge rates for events up to and including the 1 in 100 year critical event are limited to Qbar (Approach 2)			Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>Evidence Required:</b> Approach to managing the quantity of surface water leaving the site clearly stated and justified  Methodology used to calculate discharge volume clearly stated and justified.  Hydraulic calculations and details of software used.			<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 4.</b>			



## SECTION 5: STORAGE – TECHNICAL STANDARDS S7 AND S8

<b>State climate change allowance used (%)</b>	40% (included in HR Wallingford calculation)
<b>State housing density (houses per ha)</b>	N/A
<b>State urban creep allowance used (%)</b>	N/A
<b>Evidence Required:</b> State / used in appropriate industry standard surface water management design software.	<input checked="" type="checkbox"/>

<b>State storage volume required (m<sup>3</sup>)</b> (excluding non-void spaces) <i>Must include an allowance for climate change and urban creep</i>	570 m <sup>3</sup>
<b>Have you incorporated interception into your design?</b> (Refer to Chapter 24 of The SuDS Manual C753) <i>Where possible, infiltration or other techniques are to be used to try and achieve zero discharge to receiving waters for rainfall depths up to 5mm.</i>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>Evidence Required:</b> Drainage plans showing location of attenuation and all flow control devices and supporting calculations.	<input checked="" type="checkbox"/>

<b>Summarise how storage will be provided for 1 in 30 year event on site.</b> <i>Storage must be designed to ensure that at no flooding occurs onsite in a 1 in 30 year event except in designed areas <b>and</b> no flooding occurs offsite in a 1 in 100 year (plus climate change allowance) event.</i>	Attenuation lagoons within proposed compound – see Drawings RVBC-BO-APP-004-05_01 and RVBC-BO-APP-004-05_0
<b>Summarise how storage will be provided for 1 in 100 year (plus climate change) event on site.</b> <i>Where storage above the 1 in 30 year rainfall event is provided in designated areas designed to accommodate excess surface water volumes, plans showing storage locations and surface water depths and supported by calculations used in appropriate industry standard surface water management design software. It is important to run a range of duration events to ensure the worst case condition is found for each drainage element on the site</i>	Attenuation lagoons within proposed compound – see Drawings RVBC-BO-APP-004-05_01 and RVBC-BO-APP-004-05_0
<b>Evidence Required:</b> Plans showing size and location of storage and supporting calculations. Where there is controlled flooding, extents and depths must be indicated.	<input checked="" type="checkbox"/>

<b>Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 5.</b>	See Drawing Numbers RVBC-MH-APP-004-05_01, RVBC-MH-APP-004-05_02, MH-APP-004-05_03 and MH-APP-004-05_04.
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## SECTION 6: WATER QUALITY PROTECTION

*Contaminated surface water run-off can have negative impacts on the quality of receiving water bodies. The potential level of contamination will influence final the design of an appropriate treatment train as part of your sustainable drainage system.*

<b>Is the proposal site known to be or potentially contaminated?</b>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<ul style="list-style-type: none"> <li>If the site is contaminated, it should be demonstrated that the sustainable drainage system will not increase the risk of pollution to controlled waters through the mobilisation of contaminants and/or creation of new pollution pathways.</li> </ul>		

<b>Confirm the Pollution Hazard Level of the proposed development - Tick <u>ALL</u> that apply</b> Refer to Pollution Hazard Indices for different Land Use Classifications in Table 26.2 of The SuDS Manual C753 for further guidance.		
<b>Pollution Hazard Level</b> Tick <u>ALL</u> that apply	<b>Surface water run-off from the proposed development will drain from:</b>	
<b>VERY LOW</b>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Residential roofs</li> </ul>
<b>LOW</b>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Other roofs (typically commercial/industrial roofs)</li> <li>Individual property driveways, residential car parks, low traffic roads (e.g. cul de sacs, home-zones and general access roads)</li> <li>Non-residential car parking with infrequent change (e.g. schools, offices) i.e. &lt; 300 traffic movements/day</li> </ul>
<b>MEDIUM</b>	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Commercial yard and delivery areas</li> <li>Non-residential car parking with frequent change (e.g. hospitals, retail)</li> <li>All roads except low traffic roads and trunk roads/motorways<sup>2</sup></li> </ul>
<b>HIGH</b>	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> <li>Sites with heavy pollution (e.g. haulage yards, lorry parks, highly frequented lorry approaches to industrial estates, waste sites)</li> <li>Sites where chemicals and fuels (other than domestic fuel oil) are to be delivered, handled, stored, used or manufactured</li> <li>Industrial sites</li> <li>Trunk roads and motorways<sup>1</sup></li> </ul>

<b>If the development's Pollution Hazard Level is 'Very Low' or 'Low', has the sustainable drainage design been risk assessed and appropriate mitigation measures included?</b>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
<ul style="list-style-type: none"> <li>If the proposed development has a very low or low polluting potential, you should design your sustainable drainage system to include an appropriate treatment train in accordance with The SuDS Manual (C753).</li> </ul>		

<b>If the development's Pollution Hazard Level is 'Medium' or 'High', is the application supported by a detailed water quality risk assessment?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<ul style="list-style-type: none"> <li>If the proposed development has a high polluting potential, a detailed risk assessment <u>will</u> be required to identify an appropriate SuDS treatment train and ensure compliance with Paragraph 170 of the National Planning Policy Framework.</li> <li>If the proposed development has a medium polluting potential, a detailed risk assessment <u>may</u> be required depending on the nature, scale and location of the development.</li> </ul>		

<b>Has pre-application advice on water quality been obtained from the Environment Agency?</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<b>If YES, provide details:</b>	Refer to Chapter 7 (Water Environment) of the Proposed Bowland Section Environmental Statement	

<b>Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 6.</b>	Refer to Chapter 7 (Water Environment) of the Proposed
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<sup>2</sup> Motorways and trunk roads should follow the guidance and risk assessment process set out in Highways Agency (2009).

## SECTION 7: DETAILS OF YOUR SUSTAINABLE DRAINAGE SYSTEM

### a) Function of your Sustainable Drainage System

<b>Do your proposals store rainwater for later use (as a resource)?</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>Evidence Required:</b> Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	

<b>Do your proposals promote source control to manage rainfall close to where it falls? (e.g. promoting natural losses through soakage, infiltration and evapotranspiration)</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<b>Evidence Required:</b> Please provide a brief sentence in the adjacent white box to describe how this function has been achieved.	It is proposed that runoff from proposed building would soakaway to ground. Assessment of ground conditions reveals infiltration possible.

<b>Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7a.</b>	
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### b) Hierarchy of Drainage Options – Planning Practice Guidance

The proposed method of discharge are set out within order of priority. Generally, the aim should be to discharge surface run off as high up the following hierarchy of drainage options as reasonably practicable.

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 1: Into the ground (via infiltration)		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
If YES - Evidence Required		If NO – Evidence Required Tick <b>ALL</b> that apply	
<input type="checkbox"/>	<b>A.</b> Completed Infiltration Checklist from The SuDS Manual (C753) Appendix B <i>An editable version of this form is available on <a href="#">SusDrain website</a>.</i>	<input checked="" type="checkbox"/>	<b>A.</b> Site investigation to demonstrate that the ground is not free draining. Test results to be provided in accordance with: <ul style="list-style-type: none"> <li>The methodology within BRE 365 (2016), <b>OR</b></li> <li>Falling head permeability tests BS EN ISO 22282-2: 2012</li> </ul>
<input type="checkbox"/>	<b>B.</b> British Geological Survey (BGS) Infiltration SuDS Map	<input checked="" type="checkbox"/>	<b>B.</b> NOTE: where an applicant is unable to access a site to undertake testing, e.g. where unable to access a site for an outline application, they can submit a <a href="#">SuDS GeoReport</a> or similar.
<input type="checkbox"/>	<b>C.</b> Infiltration testing to BRE 365 (2016) or falling head permeability tests to BS EN ISO 2228-2: 2012 ( <b>optional for outline</b> )	<input checked="" type="checkbox"/>	<b>C.</b> Evidence to confirm that infiltration to ground would result in a risk of deterioration to ground water quality.
<input type="checkbox"/>	'Plan B' sustainable drainage plan and statement of approach with an alternative discharge method, in case infiltration	<input checked="" type="checkbox"/>	<b>D.</b> Geotechnical advice from a competent person* which determines that infiltration of water to ground would pose an unacceptable risk of geohazards to the site and/or local area.

	proposals are proven not feasible upon further site specific ground investigation e.g. to consider seasonal variations to groundwater.	<i>*Note: Competent person may include a Chartered Engineer, Chartered Geologists, Registered Ground Engineering Professionals (RoGEP).</i>
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Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 2: To a surface water body <i>(select type)</i>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
<b>NOTE: Consent from LLFA or Permit from Environment Agency may be required – refer to guidance</b>		<input checked="" type="checkbox"/> Main river	<input type="checkbox"/> Canal
		<input checked="" type="checkbox"/> Ordinary watercourse	<input type="checkbox"/> Other water body
If YES - Evidence Required		If NO – Evidence Required Tick <b>ALL</b> that apply	
<input checked="" type="checkbox"/>	Surface water body / watercourse survey and report	<input type="checkbox"/>	Plan showing nearby watercourses and waterbodies
		<input type="checkbox"/>	Statement providing justification in your Sustainable Drainage Strategy
		<b>AND</b>	
		<i>Note: Where third party land is cited as a barrier, you should provide visibility of discussions held to date with the riparian landowner of the waterbody.</i>	

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 3: To a surface water sewer or highway drain <i>(select type)</i>		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	
		<input type="checkbox"/> Surface water sewer	<input type="checkbox"/> Highway drain
If YES - Evidence Required		If NO – Evidence Required Tick <b>ALL</b> that apply	
<input type="checkbox"/>	Written correspondence from Water and Sewerage Company/ Highway Authority regarding proposed connection.	<input type="checkbox"/>	Plan showing nearby sewers and highway drains
		<input type="checkbox"/>	Statement providing justification in your Sustainable Drainage Strategy
		<b>AND</b>	

Proposed method of surface water discharge		Is this proposed?	
Hierarchy Level 4: To combined sewer		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	
If YES - Evidence Required		If NO – Evidence Required	
<input type="checkbox"/>	Written correspondence from Water and Sewerage Company	N/A	

<b>Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7b.</b>	
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### c) Proposed SuDS Component Types

Tick ALL that apply					
<b>Within property boundary</b>	<input type="checkbox"/> Rainwater harvesting	<input type="checkbox"/> Green/ blue roofs	<input type="checkbox"/> Pervious pavements [Type: A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/>	<input checked="" type="checkbox"/> Soakaway	<input type="checkbox"/> Bio retention systems

Tick ALL that apply					
<b>Within development site boundary</b> <i>(not property)</i>	<input type="checkbox"/> Infiltration system [Type: <input type="checkbox"/> Surface level <input type="checkbox"/> Below ground]		<input type="checkbox"/> Filter strips	<input checked="" type="checkbox"/> Filter drains	<input checked="" type="checkbox"/> Swales
	<input type="checkbox"/> Bio retention system	<input checked="" type="checkbox"/> Detention basins	<input type="checkbox"/> Ponds and wetlands	<input checked="" type="checkbox"/> Attenuation tanks/ Oversized pipes	<input type="checkbox"/> Other (state below)
	If 'Other' please state:				

<b>Off site</b> <i>(not within the boundary of the proposed development)</i>	<b>Please state:</b>
---	----------------------

I confirm that the above selected components have been designed in accordance with The SuDS Manual (C753).	I confirm <input checked="" type="checkbox"/>
I confirm that the management of flows resulting from rainfall in excess of a 1 in 100 year plus climate change rainfall event, and their exceedance route(s), has been fully considered in order to minimise the risks to people, property (new and existing) and infrastructure.	I confirm <input checked="" type="checkbox"/>

Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 7c.	
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## SECTION 8: OPERATION AND MAINTENANCE – TECHNICAL STANDARD S12 AND NATIONAL PLANNING POLICY FRAMEWORK

*The applicant is responsible to ensure that ALL components selected in Section 7 can be maintained for the design life of the development. This information is required so the Local Planning Authority can ensure the maintenance and management of the sustainable drainage system. The Local Planning Authority will discuss how this will be secured (e.g. via planning condition or planning obligation).*

	Information Provided?
<b>Management Plan</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>Evidence Required:</b> <b>Plan/ drawing provided to show the position of the different SuDS components with:</b> <ul style="list-style-type: none"> <li>Key included to identify any of the adopting bodies that you will be offering your sustainable drainage components for a adoption (<i>relates to maintenance and management arrangements below</i>).</li> <li>Plan/ drawing to identify any areas where certain activities are prohibited, detailing reasons why.</li> </ul>	<input type="checkbox"/>
<b>Action plan for accidental pollutant spillages.</b>	<input type="checkbox"/>

	Information Provided?
<b>Maintenance Schedule</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>Evidence Required:</b> A copy of the maintenance schedule including: <ol style="list-style-type: none"> <li><b>Proactive and preventative maintenance</b> Detailing regular, occasional and remedial maintenance activities including recommendations for inspection and monitoring. This should include recommended frequencies, advice on plant/ machinery required and an explanation of the objectives for the maintenance proposed and potential implications of not meeting them.</li> <li><b>Reactive and corrective maintenance</b> (e.g. product repair and replacement). Including advice on excavations, or similar works, in locations that could affect the SuDS components/ adjacent structures.</li> </ol>	<input type="checkbox"/>

	Information Provided?
<b>Maintenance and Management Arrangements</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<b>Evidence Required:</b> Evidence of formal agreement with the party responsible for undertaking maintenance.  Please select any of the adopting bodies that you will be offering your sustainable drainage components for a adoption. Tick all that apply. <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Water and Sewerage Company</b> Section 104 agreement (<i>Water Industry Act 1991</i>)</li> <li><input type="checkbox"/> <b>Highway Authority</b> Section 278/38 agreement (<i>Highways Act 1980</i>)</li> <li><input type="checkbox"/> <b>Local Authority Public Open Space</b> [<i>Refer to Local Authority Policy</i>]</li> </ul> Please select the arrangement(s) for all non-adopted sustainable drainage components. Tick all that apply. <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>Management Company</b></li> <li><input type="checkbox"/> <b>Property Owner</b> (<i>for SuDS components within property boundary only</i>)</li> <li><input type="checkbox"/> <b>Other</b> (please state)</li> </ul> <div style="border: 1px solid black; height: 15px; width: 100%;"></div>	<input type="checkbox"/>

<b>Please list any relevant document and or drawing numbers (including revision reference) to support your answers to Section 8.</b>	
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## DECLARATION AND SUBMISSION

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*This pro-forma has been completed using evidence from information which has been submitted with the planning application.*

*The information submitted in the Sustainable Drainage Strategy and site-specific Flood Risk Assessment (FRA), where submitted, is proportionate to the site conditions, flood risks and magnitude of development and I agree that this information can be used as evidence to this sustainable drainage approach.*

Submitter Details			
<b>Completed by</b>	T Rimmer / T Gow Smith	<b>Email Address</b>	Tom.rimmer2@uuplc.co.uk
		<b>Telephone Number(s)</b>	
<b>Signed off by</b>	J Cullen	<b>Accreditation(s) and/or Qualification(s) of Signatory</b>	MRTPI
<b>Date (dd/mm/yyyy)</b>	26.05.2021	<b>Company</b>	United Utilities

Client Details			
<b>Name</b>	As above	<b>Company</b>	



# Surface water storage requirements for sites

www.uksuds.com | Storage estimation tool

Calculated by:

Site name:

Site location:

## Site Details

Latitude:

Longitude:

Reference:

Date:

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the design of the drainage scheme.

## Site characteristics

Total site area (ha):	<input type="text" value="0.06"/>
Significant public open space (ha):	<input type="text" value="0"/>
Area positively drained (ha):	<input type="text" value="0.06"/>
Impermeable area (ha):	<input type="text" value="0.06"/>
Percentage of drained area that is impermeable (%):	<input type="text" value="100"/>
Impervious area drained via infiltration (ha):	<input type="text" value="0"/>
Return period for infiltration system design (year):	<input type="text" value="10"/>
Impervious area drained to rainwater harvesting (ha):	<input type="text" value="0"/>
Return period for rainwater harvesting system (year):	<input type="text" value="10"/>
Compliance factor for rainwater harvesting system (%):	<input type="text" value="66"/>
Net site area for storage volume design (ha):	<input type="text" value="0.06"/>
Net impermeable area for storage volume design (ha):	<input type="text" value="0.06"/>
Pervious area contribution to runoff (%):	<input type="text" value="30"/>

\* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of  $Q_{BAR}$  and other flow rates will have been reduced accordingly.

## Design criteria

Climate change allowance factor:	<input type="text" value="1.4"/>
Urban creep allowance factor:	<input type="text" value="1"/>
Volume control approach	<input type="text" value="Flow control to max of 2 l/s/ha or &lt;math&gt;Q_{bar}&lt;/math&gt;"/>
Interception rainfall depth (mm):	<input type="text" value="5"/>
Minimum flow rate (l/s):	<input type="text" value="1"/>

## Methodology

esti	<input type="text" value="IH124"/>
$Q_{BAR}$ estimation method:	<input type="text" value="Calculate from SPR and SAAR"/>
SPR estimation method:	<input type="text" value="Calculate from SOIL type"/>

## Soil characteristics

	Default	Edited
SOIL type:	<input type="text" value="4"/>	<input type="text" value="4"/>
SPR:	<input type="text" value="0.47"/>	<input type="text" value="0.47"/>

## Hydrological characteristics

	Default	Edited
Rainfall 100 yrs 6 hrs:	<input type="text" value="--"/>	<input type="text" value="82"/>
Rainfall 100 yrs 12 hrs:	<input type="text" value="--"/>	<input type="text" value="112.27"/>
FEH / FSR conversion factor:	<input type="text" value="1.09"/>	<input type="text" value="1.09"/>
SAAR (mm):	<input type="text" value="1341"/>	<input type="text" value="1341"/>
M5-60 Rainfall Depth (mm):	<input type="text" value="20"/>	<input type="text" value="20"/>
'r' Ratio M5-60/M5-2 day:	<input type="text" value="0.2"/>	<input type="text" value="0.2"/>
Hydrological region:	<input type="text" value="10"/>	<input type="text" value="10"/>
Growth curve factor 1 year:	<input type="text" value="0.87"/>	<input type="text" value="0.87"/>
Growth curve factor 10 year:	<input type="text" value="1.38"/>	<input type="text" value="1.38"/>
Growth curve factor 30 year:	<input type="text" value="1.7"/>	<input type="text" value="1.7"/>
Growth curve factor 100 years:	<input type="text" value="2.08"/>	<input type="text" value="2.08"/>
$Q_{BAR}$ for total site area (l/s):	<input type="text" value="0.62"/>	<input type="text" value="0.62"/>
$Q_{BAR}$ for net site area (l/s):	<input type="text" value="0.62"/>	<input type="text" value="0.62"/>

## Site discharge rates

	Default	Edited
1 in 1 year (l/s):	<input type="text" value="1"/>	<input type="text" value="1"/>
1 in 30 years (l/s):	<input type="text" value="1"/>	<input type="text" value="1"/>
1 in 100 year (l/s):	<input type="text" value="1"/>	<input type="text" value="1"/>

## Estimated storage volumes

	Default	Edited
Attenuation storage 1/100 years ( $m^3$ ):	<input type="text" value="40"/>	<input type="text" value="40"/>
Long term storage 1/100 years ( $m^3$ ):	<input type="text" value="0"/>	<input type="text" value="0"/>
Total storage 1/100 years ( $m^3$ ):	<input type="text" value="40"/>	<input type="text" value="40"/>

This report was produced using the storage estimation tool developed by HR Wallingford and available at [www.uksuds.com](http://www.uksuds.com). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at <http://www.uksuds.com/terms-and-conditions.htm>. The outputs from this tool have been used to estimate storage volume requirements. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, CEH, Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.



# Surface water storage requirements for sites

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Calculated by:

Site name:

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## Site Details

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Reference:

Date:

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance "Rainfall runoff management for developments", SC030219 (2013), the SuDS Manual C753 (Ciria, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is not to be used for detailed design of drainage systems. It is recommended that hydraulic modelling software is used to calculate volume requirements and design details before finalising the design of the drainage scheme.

## Site characteristics

Total site area (ha):	<input type="text" value="0.1"/>
Significant public open space (ha):	<input type="text" value="0"/>
Area positively drained (ha):	<input type="text" value="0.1"/>
Impermeable area (ha):	<input type="text" value="0.1"/>
Percentage of drained area that is impermeable (%):	<input type="text" value="100"/>
Impervious area drained via infiltration (ha):	<input type="text" value="0"/>
Return period for infiltration system design (year):	<input type="text" value="10"/>
Impervious area drained to rainwater harvesting (ha):	<input type="text" value="0"/>
Return period for rainwater harvesting system (year):	<input type="text" value="10"/>
Compliance factor for rainwater harvesting system (%):	<input type="text" value="66"/>
Net site area for storage volume design (ha):	<input type="text" value="0.1"/>
Net impermeable area for storage volume design (ha):	<input type="text" value="0.1"/>
Pervious area contribution to runoff (%):	<input type="text" value="30"/>

\* where rainwater harvesting or infiltration has been used for managing surface water runoff such that the effective impermeable area is less than 50% of the 'area positively drained', the 'net site area' and the estimates of  $Q_{BAR}$  and other flow rates will have been reduced accordingly.

## Design criteria

Climate change allowance factor:	<input type="text" value="1.4"/>
Urban creep allowance factor:	<input type="text" value="1"/>
Volume control approach	<input type="text" value="Flow control to max of 2 l/s/ha or &lt;math&gt;Q_{BAR}&lt;/math&gt;"/>
Interception rainfall depth (mm):	<input type="text" value="0"/>
Minimum flow rate (l/s):	<input type="text" value="1.2"/>

## Methodology

esti	<input type="text" value="IH124"/>
$Q_{BAR}$ estimation method:	<input type="text" value="Calculate from SPR and SAAR"/>
SPR estimation method:	<input type="text" value="Calculate from SOIL type"/>

## Soil characteristics

	Default	Edited
SOIL type:	<input type="text" value="4"/>	<input type="text" value="4"/>
SPR:	<input type="text" value="0.47"/>	<input type="text" value="0.47"/>

## Hydrological characteristics

	Default	Edited
Rainfall 100 yrs 6 hrs:	<input type="text" value="--"/>	<input type="text" value="82"/>
Rainfall 100 yrs 12 hrs:	<input type="text" value="--"/>	<input type="text" value="114.33"/>
FEH / FSR conversion factor:	<input type="text" value="1.11"/>	<input type="text" value="1.11"/>
SAAR (mm):	<input type="text" value="1476"/>	<input type="text" value="1476"/>
M5-60 Rainfall Depth (mm):	<input type="text" value="20"/>	<input type="text" value="20"/>
'r' Ratio M5-60/M5-2 day:	<input type="text" value="0.2"/>	<input type="text" value="0.2"/>
Hydrological region:	<input type="text" value="10"/>	<input type="text" value="10"/>
Growth curve factor 1 year:	<input type="text" value="0.87"/>	<input type="text" value="0.87"/>
Growth curve factor 10 year:	<input type="text" value="1.38"/>	<input type="text" value="1.38"/>
Growth curve factor 30 year:	<input type="text" value="1.7"/>	<input type="text" value="1.7"/>
Growth curve factor 100 years:	<input type="text" value="2.08"/>	<input type="text" value="2.08"/>
$Q_{BAR}$ for total site area (l/s):	<input type="text" value="1.16"/>	<input type="text" value="1.16"/>
$Q_{BAR}$ for net site area (l/s):	<input type="text" value="1.16"/>	<input type="text" value="1.16"/>

## Site discharge rates

	Default	Edited
1 in 1 year (l/s):	<input type="text" value="1.2"/>	<input type="text" value="1.2"/>
1 in 30 years (l/s):	<input type="text" value="1.2"/>	<input type="text" value="1.2"/>
1 in 100 year (l/s):	<input type="text" value="1.2"/>	<input type="text" value="1.2"/>

## Estimated storage volumes

	Default	Edited
Attenuation storage 1/100 years (m <sup>3</sup> ):	<input type="text" value="96"/>	<input type="text" value="96"/>
Long term storage 1/100 years (m <sup>3</sup> ):	<input type="text" value="0"/>	<input type="text" value="0"/>
Total storage 1/100 years (m <sup>3</sup> ):	<input type="text" value="96"/>	<input type="text" value="96"/>

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## **Appendix D. Land Stability Report**

## **Proposed Marl Hill Section Planning Application - Land Stability Statement**

### **Purpose and structure of this statement**

Ribble Valley Borough Council's local validation checklist requires that a Land Stability Report is submitted in support of planning applications where:

*"development is proposed on or adjacent to unstable or potentially unstable land. The report should establish the nature and extent of the instability and any gas emissions that might be associated with any land filling".*

This statement sets out how the requirements of Ribble Valley Borough Council's local validation checklist have been addressed in the preparation of this Planning application.

### **Land stability assessment**

A desk-based assessment of the site history and ground conditions has been undertaken to identify land stability hazards in the development of the proposals for the proposed Marl Hill Section. The land stability hazards, their associated risks and mitigation measures are documented in the United Utilities, March 2021, Report No: 80061155-01-UU-TR4-XX-RP-G-00001, Haweswater Aqueduct Resilience Programme - Replacement Tunnel Section TR4, Geotechnical and Geoenvironmental Site Briefing ("Desk Study") Report, version no. 5, which is included as Appendix 11.1 of the accompanying Environmental Statement.

The Desk Study Report identifies the ground hazards, risks and mitigation measures associated with the proposed works based on a high level assessment of desk based information including mining and non-mining hazards. It identifies relevant site history (Section 3) and ground conditions (Section 4). Sections 7 and 8 detail the geotechnical and geo environmental hazards, risks and mitigation measures associated with the ground. This includes the mining and non-mining land stability risks.

A Mining Risk Assessment (Wardell Armstrong, May 2021) has also been produced, which focusses specifically on hazards, risks and mitigation measures associated with mining and associated land stability. It is based on a detailed assessment of mining related records and other data. To establish the hazards associated with mining land stability, the Mining Risk Assessment identifies specific potential risks associated with:

- the geology, including mass movement;
- the records of former surface and underground mining; and
- active mineral extraction.

In summary there are abstractive uses such as lead, slate, sandstone and limestone extraction (quarrying and mining) within the general locale but none within the study area (comprising 500m from the proposed tunnel corridor or surface site).

The risk assessments consider all hazards assessed as low.

### **Route selection**

The proposed Marl Hill section has fixed start and end points north of Waddington (Braddup launch compound) and south of Newton-in-Bowland (Bonstone reception compound), respectively, to tie into the existing Haweswater Aqueduct. The design development between these two fixed points considered two alignments. The preferred alignment was developed giving detailed consideration of land stability hazards and their associated risks. Within the constraints of the above the alignment was chosen to minimise the risks associated with the following land stability hazards to the pipeline and associated works:

- Known mine entries
- Land fill or artificial ground
- Areas of recorded land instability, particularly with regards to surface and near surface works such as shaft locations and compound areas.

The currently proposed route alignment minimised potential contact with historical construction waste sites which were identified during route optioneering. This option is also furthest from the Ashnott lead mines.

### **Conclusions**

Due to the nature of historical mining and quarrying, faulted ground, unstable ground and landfills, complete avoidance of land stability hazards was not feasible. However, the route selection, the Desk Study Report and the Mining Risk Assessment demonstrate that the works have been planned to minimise the risks associated with the land stability hazards. Further mitigation will be implemented through phased ground investigations to establish the nature and extent of the land stability hazards and their associated risks, as detailed in the Desk Study Report.