Haweswater Aqueduct Resilience Programme - Proposed Marl Hill Section

Supplementary Environmental Information Report

January 2022

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1. Introduction

1.1 Report Purpose

1) This Supplementary Environmental Information (SEI) report provides information to be read in conjunction with the Environmental Statement and associated planning application for the Proposed Marl Hill Section of the Haweswater Aqueduct Resilience Programme (HARP), which were submitted to Ribble Valley Borough Council in June 2021.

2) The SEI specifically report relates to:

- Confirmation of the construction traffic access proposals in the Clitheroe area and nearby villages
- A revised planning application boundary for Braddup Compound, to allow for new temporary bridge spans on the access track and to mitigate width constraints in the June 2021 proposals
- Removal of off-site highways works RW1-RW7 from the planning application
- Additional arboricultural information arising from embedded mitigation proposals which post-date the June 2021 planning application
- Provision and review of environmental data not available at submission of the Environmental Statement in June 2021.

1.2 Background

3) United Utilities Water Ltd. (United Utilities) is seeking planning consent for the Haweswater Aqueduct Resilience Programme (HARP). HARP is a programme of works comprising the replacement of six existing underground tunnel sections of the Haweswater Aqueduct. The existing aqueduct is part of United Utilities' water supply network in the north-west region, supplying water from Haweswater Reservoir in the Lake District National Park to customers in Cumbria, Lancashire and Greater Manchester. HARP is required to protect future water quality and provide a more resilient supply of clean drinking water.

4) The '*Proposed Programme of Works*' involves the construction of five new tunnel sections which are being developed under nine separate planning applications. The proposed replacement tunnel sections are listed below, from north to south:

- Proposed Docker Section in the South Lakeland District area
- Proposed Swarther Section in the South Lakeland District and Yorkshire Dales National Park areas
- Proposed Bowland Section in the City of Lancaster and Ribble Valley Borough areas
- Proposed Marl Hill Section in the Ribble Valley Borough area
- Proposed Haslingden and Walmersley Section in the Hyndburn Borough, Rossendale Borough and Bury Metropolitan Borough areas.

5) The Proposed Marl Hill Section[1] is located within Ribble Valley Borough Council. The Proposed Marl Hill Section is located mainly within the Forest of Bowland Area of Outstanding Natural Beauty (AONB). The tunnel route alignment and associated main compounds are located within a rural landscape of semi-improved pastures bounded by hedgerows, drainage ditches and wooded areas, rising to moorland on Waddington Fell above the proposed tunnel alignment. The updated planning application boundary for

[1] In the context of the planning application, the term *Proposed Marl Hill Section* relates not only to construction and operation of the proposed replacement tunnel section, but also ancillary activities such as a park and ride facility, construction vehicle holding area, off-site highways works and river crossings which form part of the proposals.

the main construction compounds is shown on Figure 1.2, with greater detail provided in the revised planning applications drawings. There are a few settlements within 3 km of the Proposed Marl Hill Section, the nearest being Newton-in-Bowland to the north and Waddington to the south. There are dispersed residential properties and farmsteads located throughout the area north of Waddington.

6) The Proposed Marl Hill Section comprises the following components:

- Main Construction Compounds (Bonstone Compound and Braddup Compound)
- Off-site highways works on Slaidburn Road north of Waddington and construction traffic management proposals
- The use of existing public highways in the Clitheroe area as haulage routes for construction vehicles
- Proposed Ribble Crossing (a temporary, dedicated section of new haul route which would be constructed in open countryside to the north of Clitheroe)
- Park and ride facility at the existing staff car park at Ribblesdale Cement Works
- Heavy goods vehicle holding facility at Ribblesdale Cement Works.

7) The Proposed Marl Hill Section has been subject to Environmental Impact Assessment (EIA) undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('*the EIA Regulations*').

8) The findings of the EIA were reported in the Proposed Marl Hill Section Environmental Statement ('the June 2021 Environmental Statement'), which was submitted to Ribble Valley Borough Council in support of planning application reference 3/2021/0661 (*the June 2021 Planning Application*). A link to the planning application online can be found here: Proposed Marl Hill Section Planning Application June 2021.

1.3 Purpose and Scope of Report

9) This SEI report has been prepared for the following reasons:

- To respond to consultation feedback received from statutory bodies, non-statutory organisations and local communities following submission of the planning application
- To introduce and evaluate the environmental effects of proposed changes to elements of the design that formed the June 2021 planning application, and also new and additional design proposals that have been developed since submission of the planning application
- To present supplemental baseline information that was either not available at the time of the June 2021 planning application, or is now required in support of the proposed design changes.

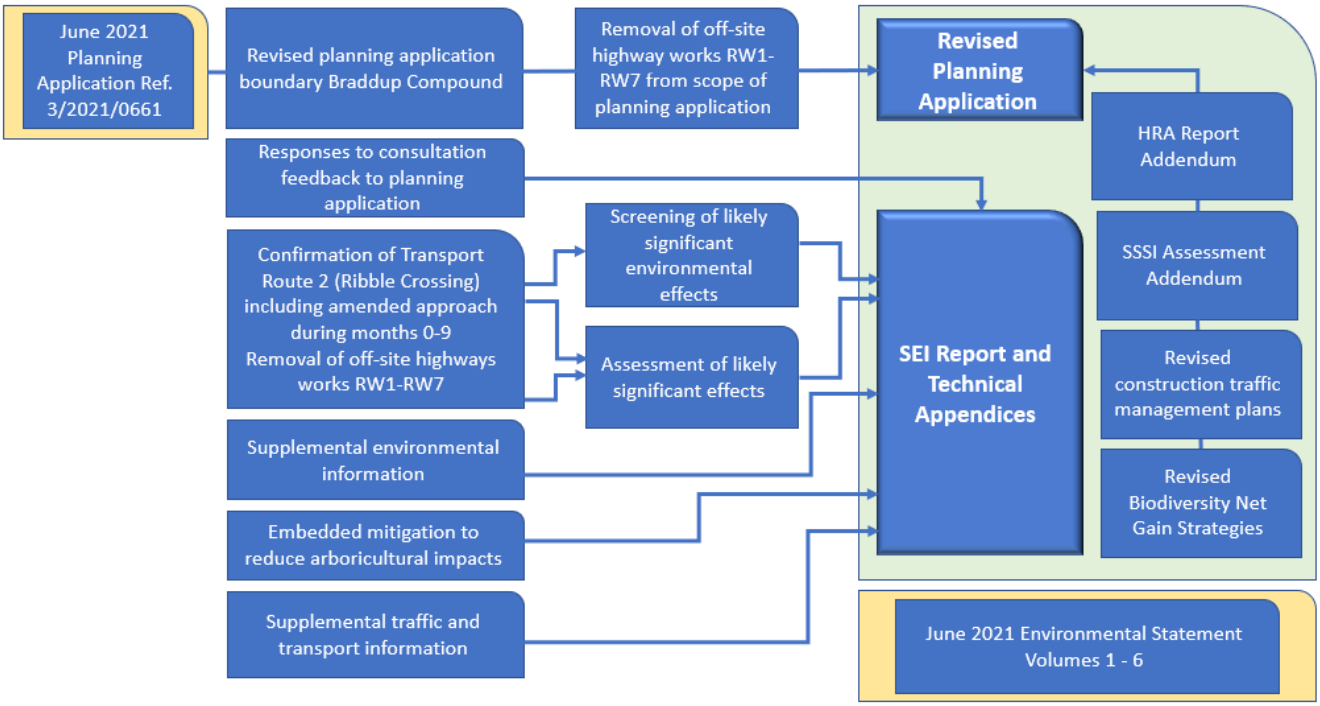
10) Following submission of the planning application, Ribble Valley Borough Council undertook a period of consultation with the public, statutory consultees and interested parties. This resulted in feedback on the planning application being provided to Ribble Valley Borough Council. United Utilities has reviewed this feedback and provides, in this SEI report, responses to the feedback submitted during the consultation period.

11) Some minor design changes have been identified following the submission of the planning applications. In some cases, these proposed changes have arisen from continued development of the design, discussions with land owners, a desire to enhance construction or design performance taking account of likely significant environmental effects, and as a direct result of feedback received during the consultation period. This SEI report considers the effect these changes have on the conclusions drawn in the original Environmental Statement.

12) Illustration 1 indicates the scope of the SEI report.

13) It is important to note that this SEI report should be read in conjunction with the June 2021 Environmental Statement; the two documents are not mutually exclusive. In most instances the June 2021 Environmental Statement remains unaffected by the proposed changes, and therefore much of the original documents remain valid. Where appropriate, this SEI report directs the reader to where in the June 2021 Environmental Statement further relevant information is available to support the content and conclusions contained in the SEI report. Similarly, where descriptions and findings contained in the June 2021 Environmental Statement have been superseded by amendments to the proposals or other outcomes following the planning submission, these are explained with reference to which sections of the June 2021 Environmental Statement are now obsolete.

Illustration 1: Scope of the Supplementary Environmental Information Report and January 2022 Submission



1.4 Regulatory Context

14) This SEI report falls within the definition of '*any other information*', (alternatively referred to as '*relevant information*') described under Regulation 2 of the EIA Regulations. This is on the basis that at least part of the SEI submitted is new environmental information which informs the assessment and understanding of likely significant environmental effects within the June 2021 Environmental Statement. It does not present information which solely confirms the assessment findings in the original Environmental Statement, or relates to new matters which would in any event not be likely to give rise to significant environmental effects.

15) It is recognised that since the SEI report does fall within the definition of '*any other information / relevant information*' under the EIA Regulations, the publicity and consultation requirements set out in Regulation 25(3) to (11) must be followed.

1.5 Structure of the Report

16) The remainder of this report is presented in four main sections:

- Section 2 provides responses from United Utilities to comments and queries received during the statutory consultation period following submission of the June 2021 Planning Application. Section 2 also directs the reader to relevant sections of the SEI report and the technical appendices where further information relating to consultation responses can be found

- Section 3 explains the proposed design changes and construction traffic route option and evaluates whether they may have a material effect on the conclusions drawn in each of the technical chapters of the June 2021 Environmental Statement. In the large majority of cases there is no change to the environmental effects described in the June 2021 Environmental Statement; topics falling into this category are therefore screened out of any further environmental assessment. For topics where changes are predicted relative to those described in the June 2021 Environmental Statement, details are provided in Section 4 and in the associated technical appendices

- Section 4 provides supplemental environmental information which was not available at the time the June 2021 Environmental Statement was published, and sign-posts the reader to relevant supporting technical appendices. Section 4 also presents updated environmental information – specifically in relation to arboricultural data – which arises from embedded mitigation proposals which post-date the June 2021 planning application. These embedded mitigation proposals, located at the Braddup compound, result in fewer trees at risk of loss compared with what was described in the June 2021 Environmental Statement

- Section 5 provides concluding comments summarising the main points to be drawn from the SEI report. It also reappraises the cumulative environmental effects of the Proposed Marl Hill Section, compared with the cumulative assessment presented in Volume 2 of the June 2021 Environmental Statement.

2. Consultation Responses

17) This section directs the reader to where United Utilities has provided responses, in the SEI, to comments received during the statutory consultation period following submission of the planning application in June 2021. Responses have been received from statutory agencies, local authority officers, non-governmental organisations as well as members of the public.

18) Appendix A.1 responds to many of the comments received from statutory and non-statutory organisations, as well as members of the public. Responses have been provided to comments and queries provided by the following organisations, community groups and members of the public:

- **Lancashire County Council Historic Environment Team**: comments on proposed mitigation measures prior to construction commencing
- **Natural England**: queries concerning approaches to the assessment of and assigning levels of significance to: the Forest of Bowland AONB; off-site highways works; and the Ribble Crossing. Proposals for planning conditions to support the protection of soil resources
- **Ribble Valley Borough Council Environmental Health**: proposed conditions relating to the adoption of standard mitigation methods and best practicable means for the control of air and noise pollution, and for reducing emissions of light from the construction compounds
- **Lancaster City Council**: no objection provided that appropriate conditions are in place to ensure the appropriate handling and management of surplus materials arising from the tunnel boring operations
- **Lancashire County Council Highways**: further details of traffic management measures and highways interventions are needed to satisfy the authority's requirements for the safe movement of construction vehicles on the local road network; further clarifications are required on some of the technical details presented in the June 2021 Environmental Statement and Transport Assessment
- **Forest of Bowland AONB Officer (Ecology)**: various technical queries, clarifications or challenges regarding Habitats Regulations Assessment (HRA), and approaches to designated and non-designated habitats and protected species surveys and assessment; comments relating to the need for elements of the proposed Marl Hill Section, such as the Ribble Crossing, and the associated site selection process; technical clarifications on the Biodiversity Net Gain (BNG) calculations; licensing requirements for works affecting protected species
- **Forest of Bowland AONB Officer (Landscape)**: various technical queries, clarifications or challenges regarding the site selection process for the proposed works areas; off-site highways works; cumulative impacts of the various elements of the Proposed Marl Hill Section; clarification of tree losses and trees at risk of removal, both within the main compounds and at off-site highways works locations
- **West Bradford Parish Council**: concerns relating mainly around the adverse community impacts associated with construction traffic movements on the local road network, and support for construction of the Ribble Crossing to mitigate these impacts; maintenance of public access to areas affected by construction and operation of the Ribble Crossing; potential impacts on the farming community whose land would be affected by the Ribble Crossing
- **Lancashire County Council Lead Local Flood Authority**: request to the local planning authority to attach appropriate conditions to a grant of consent to ensure that the scope of development and the construction management and flood risk mitigation measures are implemented in accordance with the proposals set out in the flood risk assessment reports in the June 2021 Environmental Statement; operational maintenance and operating parameters of the new aqueduct and associated infrastructure are delivered in accordance with agreed conditions and that verification audits are

undertaken to validate the construction and operation phases have been or are being delivered as per agreement with the Lead Local Flood Authority

- **SABIC UK Petrochemicals**: ongoing engagement with SABIC is necessary in connection with the designated major accident pipeline with which the proposed alignment of the Ribble Crossing intersects
- **Ribble Fisheries Consultative Association**: technical queries and challenges concerning the impact of the Proposed Marl Hill Section on fisheries in the catchment, especially on the salmonid resources of the River Ribble
- **Ribble Rivers Trust**: technical queries and challenges around the protection of fisheries interests in the catchment
- **Grindleton Parish Council**: technical queries and challenges on various matters of local concern, including traffic volumes, traffic management, local business interests, flood risk and residential amenity
- **Bowland Forest Parish Council**: construction traffic and highways management
- **Members of the public**: a broad range of comments, including construction traffic and highways; noise and air pollution; residential amenity; the welfare of local people and impacts on local businesses and tourism.

19) It should be noted that Appendix A.1 has considered responses received during the period between the submission of the planning application in June 2021 and December 2021. To enable completion of the SEI Report and submission of the revised planning application to Ribble Valley Borough Council, the cut-off date for any comments received by the planning authority to be addressed within this SEI Report was 9 December 2021. Any comments received after 9 December 2021, either in connection with the June 2021 Planning Application or the January 2022 Revised Planning Application, will be considered separately, with responses provided as appropriate.

3. Proposed Design Change and Amendments to Construction Traffic Access Proposals

3.1 Introduction

20) This section provides a summary of the proposed revisions and additions to the Proposed Marl Hill Section which update the June 2021 Planning Application. These changes comprise:

- Confirmation of the construction traffic access proposals in the Clitheroe area and nearby villages. The June 2021 Environmental Statement (Volume 4 Appendix 3.1) made reference to two transport route options to serve the main construction compounds on the Proposed Marl Hill Section – further details are provided below at Section 3.2.2. It was confirmed in the June 2021 Environmental Statement that one of the two options would be selected prior to determination of the Proposed Marl Hill Section planning application. It is now possible to confirm that Route Option 2 – referred to in the June 2021 Environmental Statement as the Ribble Crossing – has been adopted in preference to Route Option 1, albeit with a need to use local roads for a short period of approximately nine months to enable construction of the temporary crossing

- Minor alterations to the access track serving the core construction area at the Braddup Compound, resulting in five amendments to the planning application boundary at its point along the northern edge of the access track towards the main construction compound

- Removal of seven locations (RW01-RW07 inclusive) where off-site highways works were originally proposed in the June 2021 Environmental Statement (refer to Volume 5 RVBC_MH_V5-P1-002 Highways Works series of drawings)

- Avoidance of some previously affected trees within the Braddup Compound through embedded mitigation proposals (i.e. avoidance through design).

21) Figures 3.1a and 3.1b illustrate the updated planning application boundaries for the Proposed Marl Hill Section.

22) A technical screening exercise has been undertaken to identify where likely significant effects may arise in relation to the changes and new proposals. This has involved testing the proposed changes against each EIA topic to establish whether any likely significant effect may arise. The outcomes are summarised in Table 2.

3.2 Design Changes and Amendments to Construction Traffic Access Proposals

3.2.1 Braddup Compound Access Track

23) The June 2021 Environmental Statement and June 2021 planning application both provided details of an access track that would be required to take construction vehicles from the Slaidburn Road to the core construction compound at Braddup. This access track would follow the route of an existing farm track. The existing track is located above a series of culverts that form part of the local field drainage network. The culverts are aligned in a generally north-south direction.

24) Following submission of the June 2021 planning application, it was decided to install a total of five temporary bridge structures (commonly referred to as '*Bailey bridges*') across the culverts along the proposed access track. At two out of five of these locations (referred to as Bridge A and Bridge B), it has been necessary to extend the planning application boundary by a short distance (less than 10 m to the north and south) to provide additional working room to install temporary bridge structures. The planning application boundaries have therefore been amended accordingly at these locations. The purpose of the proposed temporary bridging structures is twofold:

- To span a series of existing culverts through which field drains currently flow in a north-south direction below the existing road. The culverts are located below the existing road and could be damaged by heavy vehicle movements during the course of the construction programme

- To protect the root zones of Grade A trees situated adjacent to the track.

25) Temporary bridges C, D and E would be delivered within the existing (June 2021) planning application boundary.

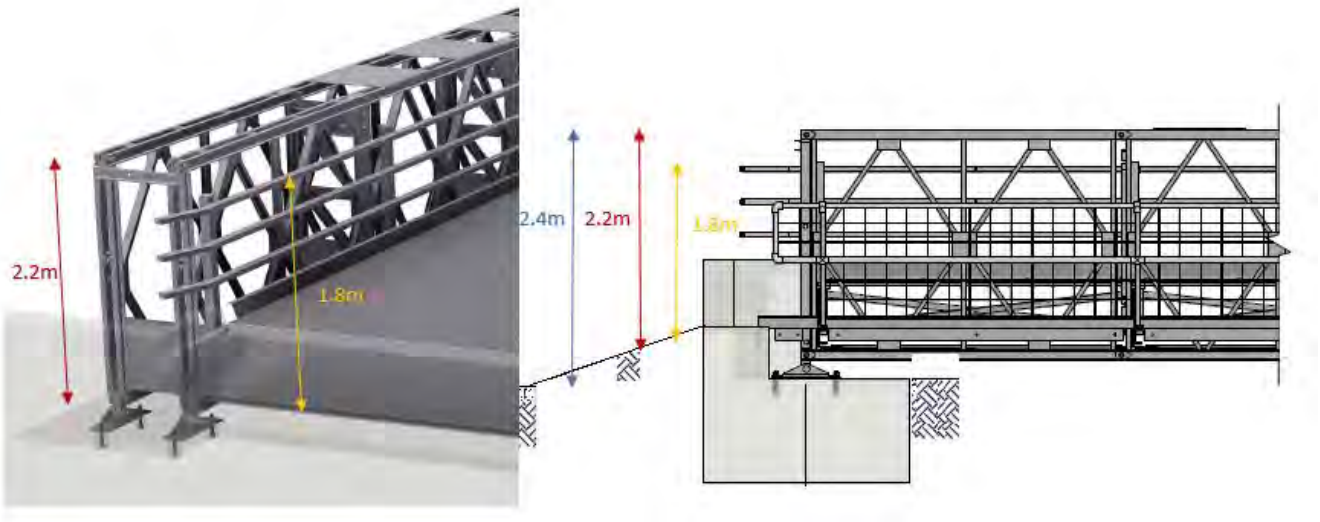
26) As shown in Illustration 2, the vertical elevations of the temporary bridge structures would be of steel lattice construction and rectangular in shape. Concrete footings for the temporary bridges would be constructed in excavations approximately 1.5 m below existing ground level. All the bridges would have parapets at least 1.2 m above the road deck. The overall depth of the structures would depend on the length of the span – depths might range from 1.8 m (deck plus parapet for shorter spans) to 2.2 m (this being the maximum truss depth for spans of approximately 20-30 m). Additionally, there would be a small amount of clearance between the underside of the bridge deck and the ground below (assumed to be 0.2 m).

27) The proposed locations of the temporary bridges A-E along the Braddup Compound access track, the root protection areas of Grade A trees and the associated amendments to the planning application boundary, are shown in Illustration 3.

28) In addition to the proposed planning application boundary changes to accommodate Bridge A and Bridge B, two very minor amendments are also proposed at 'pinch point' locations on the access track towards the core construction compound. These locations are also shown on Illustration 3. The proposed amendments comprise increasing the width of the access track slightly, to enable the safer passage of construction vehicles to and from the compound. Additionally, at one of the two 'pinch point' locations, the June 2021 planning application boundary did not optimise embedded mitigation to protect trees, and abnormal indivisible loads may not have been able to pass within the boundary.

29) The embedded mitigation associated with these two planning application boundary revisions has resulted in fewer trees at risk of removal when compared with the conclusions drawn in Chapter 7 and associated technical appendices in the June 2021 Environmental Statement. These updates are presented in Appendix B2: Arboricultural Technical Note.

Illustration 2: Indicative appearance and vertical elevations of temporary bridge structures



30) In addition to the proposed changes described above, it was noticed following submission of the June 2021 Planning Application that there was a discrepancy in the position of the Braddup Compound access track at its junction with Slaidburn Road. This discrepancy appeared on some of the June 2021 Environmental Statement figures and also figures contained in the June 2021 Construction Traffic

Management Plan. The proposed position of the junction is therefore now confirmed as being approximately 40 m to the south of the position of the existing access track. This new location was proposed following consultation with Lancashire highways department and further design development to enhance highway safety measures. The relevant June 2021 Environmental Statement and Construction Traffic Management Plan figures have been amended in this SEI report and revised planning application documents to clarify the location of the junction and to show the extent of land required for construction.

3.2.2 Clitheroe Transport Route

31) The June 2021 Planning Application included two options for the routeing of construction traffic to the proposed Braddup and Bonstone compounds:

- *Transport Route 1* comprised two routes along the existing highway network. General construction traffic below 3.5 m in height would be routed from the A59 through Clitheroe and Waddington and then north along Slaidburn Road, whilst larger vehicles would be routed through Chatburn, Grindleton, West Bradford and Waddington before joining the Slaidburn Road

- *Transport Route 2* (*the Ribble Crossing*) would involve the construction of a new temporary crossing of the River Ribble between a point on West Bradford Road just south of the existing road bridge and a point off West Bradford Road to the north, approximately 50 m to the west of Waddington and West Bradford Primary School at its closest point.

32) On review of feedback received from members of the public and parish councils during the planning application consultation period, it is apparent that the majority of respondents favour the Ribble Crossing over Transport Route 1. In acknowledgement of this feedback, United Utilities has amended the June Planning Application, confirming that the Ribble Crossing would be constructed and used to facilitate construction of the Proposed Marl Hill Section.

33) The construction of the Ribble Crossing is anticipated to take approximately nine months in total and would also be required for access to the proposed Newton-in-Bowland compound associated with the Proposed Bowland Section (planning application 3/2021/0660). It is envisaged that access to the northern extent of the Ribble Crossing, off West Bradford Road between Waddington and West Bradford, would be required to construct the temporary haul route. For this reason, and to enable simultaneous construction of the Hodder Crossing proposed as part of planning application 3/2021/0660, United Utilities is seeking flexibility to use Transport Route 1 during the enabling works phase only, a period lasting no more than nine months. Construction traffic would be routed along the Ribble Crossing as soon as it is constructed. All construction traffic associated with the actual tunnel construction works would use the Ribble Crossing. On completion of construction works, the Ribble Crossing would also be used for any traffic associated with the commissioning of the new tunnels and reinstatement of associated compounds. After completion of all works the Ribble Crossing would be decommissioned and the location reinstated back to agricultural land. There would be tree and hedgerow planting to reinstate vegetation within the landscape, as described in the June 2021 Environmental Statement Volume 6 Chapter 6.

34) Further detail regarding the anticipated type and number of HGV movements requiring access along the existing road network during this nine month period is presented in an updated Construction Traffic Management Plan, which accompanies the January 2022 Planning Application, and in Technical Transport Report Appendix B8 to this report.

35) In summary, it is anticipated that during the nine month period the average and peak daily movements set out in Table 1 would apply:

Table 1: HGV Movements on Transport Route 1 during initial nine month enabling works phase

Route	Daily two-way HGV movements[2]	
	Peak	Average
Route 1 (through Clitheroe and Waddington)	121	78
Route 2 (through Chatburn, Grindleton and West Bradford) by exception only	4	N/A
West Bradford Road north of Pimlico link road (serving the compounds either side of the River Ribble)	16	6
Pimlico Link Road	121	88

3.2.3 Clitheroe Off-site Highways Works

36) As shown in Table 1, there would be only a very infrequent requirement for HGVs to travel through Chatburn, Grindleton and West Bradford on Route 2. On this basis, it is proposed that such movements would be managed without the need for the implementation of the highway modifications referenced as RW01, RW02, RW03, RW04, RW05, RW06, RW07 and PR01 in the June 2021 Planning Application (see Volume 5 of the June 2021 Environmental Statement for details of these now superseded proposals). For this reason, the Series 12 highways works planning drawings have been amended in the January 2022 Planning Application to reflect the removal of these works.

[2] A daily two-way flow comprises total vehicle movements during the course of the day i.e. one vehicle making an outward and return journey represents two daily vehicle movements.

Illustration 3: Braddup Compound - Indicative Use of Temporary Bridges on Access Track

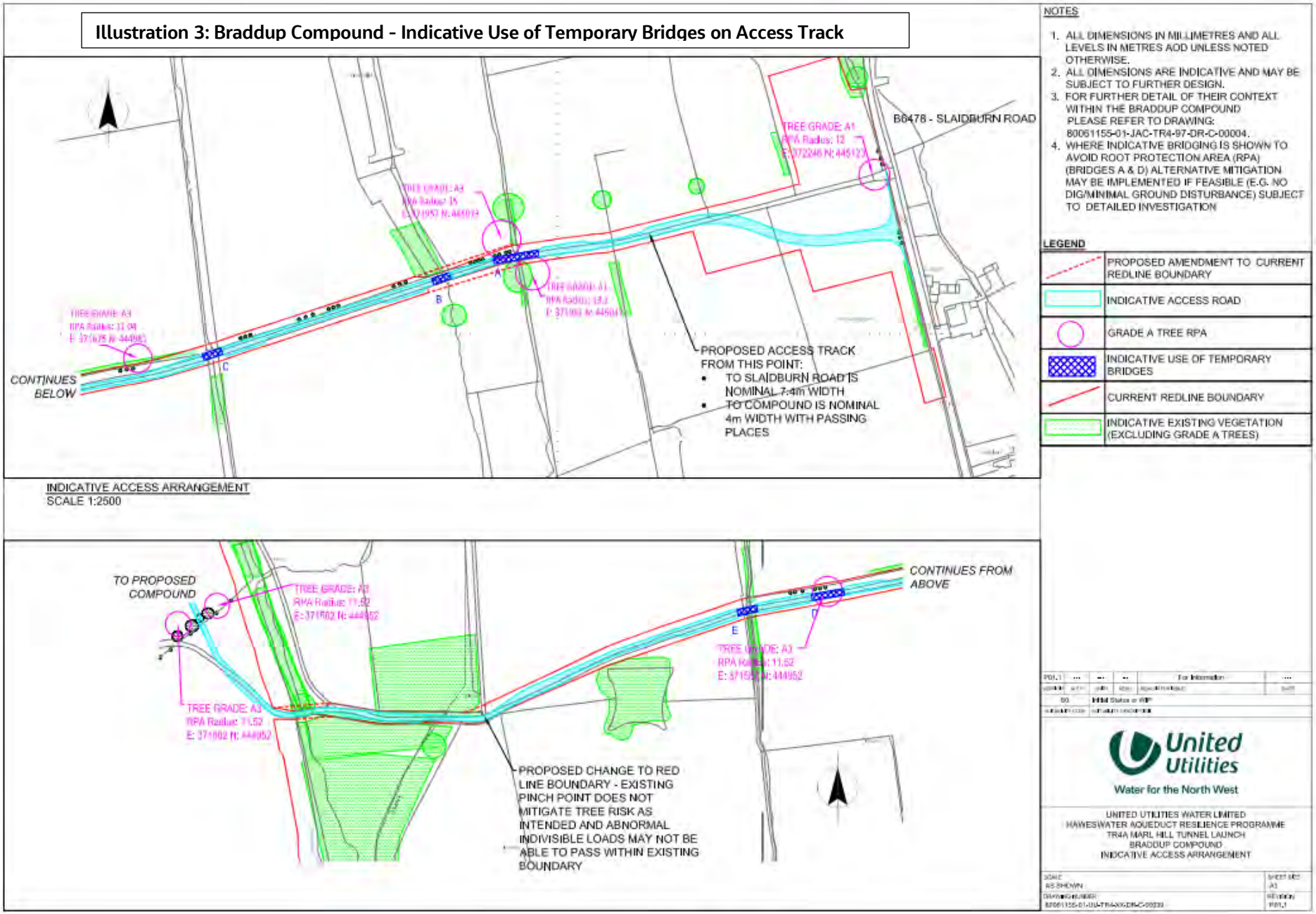


Table 2: Technical Scoping of the Proposed Marl Hill Section design change/updates

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
Landscape and Visual Assessment: Landscape effects	The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional landscape effects when compared to the likely significant effects identified in the June 2021 Environmental Statement. **Screened out** Further information to support this statement is presented in Appendix B1.	The nature and scope of the traffic management changes described in this SEI would result in no new or additional landscape effects when compared to the effects described in the June 2021 Environmental Statement. **Screened out** Further information to support this statement is presented in Appendix B1.	The reduced scope of the proposed off-site highways works (RW1-7) in the Chatburn, Grindleton and West Bradford areas would result in fewer landscape effects when compared to those described in the June 2021 Environmental Statement. The landscape effects described in the June 2021 Environmental Statement therefore represent a reasonable worst case outcome which would be unlikely to occur in practice. There is therefore no requirement to assess the effects of the Clitheroe off-site highways works. **Screened out** Further information to support this statement is presented in Appendix B1.
Landscape and Visual Assessment: Visual effects	The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional visual effects when compared to the likely significant effects identified in the June 2021 Environmental Statement. **Screened out** Further information to support this statement is presented in Appendix B1.	The nature and scope of the traffic management changes described in this SEI would result in no new or additional visual effects when compared to the effects described in the June 2021 Environmental Statement. **Screened out** Further information to support this statement is presented in Appendix B1.	The reduced scope of the proposed off-site highways works (RW1-7) in the Chatburn, Grindleton and West Bradford areas would result in fewer visual effects when compared to those described in the June 2021 Environmental Statement. The visual effects described in the June 2021 Environmental Statement therefore represent a reasonable worst case outcome which be unlikely to occur in practice. There is therefore no requirement

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
			to assess the effects of the Clitheroe off-site highways works. **Screened out** Further information to support this statement is presented in Appendix B1.
Arboriculture	There are several, notable changes at Braddup Compound: due to embedded mitigation, one veteran tree previously reported as being at risk of removal is no longer affected; the proposed temporary bridges span over the root zones of Grade A trees on the proposed access track; and a Grade A tree at the former entrance to the access track is no longer affected. A tree and a hedgerow are however at risk of removal after the arboricultural data were updated. **Screened out** Further information to support this statement is presented in Section 3.6.2.	The nature and scope of the traffic management changes described in this SEI would result in no new or additional visual effects when compared to the effects described in the June 2021 Environmental Statement. **Screened out**	The reduced scope of the proposed off-site highways works (RW1-7) in the Chatburn, Grindleton and West Bradford areas would result in fewer arboricultural losses when compared to those described in the June 2021 Environmental Statement. The arboricultural effects described in the June 2021 Environmental Statement therefore represent a reasonable worst case outcome which would be unlikely to occur in practice. There is therefore no requirement to assess the effects of the Clitheroe off-site highways works. However, the beneficial contribution of this change to cumulative tree losses associated with the Proposed Marl Hill Section is taken into account in Appendix B2 **Screened out** Further information to support this statement is presented in Appendix B2.

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
Water Environment	The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional effects on the surface water environment when compared to the likely significant effects identified in the June 2021 Environmental Statement. **Screened out** for surface water environment. The proposed temporary bridge structures on the access track serving the Braddup Compound could result in new likely significant effects on the groundwater environment when compared to the likely significant effects described in the June 2021 Environmental Statement. These new effects would relate to impacts on Groundwater Dependent Terrestrial Ecosystems (GWDTE). While not part of the Braddup Compound design change, GWDTE impacts would also occur at GWDTEs associated with the off-site highways works. **Screened in** for groundwater environment. Further information to support these statements, including an assessment of GWDTE effects, is presented in Appendix B3. The assessment of GWDTE effects associated with off-site highways is supplementary information to the June 2021 Environmental Statement, rather than design change-related.	The nature and scope of the traffic management changes described in this SEI would result in no new or additional effects on the water environment when compared to the effects described in the June 2021 Environmental Statement. **Screened out**	The reduced scope of the proposed off-site highways works (RW1-7) in the Chatburn, Grindleton and West Bradford areas would result in fewer effects on the water environment when compared to those described in the June 2021 Environmental Statement. The effects on the water environment described in the June 2021 Environmental Statement therefore represent a reasonable worst case outcome which would not occur in practice. There is therefore no requirement to assess the effects of the Clitheroe off-site highways works. **Screened out**

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
Flood Risk	Baseline conditions are described in Vol 2 Chapter 8, Section 8.5 of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional flood risk effects when compared to the effects described in the June 2021 Environmental Statement. **Screened out** Further information to support this statement is presented in Section 3.3.1 and in Appendix B4 Flood Risk Assessment and associated annexes.	The nature and scope of the traffic management changes described in this SEI would result in no new or additional flood risk effects when compared to the effects described in the June 2021 Environmental Statement. **Screened out**	The reduced scope of the proposed off-site highways works (RW1-7) in the Chatburn, Grindleton and West Bradford areas would avoid the flood risk effects described in the June 2021 Environmental Statement. There is therefore no requirement to further assess the effects of the Clitheroe off-site highways works. **Screened out**
Ecology	Baseline conditions are described in Vol 2, Chapter 9A and 9B of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional likely significant ecology effects when compared to those described in the June 2021 Environmental Statement. While there are no new additional adverse effects, the proposed changes give rise to positive embedded mitigation outcomes: notably veteran trees previously reported as being at risk of removal are no	Baseline conditions are described in Vol 4, Chapter 9A and 9B of the June 2021 Environmental Statement. The nature and scope of the traffic management changes described in this SEI would result in no new or additional ecology effects when compared to the effects described in the June 2021 Environmental Statement. **Screened out** Further information to support this statement is presented in Appendix B6.	Baseline conditions are described in Vol 5, Part II of the June 2021 Environmental Statement. The reduced scope of the proposed off-site highways works (RW1-7) in the Chatburn, Grindleton and West Bradford areas would result in fewer ecology effects when compared to those described in the June 2021 Environmental Statement which, therefore, represent a reasonable worst-case outcome which would be unlikely to occur in practice. **Screened out**

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
	longer affected and therefore effects on veteran trees are reduced to Not Significant. **Screened out** Further information to support this statement is presented in Appendix B5.		Further information to support this statement is presented in Appendix B7.
Cultural Heritage	Baseline conditions are described in Vol 2, Chapter 10, Section 10.5 of the June 2021 Environmental Statement. The amendment to the alignment of the access track at the junction with the B6478/Slaidburn Road as well as the inclusion of the bailey bridge along the access track into the compound would not give rise to any new or additional likely significant effects. **Screened out**	Baseline conditions are described in Volume 5 of the June 2021 Environmental Statement. The nature and scope of the traffic management changes described in this SEI would result in no new or additional cultural heritage effects when compared to those described in the June 2021 Environmental Statement. **Screened out**	Baseline conditions are described in Volume 5 of the June 2021 Environmental Statement. The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would avoid the cultural heritage effects described in the June 2021 Environmental Statement. There is therefore no requirement to further assess the effects of the Clitheroe off-site highways works. **Screened out**

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
Soils ,Geology and Land Quality	Baseline conditions are described in Vol 2, Chapter 11, Section 11.5 of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional soils, geology or land quality effects when compared to the described in the June 2021 Environmental Statement. **Screened out**	Baseline conditions are described in Vol 5 of the June 2021 Environmental Statement. The nature and scope of the traffic management changes described in this SEI would result in no new or additional soils, geology or land quality effects when compared to those described in the June 2021 Environmental Statement. **Screened out**	Baseline conditions are described in Volume 5 of the June 2021 Environmental Statement. The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would avoid the soils, geology and land quality effects described in the June 2021 Environmental Statement. There is therefore no requirement to further assess the effects of the Clitheroe off-site highways works. **Screened out**
Materials and Waste	Baseline conditions are described in Vol 2, Chapter 12, Section 12.5 of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional materials or waste effects when compared to those described in the June 2021 Environmental Statement. **Screened out**	The nature and scope of the traffic management changes described in this SEI would result in no new or additional materials or waste effects when compared to those described in the June 2021 Environmental Statement. **Screened out**	The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would avoid the materials and waste effects described in the June 2021 Environmental Statement at this location. There is therefore no requirement to further assess the effects of the Clitheroe off-site highways works. **Screened out**

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
Public Access and Recreation	Screened out Baseline conditions are described in Vol 2, Chapter 13, Section 13.5 of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional effects on public access or recreation when compared to those described in the June 2021 Environmental Statement. **Screened out**	Screened out Baseline Conditions are described in Vol 5? of the June 2021 Environmental Statement. The nature and scope of the traffic management changes described in this SEI would result in no new or additional effects on public access or recreation when compared to those described in the June 2021 Environmental Statement. **Screened out**	Baseline conditions are described in Volume 5 of the June 2021 Environmental Statement. The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would avoid the effects on public rights of way described in the June 2021 Environmental Statement at this location. PRoW 3-11-FP 5 is no longer affected by RW02, and PRoW 3-21-FP 57 is no longer affected by RW04. There is therefore no requirement to further assess the effects of the Clitheroe off-site highways works. **Screened out**
Communities and Health	Baseline conditions are described in Vol 2, Chapter 13, Section 13.5 of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional effects on communities and health when compared to those described in the June 2021 Environmental Statement. **Screened out**	The nature and scope of the traffic management changes described in this SEI would result in no new or additional effects on public access or recreation when compared to those described in the June 2021 Environmental Statement. **Screened out**	The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would avoid the communities effects described in the June 2021 Environmental Statement at this location. There is therefore no requirement to further assess the effects of the Clitheroe off-site highways works. **Screened out**

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
Major Accidents and Disasters	Baseline conditions are described in Vol 2, Chapter 15, Section 15.5 of the Proposed Marl Hill Section Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional effects on major accidents when compared to those described in the June 2021 Environmental Statement. **Screened out**	Baseline conditions are described in Vol 2, Chapter 15, Section 15.5 of the June 2021 Environmental Statement The nature and scope of the traffic management changes described in this SEI would result in no new or additional effects on major accidents when compared to those described in the June 2021 Environmental Statement. **Screened out**	Baseline conditions are described in Volume 2, Chapter 15, Section 15.5 of the June 2021 Environmental Statement. The removal of road widening locations RW01-RW07 and the parking restriction (PR01) would not give rise to any new or additional likely significant effects in relation to major accidents and disasters. **Screened out**
Transport Planning	Baseline conditions are described in Vol 2, Chapter16, Section 16.5 of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional effects on traffic or transport planning when compared to those described in the June 2021 Environmental Statement. **Screened out**	The nature and scope of the traffic management changes described in this SEI Report would result in no new or additional significant traffic or transport planning effects when compared to the effects described in the June 2021 Environmental Statement. However, it is noted that the proposed changes to the construction access strategy, specifically in relation to the first nine months of the construction programme, do require further explanation and consideration. **Screened in** Further information to explain the scope of the traffic impacts associated with the revised construction access strategy are presented in a Transport Technical Note at Appendix B8 and in	The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would alter the transport planning and traffic effects described in the June 2021 Environmental Statement. This alteration to traffic flows would be insignificant in the context of the EIA Regulations. **Screened out**

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
		a new Construction Traffic Management Plan which supersedes the June 2021 version.	
Noise and Vibration	Baseline conditions and assessment of significant effects as reported in Vol 2, Chapter 17 Section 17.5 of the June 2021 Environmental Statement. The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional noise or vibration effects when compared to those described in the June 2021 Environmental Statement. **Screened out**	The nature and scope of the traffic management changes described in this SEI would result in no new or additional noise and vibration effects when compared to the effects described in the June 2021 Environmental Statement. However, the redistribution of traffic on the local road network, when compared with the assumptions used in the June 2021 noise model, does require further consideration and explanation. **Screened in** for redistribution of traffic on the local road network. Further information is presented in Section 3.4.1.	The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would avoid the noise and vibration effects described in the June 2021 Environmental Statement at these locations. These effects were associated with construction of the off-site highways works. There is therefore no requirement to further assess the effects of the Clitheroe off-site highways works. **Screened out**
Air Quality	Baseline conditions are described in Vol 2, Chapter 18, Section 18.5 of the June 2021 Environmental Statement The nature and scope of the proposed changes to the access track serving the Braddup Compound would result in no new or additional air quality effects when compared to those described in the June 2021 Environmental Statement. Carbon emissions and climate effects associated with construction of the Bailey bridge footings, and installation of the bridge decks, would have no material bearing on the calculated carbon emissions presented, and the	Baseline conditions are described in Volume 5 of the June 2021 Environmental Statement. The nature and scope of the traffic management changes described in this SEI would result in no new or additional air quality effects when compared to the those described in the June 2021 Environmental Statement. However, the redistribution of traffic on the local road network, when compared with the assumptions used in the June 2021 air quality model, does require further consideration and explanation.	Baseline conditions are described in Volume 5 of the June 2021 Environmental Statement. The reduced scope of the proposed off-site highways works (RW01-07) in the Chatburn, Grindleton and West Bradford areas would avoid the carbon emissions associated with construction of these off-site works. There is therefore no requirement to further assess the carbon and climate effects of the Clitheroe off-site highways works. **Screened out**

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works
	conclusions drawn, in the June 2021 Environmental Statement. **Screened out**	Carbon emissions and climate effects associated with the revised construction traffic access strategy would have no material bearing on the calculated carbon emissions presented, and the conclusions drawn, in the June 2021 Environmental Statement. This is because the total number of vehicle movements over the duration of the entire construction programme is broadly similar under the proposed Clitheroe transport route updates. **Screened in** for redistribution of traffic on the local road network. Further information is presented in Section 3.4.2.	

3.3 Braddup Compound Design Amendments

37) Further details to support the statements made in Table 2 concerning the Water Environment are presented below.

3.3.1 Water Environment

Fluvial Geomorphology and Water Quality

38) The change to using bridge spans on short sections of the Braddup Compound access track would have a beneficial impact on fluvial geomorphology and water quality when compared with the conclusions drawn in the June 2021 Environmental Statement, as there would no longer be any in-channel working proposed. However, in the previous assessment none of the proposed crossings was predicted to result in a likely significant effect. Therefore, there is no change to the overall outcomes from the June 2021 Environmental Statement.

Groundwater and GWDTEs

39) The proposed 'Bailey' type temporary bridges along the Braddup Compound access track may require excavations of up to 2 m maximum depth, for foundations either side of the bridge span. These excavations are proposed to take place within areas classified as having a low groundwater dependency, or areas not considered to be groundwater dependent. The water table is therefore unlikely to be at, or close to, the ground surface during construction of these temporary bridges. As such, no dewatering assessment has been carried out for these works, although localised impacts from intercepting a slightly deeper water table have been considered for the GWDTEs. Appendix B3 identifies two sites – Slaidburn Road West and Whinny Lane East – where likely significant effects may occur.

Flood Risk

40) The addition of the Bailey bridge-type structures on top of the existing road would mean that during a flood event, should the existing culverts surcharge, the resultant flood flows may be restricted by the bridge, thereby increasing flood risk upstream of the access track. The bridges and access road could also be at risk of flooding. It is therefore anticipated that there would be an increased flood risk when compared with the June 2021 Environmental Statement conclusions. While representing a small risk that is not significant in the context of the EIA Regulations, mitigation would be required through a flood response plan to be developed by the contractor.

41) The downstream impact of the bridge structures would be negligible, as the sections of bridge would be less than 15 m wide and so water should not be diverted out of the catchment. There would also be no increase in pass forward flow when compared with baseline conditions.

3.4 Clitheroe Transport Route Updates

42) A new access strategy, proposed to be in place for the first nine months of the construction programme, is summarised above in Section 3.2.2 and in the January 2022 Construction Traffic Management Plan. Peak construction traffic flows on the local road network during the concurrent construction of the Ribble and Hodder crossings would be lower than those considered in both Volume 2 and Volume 6 of the Environmental Statement; minimal changes in the proportion of HGV and vehicle speeds are anticipated.

43) As such, based on the assessment of potential road traffic impacts presented in the Environmental Statement (both Volume 2 and Volume 6), and when considering that no uplift in peak traffic flows would occur during the concurrent construction of the Ribble and Hodder crossings, no significant effects are anticipated.

44) Further details to support the statements made in Table 2 concerning Noise and Vibration and Air Quality are presented below.

3.4.1 Noise and Vibration

45) Volume 2 Chapter 17 of the June 2021 Environmental Statement presented an assessment of construction noise due to vehicles accessing the Bonstone and Braddup construction compounds via Clitheroe during the peak period of construction, as described below.

- Bonstone Compound – construction access to the compound would be via the A59 south of Clitheroe (approximately 14 km south of the Bonstone compound). Construction traffic would access the Clitheroe area from the A59 and would exit onto the Pimlico Link Road (north-east of Clitheroe). Abnormal loads (vehicles greater than 3.5 m in height) would then travel east toward Chatburn and then north-west to West Bradford and Waddington, while normal HGV loads would travel west from Pimlico Link Road towards Clitheroe and then north to Waddington. Once at Waddington, all traffic would travel north along Slaidburn Road before arriving at the compound

- Braddup Compound – access would be as above for the Braddup Compound, with the construction traffic route extending approximately 9 km from the A59 to the Braddup compound.

46) In addition, Chapter 17 of the June 2021 Environmental Statement Volume 6 included an assessment of construction noise due to vehicles accessing the Ribble Crossing via Clitheroe during the peak period of construction, as described below. The construction vehicle access for the Proposed Ribble Crossing would be via West Bradford Road, both west and south of the Proposed Ribble Crossing route, as well as A671 Slaidburn Road to the west and B6478 Pimlico Link Road to the south.

47) The construction traffic routes described above are explained in more detail in Appendix B8.

48) The assessment presented in Volume 2 and Volume 6 of the June 2021 Environmental Statement did not identify any road links where noise levels were predicted to exceed a recognised threshold known as the SOAEL[3], and result in a moderate (or greater) magnitude of change. No likely significant traffic noise impacts were therefore identified.

3.4.2 Air Quality

49) The anticipated combined vehicle flows on the road network during the initial nine month period commencing early 2023 were analysed to determine whether these would be greater than those considered in the air quality assessment provided in Volume 2 Chapter 18 of the June 2021 Environmental Statements.

50) It is concluded that vehicle flows on each specific road link in the study area, expressed as an Annual Average Daily Traffic (AADT) flow, would be no greater than those previously assessed. On this basis, there would be no change to the conclusions drawn in the June 2021 Environmental Statements, namely that emissions to air from the diesel generators and additional road traffic are unlikely to result in any significant air quality effects at properties occupied by people, or at the designated biodiversity sites.

51) Although further assessment has been undertaken for nitrogen deposition at North Pennine Dales Meadows Special Area of Conservation (SAC) and nitrogen and acid deposition at the Bowland Fells Special Protection Area (SPA) and Bowland Fells Site of Special Scientific Interest (SSSI), this was in relation to diesel generator emissions and not to road traffic emissions.

3.5 Off-site Highways Works

3.5.1 Air Quality

52) The use of the proposed Ribble Crossing access strategy also removes the need for road widening locations RW01-RW07 and the parking restriction at Chatburn (PR01). This reduces the amount of

[3] Significant Observed Adverse Effect Level This is the level above which significant adverse effects on health and quality of life may occur. It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times.

construction works required which is beneficial from an air quality perspective as it reduces both emissions to atmosphere from construction plant and machinery, and the risk of construction dust impacts. The conclusion drawn in the June 2021 Environmental Statements therefore still stands – no likely significant air quality effects associated with the remaining off-site highways works, underpinned by the implementation of appropriate good practice measures to mitigate fugitive dust emissions.

3.5.2 Water Environment

Water Quality

53) The proposed reduction in the scope of off-site highways works for the Proposed Marl Hill Section would result in no overall change in the outcomes of the water quality assessments described in the June 2021 Environmental Statement.

Groundwater

54) The proposed reduction in the scope of off-site highways works RW01-RW07 would have no additional effect on groundwater when compared with the conclusions drawn in the June 2021 Environmental Statement.

Flood Risk

55) There would be no change to the significance of flood risk effects arising from the proposed removal of the off-site highways works, when compared with the conclusions drawn in the June 2021 Environmental Statement.

3.6 Embedded Mitigation

56) Following submission of the June 2021 Environmental Statement further work has been undertaken to minimise the impacts on arboricultural features through embedded mitigation. This has reduced the number of trees adversely affected when compared with the June 2021 Environmental Statement. The methodology is consistent with Volume 4, Appendix 6.6, Section 1.6 of the June 2021 submission.

57) The tables below indicate the tree impacts reported in the June 2021 Environmental Statement and the revised summary of arboricultural impacts taking account of embedded mitigation developed after June 2021. Individual tables are included for each of the proposed compound areas (Tables 3 and 4 for Bonstone compound and Tables 5 and 6 for Braddup compound).

58) The updated associated Tree Constraints and Assessment Plans (RVBC-MH-FIG-006-005-AD1) contain information on tree feature locations and their RAG assessment impacts. The update to the Preliminary Trees at Risk Plan (R VBC-MH-FIG-006-006) shows the extent of potential tree loss, trees at risk and tree retention within the planning application boundary.

3.6.1 Bonstone Compound

Table 3: Summary RAG status of trees at Bonstone Compound – June 2021 Environmental Statement

BS5837:2012 grades	RAG status			
	Removal/Partial Removal	RRAtR	RwPM	Subtotals
A	1	0	4	**5**
B	4	2	20	**26**
C	6	1	11	**18**
U	0	0	0	**0**
Subtotals	**11**	**3**	**35**	**49**

Table 4: Summary RAG status of trees at Bonstone Compound – January 2022 SEI Report

BS5837:2012 grades	RAG status			
	Removal/Partial Removal	RRAtR	RwPM	Subtotals
A	0	0	5	5
B	3	1	22	26
C	6	0	12	18
U	0	0	0	0
Subtotals	**9**	**1**	**39**	**49**

59) The revised assessment for Bonstone Compound confirms that 39 of the tree features surveyed fall into the category of *retained with protection measures*, four more than recorded in the June 2021 Environmental Statement. One of these tree features is a Grade A specimen which had previously been at risk of removal or partial removal. One of the surveyed features falls into the category *at risk of removal aiming to retain*; previously this category comprised three tree features.

60) One tree feature - T144 - has been changed from *removal/ partial removal* to *retained with protection measures*.

61) Two tree features have been changed from *risk of removal aiming to retain* to *retain with protection measures* - T153 and G157.

3.6.2 Braddup Compound

Table 5: Original summary RAG status table of trees at Braddup compound

BS5837:2012 grades	RAG status			
	Removal/Partial Removal	RRAtR	RwPM	Subtotals
A	2	7	6	**15**
B	4	10	17	**31**
C	1	7	6	**14**
U	0	1	0	**1**
Subtotals	**7**	**25**	**29**	**61**

Table 6: Addendum summary RAG status table of trees at Braddup compound

BS5837:2012 grades	RAG status			
	Removal/Partial Removal	RRAtR	RwPM	Subtotals
A	0	0	15	15
B	5	0	26	31
C	2	0	12	14
U	1	0	0	1
Subtotals	**8**	**0**	**53**	**61**

62) The revised assessment for Braddup Compound confirms that approximately 53 of the tree features surveyed fall into the category of *retained with protection measures*. No surveyed features fall into the category *at risk of removal aiming to retain*.

63) Two veteran trees have been changed from *removal/partial removal* to *retain with protection measures* - T190 and T187.

64) Twenty-two tree features have been changed from being *at risk of removal aiming to retain* to *retain with protection measures*; these are T193, G188, G191, G190, G184 T186, G170, G181, G177, G178, T183, T182, T180, G174, W171, T176, T177, T178, H167 and T165 including two veterans, T185 and T184.

4. Additional Environmental Data

4.1 Introduction

65) Section 4 signposts the reader to additional environmental data which has been compiled following submission of the June 2021 Environmental Statement. In some cases this information updates that provided in the June 2021 Environmental Statement (for example, in relation to the arboricultural impact of off-site highways works described in Volume 5 of the June 2021 submission), while in other instances it comprises entirely new information, such as the flood risk assessment of the Ribble Crossing.

66) In addition to additional environmental data, Section 4 provides further information relating to the Major Development Test for delivering the Proposed Marl Hill Section in the AONB. A Major Development Test technical note supported the June 2021 Planning Application. Further to submission of the June 2021 Planning Application, AONB Board officers and Natural England have requested more details of how landscape and visual factors were taken into consideration when evaluating alternative locations for the two main compounds. This additional information, supported by a narrative on engineering constraints governing the location of the construction compounds, is provided in Section 4.3.

4.2 Additional Environmental Data

67) Further technical appendices, additional to those presented in the June 2021 Environmental Statement, have been produced to report additional environmental data.

4.2.1 Landscape and Visual Addendum (Appendix B1)

68) As stated in Appendix A and Section 2, Appendix B1 provides supplementary information to the June 2021 Landscape and Visual Impact Assessment (Volume 2, Chapter 6). The report summarises that there would be no change to the likely significant effects experienced by landscape and visual receptors as a result of the changes at the Proposed Bonstone and Braddup Compounds. The removal of the road widening locations (RW01-RW07) and the parking restriction (PR01) from the off-site highways works would avoid the likely significant effects experienced by three previously identified visual receptors from the June 2021 Environmental Statement.

4.2.2 Off-site Highways Arboricultural Technical Note (Appendix B2)

69) Appendix B2 supplements the Volume 5 Off-Site Highways works presented in the June 2021 Environmental Statement (RVBC-MH-ES-V5-P1-001 and RVBC-MH-FIG-V5-P1-002). This appendix provides an update on the methodology followed for the off-site highways works as well as the number of trees at risk of removal/partial removal shown on RVBC-MH-FIG-V5-P1-003.

4.2.3 Off-site Highways Works GWDTE assessment (Appendix B3)

70) Appendix B3 assesses the potential impacts on groundwater levels and flows sustaining Groundwater Dependent Terrestrial Ecosystems (GWDTEs) that could arise during the construction of the proposed off-site highways works. Three off-site highways sites – Ringley Hey North (RW15), Moorcock House East (RW16) and Waddington Fell (RW18 and RW19) – are predicted to experience significant potential effects during construction. Impacts to groundwater flows and quality could be significant, however, effects impacts would be very localised in nature.

4.2.4 Decommissioned Aqueduct - Groundwater Impacts

71) The Marl Hill Section comprises two sections of the existing Haweswater Aqueduct where decommissioning could likely impact surface receptors, including GWDTEs: one conduit section (hereafter referred to as the 'northern conduit') and one tunnel section ('southern tunnel section'). These are located at the northern end of the Marl Hill section (where the aqueduct is between approximately 7 m and 17 m deep), and in the centre/south, leading into the Braddup Compound (where the aqueduct is between approximately 3 m and 60 m deep). As described in the June 2021 Environmental Statement (Chapter 7: Water Environment), these are expected to result in a localised drawdowns in groundwater

levels of up to around 4.5 m along the northern conduit) and between 4.5 m and 3 m along the southern tunnel section.

72) Based on the ecological surveys available to support GWDTE assessments, the following GWDTEs could be impacted by dewatering effects :

- Upper Bonstone Wood
- Dribble Wood South
- Braddup Moss Wood
- Braddup House.

73) Minor dewatering impacts not considered to be of significance to the GWDTEs would be expected in the majority of cases. However geological uncertainties remain in vicinity of Braddup Moss Wood, and potential impacts of moderate magnitude cannot be ruled out. Unless additional site investigations were to be undertaken and demonstrate the presence of low and reasonably thick permeability layers such as mudstone between the existing aqueduct and the surface, able to attenuate below ground groundwater drawdown effects, additional mitigation measures would need to be considered.

74) In line with Chapter 7 of the June 2021 Environmental Statement, mitigation measures for watercourses potentially impacted by long-term dewatering should include a groundwater Monitoring Strategy to be developed for Braddup Moss Wood in consultation with the Environment Agency. The Monitoring Strategy would determine the nature and duration of monitoring at each location, and also identify - should any detrimental effects be detected - what additional measure could be taken to reduce these impacts.

4.2.5 Flood Risk Assessment – Ribble Crossing (Appendix B4)

75) Appendix B4 has been prepared to support the planning application for the Proposed Marl Hill Section. The report provides an update to the Flood Risk Assessment report submitted in March 2021 to include the hydraulic modelling work undertaken for the River Ribble and its tributaries. The FRA confirms that based on the proposed design and good practice mitigation included with the CCoP, the Proposed Ribble Crossing would be safe from flooding and would not increase the risk of flooding elsewhere.

4.2.6 Ecology Marl Hill (Appendix B5)

76) Appendix B5 has been prepared to support the planning application for the Proposed Marl Hill Section. The report includes an updated Phase 1 Habitat plan and updated Trees with Roost Potential plan, both plans have been created to display the changes to the planning application boundary along the Braddup Compound access. Appendix B5 also includes the findings of additional aquatic ecology surveys along Coplow Brook (associated with the Bonstone Compound) which were not available for the June 2021 submission. The appendix reviews the implications of:

- The proposed changes to the Braddup Compound access including the additional GWDTE assessment
- The updated AIA for the Bonstone and Braddup compounds
- The GWDTE assessment of the decommissioned asset
- The additional aquatic ecology surveys.

77) Appendix B5 confirms the only changes to significant effects reported in the June 2021 Environmental Statement Vol 2 are a reduction in effects on veteran trees to Not Significant. It also introduces the uncertainty over the potential for significant effects on Braddup Moss Wood to arise as a result of decommissioning of the existing asset. However, significant residual effects can be mitigated through expansion of the monitoring and mitigation scheme (proposed in the June 2021 submission to cover

some watercourses above the decommissioned asset). It also states that addendums to the June 2021 HRA and SSSI assessment have been submitted and confirm no change. Furthermore, it confirms an updated BNG onsite report has been submitted to account for changes in the planning boundaries updated BNG offsetting report to display changes to offsite proposals.

4.2.7 Ecology Ribble Crossing (Appendix B6)

78) Appendix B6 has been prepared to support the planning application for the Proposed Ribble Crossing for the Marl Hill Section. The report includes a repeated otter survey of the River Ribble and the findings of breeding bird surveys along the Ribble Crossing which was not available for the June 2021 submission. The appendix reviews the implications of:

- The confirmation of the construction traffic route option
- The breeding bird survey results
- The additional aquatic ecology surveys.

79) Appendix B6 confirms no changes to significant effects reported in the June 2021 ES Vol 4. It also provides clarification on statements made in the June 2021 submission regarding trees with bat roost potential. Furthermore, it confirms updated BNG onsite and offsite reports have been submitted to include the river metric.

4.2.8 Ecology Marl Hill Off-site Highways (Appendix B7)

80) Appendix B7 has been prepared to support the planning application for the Proposed Off-Site Highways Works for the Marl Hill Section. The report includes technical ecology reports and data summary tables used in the June 2021 assessment but not previously submitted. The appendix reviews the implications of:

- The removal of works areas RW01 to RW07
- The confirmation of the construction traffic route option
- The GWDTE assessment of the offsite highways works.

81) Appendix B7 confirms no changes to significant effects reported in the June 2021 Environmental Statement Vol 5 Part II. It also responds to consultation comments regarding potential for effects on barn owl confirming no significant effects. Furthermore, it confirms updated BNG onsite and offsite reports have been submitted to include the off-site highways works.

4.2.9 Transport Technical Note (Appendix B8)

82) Appendix B8 supplements the Transport Planning Chapter and Transport Assessment submitted for the Proposed Marl Hill Section June 2021 (RVBC-MH-ES-016 and RVBC-MH-TA-016-001). This technical note examines the number of vehicles required to construct both the Ribble Crossing and Hodder Crossing simultaneously and considers how the vehicle numbers associated with the revised programme compare against those required for the Bonstone and Braddup Compounds. It is considered that the potential traffic impacts and the proposed mitigation measures contained in the Transport Planning Environmental Statement chapter submitted in the June 2021 Environmental Statement continue to represent the reasonable worst case scenario for the road sections.

4.2.10 Environmental Masterplan (Appendix B9)

83) The Environmental Masterplan (EMP) comprises 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 environmental effects.

84) The EMP covers a limited number of EIA topic areas, namely: Landscape and Arboriculture, Ecology, Cultural Heritage, Water Environment, Public Access and Recreation and Noise and Vibration. The EMP has been updated for the Bonstone and Braddup Compounds following updates to the arboricultural assessment and design changes at the Braddup Compound.

4.3 AONB Major Development Test – Additional Information

85) The Major Development Test for development in nationally protected landscapes, including AONBs, 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 any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.'*

4.3.1 Braddup Compound

86) The assessment area is within landscape character area (LCA) 05g South Bowland Fringes (*A Landscape Strategy for Lancashire*) and straddles the LCAs of LCA F2: Bolton by Bowland to Waddington and LCA West G7: Browsholme (*Forest of Bowland AONB Landscape Character Assessment*). Within Appendix 6.3, the Landscape Sensitivity Schedule of the June 2021 Environmental Statement, these LCAs have been assessed as having a high sensitivity to change, in large part due to the highly valued distinctive character and natural beauty of the AONB.

87) These LCAs have common characteristics including *'strong intervisibility with surrounding landscapes, although woodland and hedgerows limit views in places', and 'strong evidence of land management, farming and settlement' and 'lower susceptibility to development'*. These LCAs also have been considered to have a *'moderate visual susceptibility to large-scale development'*. Adjacent LCAs to the north, also have a high sensitivity to change although these are located in more elevated locations and generally more susceptible to large scale development. The adjacent LCA to the south, 5a Lower Hodder and Loud Valley, is noted as having *'a strong sense of settled remoteness and scenic attractiveness that would be highly susceptible to development'*.

88) Locally, it is a settled gently sloping agricultural landscape with few visual detractors or distinguishing features. A medium scale, mostly regular field pattern with mature hedgerows and hedgerow trees is common across the area. Woodland blocks are less common. Wooded stream valleys start from the higher fells falling southwards. Occasional large scale farms and rural residential properties are located along the local roads, and a footpath network provides good access through the area. Two hard surfaced access tracks lead to the United Utilities existing valve house buildings.

89) The Proposed Braddup Compound is in a location surrounded by plantation woodland and linear woodland. Woodland provides a good level of screening, reducing the influence from disruption and perceived change to the landscape. The proposed compound would extend across two fields, separated by a defunct hedgerow, evident from the few remaining trees. The existing United Utilities valve house buildings within this location benefit from the screening provided by the woodland.

90) Within the same LCAs, surrounding areas and fields to the north and east have similar landscape characteristics, although with less woodland cover and less benefit gained from screening, resulting in more open aspects and a greater perception of change, albeit temporary. Hedgerows in these locations are more intact, with less opportunity for avoidance, assuming that the compound would be of a similar scale. Approximately 100 m to the west two larger fields are combined that potentially could accommodate the compound without loss of hedgerow. Approximately 200 m further to the west of this location is the historic Browsholme parkland surrounding Browsholme Hall, a Grade 1 listed building. A construction compound located further west would have a greater chance of affecting the setting of Browsholme Hall. Historic landscape characterisation identifies land between Browsholme Hall and the preferred location as moorland, and is considered more sensitive to change than the enclosed fields Historic landscape characterisation of the current location. Areas within the same LCAs to the south of Cross Lane (south of the proposed compound location) have low levels of woodland cover and therefore

less ability to limit influence of the proposed compound. Areas here are also, visually, quite open, allowing long distance views southwards.

91) In terms of visibility, woodland surrounding the proposed compound provides effective screening, limiting views towards the proposed compound, whereas surrounding areas are more open and would result a greater degree of visibility of disruption and change.

92) From an engineering design and construction viewpoint, a tunnel option to the west of the current aqueduct was discounted due to unsuitable topography. This was principally due to the presence of Bonstone Brook at the north end of the tunnel route which would have necessitated a significant above-ground structure to span the watercourse. In addition, there would be insufficient ground cover at other sections of an eastern route. This would have required deep open cut construction at ground level in remote locations of the AONB where tunnelling would not be possible.

93) The proposed tunnel route terminates adjacent to the existing well building at Braddup in order to enable connection to the existing aqueduct pipelines that cross the Ribble Valley. The connection point location is fixed due to the need to maintain pressures in the pipelines and continuity of supply including to the existing offtakes. This results in the need for the tunnel to be constructed at or above circa 170 m AOD. An alternative termination location would also necessitate significant lengths of open cut construction with a circa 100 m working corridor in order to lay new pipework to the connection point. Deviation from the 170 m contour level would also result in increased depths of excavation.

4.3.2 Bonstone Compound

94) The assessment area is within LCA 05a Upper Hodder Valley (A Landscape Strategy for Lancashire) and G3: Upper Hodder (Forest of Bowland AONB Landscape Character Assessment). Within Appendix 6.3, the Landscape Sensitivity Schedule, of the June 2021 Environmental Statement these LCAs were assessed as having a high sensitivity to change.

95) These LCAs have common characteristics including '*strong intervisibility with surrounding landscapes, although woodland and hedgerows limit views in places*'. Appendix 6.3 describes LCA G3: Upper Hodder (Forest of Bowland AONB Landscape Character Assessment) as having '*some intervisibility with surrounding landscapes, although woodland and hedgerows limit views in places*.' This LCA also has been considered to have a *'moderate visual susceptibility to large-scale development*.' Adjacent LCAs to the north and south, also have a high sensitivity to change although these are located in more elevated locations and generally more susceptible to large scale development.

96) Locally, the landscape is gently undulating within the broad lower slopes of the Hodder Valley. It is a mostly agricultural landscape with regular field pattern and occasional irregular shaped woodlands. Wooded stream valleys start from the higher fells falling northwards to the River Hodder. Occasional rural residential properties are located along the local roads. Farms are set widely within the rural landscape and notable as larger-scale developments. A footpath network provides good access through the area. A single hard surfaced access track, visible from Slaidburn Road, leads to the existing United Utilities valve house buildings.

97) The Proposed Bonstone Compound location is surrounded by woodlands, and when viewed locally these provide a good level of screening from most locations, reducing the influence from disruption and perceived change to the landscape. The surrounding higher fells allow extensive views to most areas of the River Hodder valley below. The proposed location extends across four fields, with hedgerow and fence boundaries. Most hedgerow features would be retained and protected, although a very small part of a hedgerow would be removed and reinstated on completion of the work. A new valve house building would be located close to existing United Utilities infrastructure and would use the existing access track, again limiting any permanent change.

98) Within the same LCAs, surrounding areas and fields to the south and east have a more open aspect being at a slightly higher elevation, with less benefit gained from nearby woodland, and therefore greater probability of disruption being perceived, thereby altering tranquility within the settled valley location. The landscape nearer to the River Hodder becomes more open and remaining hedgerow boundaries are mainly made up of intermittent mature trees. There is a greater level of openness here and lack of screening features means there is less ability to reduce the influence from any development disruption.

99) In terms of visibility, woodland surrounding the proposed compound provides effective screening, limiting views towards the proposed compound, whereas surrounding areas are more open and would result greater visibility.

100) As for the Braddup compound, the termination position of the proposed tunnel enables connection to the existing aqueduct pipelines, which at Bonstone cross the Hodder valley. Similarly the tunnel needs to be constructed at or above circa 170 m AOD. Any alternative termination locations would also require significant lengths of open cut construction with a circa 100 m working corridor in order to lay new pipework to the connection point. Deviation from the 170 m contour level would also result in increased depths of excavation.

5. Likely Significant Effects and Cumulative Assessment

5.1 Likely Significant Effects

101) Table 7 summarises the additional likely significant environmental effects – both positive and negative – which arise from the proposed design change and alteration to the planning application boundary at Braddup Compound, and the proposed alteration to the traffic access strategy in the first nine months of the programme. It is notable that in the majority of cases the changes and additional environmental information described in this report do not alter the key conclusions drawn in the June 2021 Environmental Statement and its associated documents.

Table 7: Summary of Likely Significant Effects

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works	Additional Environmental Data
Landscape and Visual – Landscape	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Landscape and Visual – Visual	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Arboriculture	Two veteran trees T190 and T187 have been changed from 'removal/partial removal' to 'retain with protection measures' – a significant beneficial effect when compared with the June 2021 Environmental Statement	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Water Environment – Surface Water	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Water Environment - Groundwater	Likely significant effects on two GWDTEs - Slaidburn Road West and Whinny Lane East	No new or different likely significant effects	No new or different likely significant effects	Three off-site highways sites – Ringley Hey North (RW15), Moorcock House East (RW16) and Waddington Fell (RW18 and RW19) – are predicted to experience significant potential effects during construction

EIA Topic	Braddup Compound amendment to access track	Clitheroe transport route updates	Clitheroe off-site highways works	Additional Environmental Data
Flood Risk	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Ecology	Reduction in effects on veteran trees to Not Significant (reported in Arboriculture above). Uncertainty over the potential for significant effects on Braddup Moss Wood to arise as a result of decommissioning of the existing asset	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Cultural Heritage	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Soils, Geology and Land Quality	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Materials and Waste	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Public Access and Recreation	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Communities and Health	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Major Accidents	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Transport Planning	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Noise and Vibration	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects
Air Quality and Climate	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects	No new or different likely significant effects

5.2 Cumulative Effects

102) The June 2021 Environmental Statement (Chapter 19) addressed potential cumulative effects. The cumulative assessment was based on technical content drawn from each of the five Environmental Statements, one of which was for the Proposed Marl Hill Section, that were prepared in support of the nine HARP planning applications. A cumulative assessment was possible at the time of the June 2021 Environmental Statement as it was prepared at approximately the same time as the other HARP Environmental Statements for the other proposed sections.

103) The current SEI Report and January 2022 Planning Application for the Proposed Marl Hill Section have been prepared prior to the completion of three of the five SEI Reports that are being produced at a route-wide level. The opportunity to fully update the cumulative assessment is therefore very limited. It is not anticipated that a cumulative assessment of the key findings from each of the five SEI Reports will give rise to any notable changes to the conclusions reached in the 2021 Environmental Statements. However, in the interests of completeness, an updated HARP-wide cumulative assessment will be provided to each of the relevant planning authorities under separate cover.

104) One topic of particular interest to certain key stakeholders was an updated cumulative assessment of tree features affected by the Proposed Marl Hill Section. This information is provided in Tables 8 and 9 below.

Table 8: Summary RAG status of Bonstone and Braddup Compounds and Proposed Ribble Crossing

BS5837:2012 grades	RAG status			
	Removal/Partial Removal	RRAtR	RwPM	Subtotals
A	0	0	28	28
B	9	3	125	137
C	19	1	212	232
U	1	0	14	15
Subtotals	**29**	**4**	**379**	**412**

Table 9: Summary RAG status of Off-site Highways Works

BS5837:2012 grades	RAG status			
	Removal/Partial Removal	RRAtR	RwPM	Subtotals
A	0	0	1	**1**
B	7	2	2	**11**
C	11	4	9	**24**
U	2	0	2	**4**
Subtotals	**20**	**6**	**14**	**40**

FIGURE 1.2

BONSTONE COMPOUND

BRADDUP COMPOUND

RIBBLE VALLEY BOROUGH COUNCIL

NEWTON CP

RIBBLE VALLEY DISTRICT

WEST BRADFORD CP

WADDINGTON CP

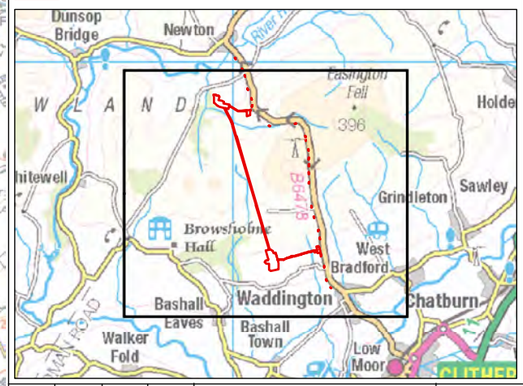
BASHALL EAVES CP

ROMAN ROAD (course of)

0 0.5 1 2 kilometers

Legend

Planning Application Boundary



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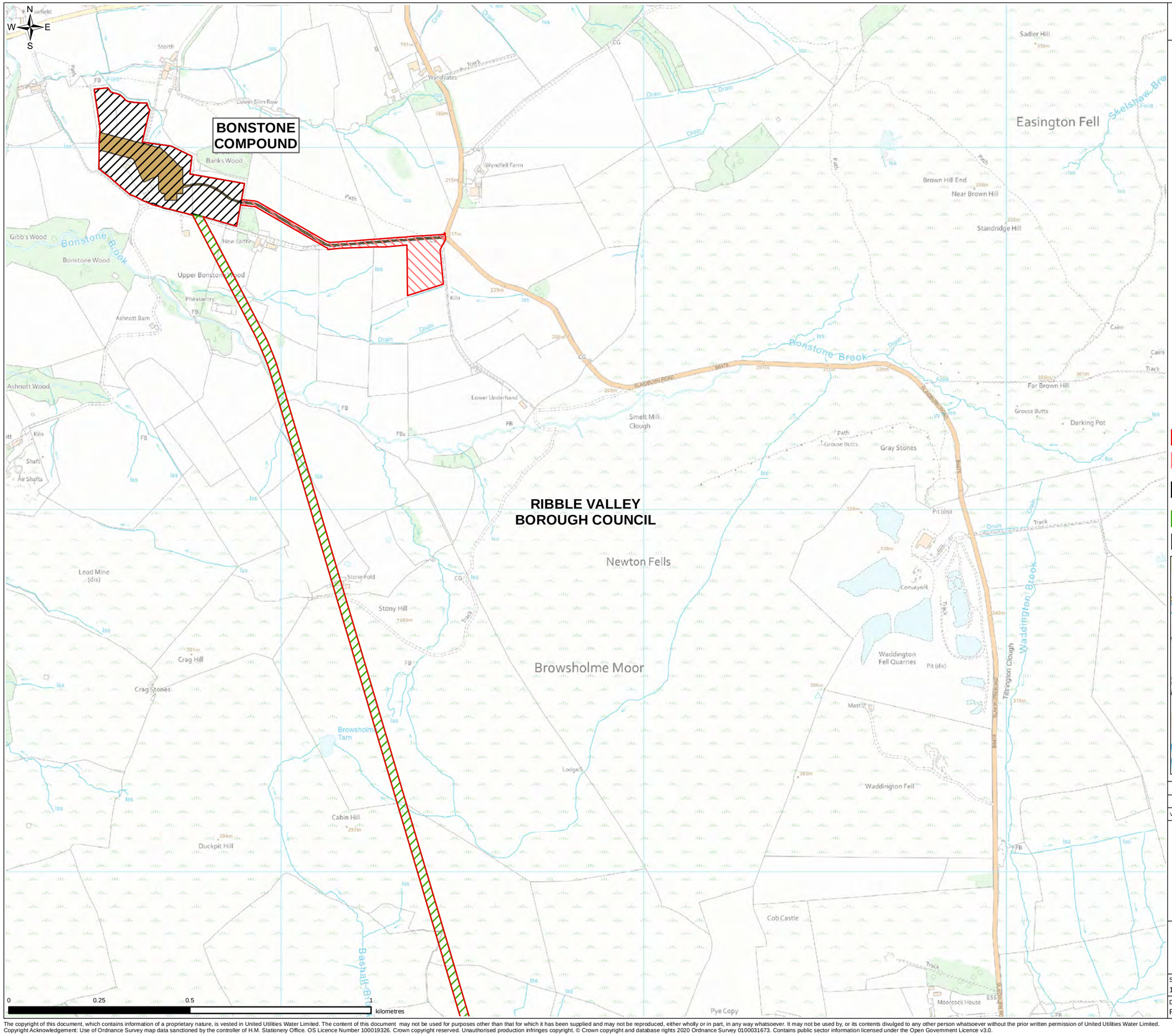
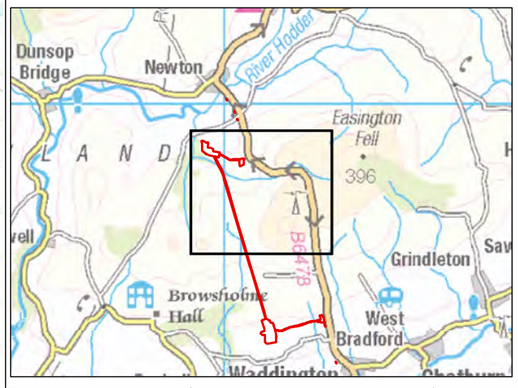
M1



Legend

- Planning Application Boundary
- Proposed Construction Access
- Proposed Construction Compound/Laydown Area
- Proposed Tunnel Route - Indicative
- Proposed Core Working Area



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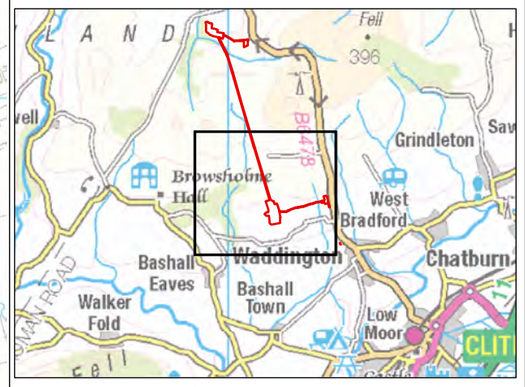
M2

RIBBLE VALLEY BOROUGH COUNCIL

BRADDUP COMPOUND

Legend

- Planning Application Boundary
- Proposed Construction Access
- Proposed Construction Compound/Laydown Area
- Proposed Tunnel Route - Indicative
- Proposed Core Working Area



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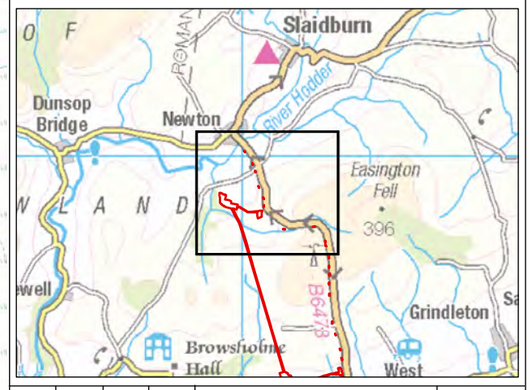
0 0.25 0.5 1 kilometres

M1

RIBBLE VALLEY BOROUGH COUNCIL

Legend

- Planning Application Boundary
- Proposed Construction Access
- Proposed Construction Compound/Laydown Area
- Proposed Tunnel Route - Indicative
- Proposed Core Working Area



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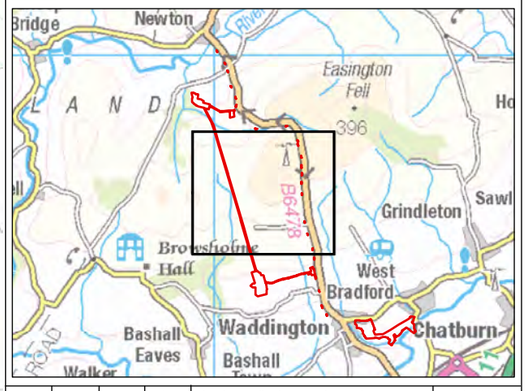
M2

RIBBLE VALLEY BOROUGH COUNCIL

Legend

- Planning Application Boundary
- Proposed Tunnel Route - Indicative



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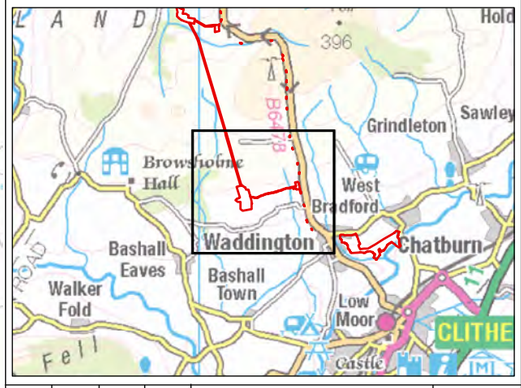
0 0.5 1 kilometres

M3

RIBBLE VALLEY BOROUGH COUNCIL

Legend

- Planning Application Boundary
- Proposed Construction Access
- Proposed Construction Compound/Laydown Area
- Proposed Tunnel Route - Indicative
- Proposed Core Working Area



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RIBBLE VALLEY BOROUGH COUNCIL

0 0.5 1 kilometres

Legend

- Planning Application Boundary
- Ribble Crossing Indicative Route
- Proposed Construction Access
- Proposed Core Working Area

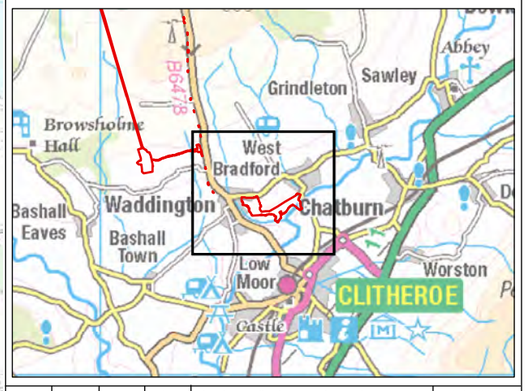

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FIGURE 6.5

Notes
Tree survey features are prefixed with a 'T', 'G', 'H' or 'W' to identify respective feature type as an individual tree, tree group, hedgerow or woodland. Each survey feature is numbered sequentially from north to south for the full Proposed Programme of Works.
Plan to be viewed with corresponding AIA and used for planning purposes only. Indicative plan is not to be used for enabling works or construction purposes. Contractor to confirm with local planning authority all tree retention, protection and removal requirements prior to commencement of enabling works.
Indicative locations of survey features should be site-verified against a full topographical survey of existing stem locations at a later design stage prior to commencement of works.

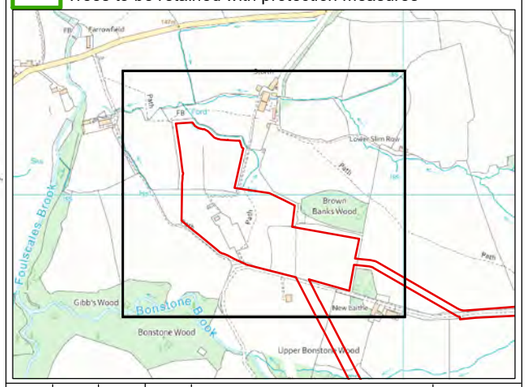
Legend

Tree Survey Information

- Individual Tree
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area
- Standing Advice Buffer Zone

RAG Assessment

- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures



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0 50 100 200 metres

FIGURE 6.5

Notes
Tree survey features are prefixed with a 'T', 'G', 'H' or 'W' to identify respective feature type as an individual tree, tree group, hedgerow or woodland. Each survey feature is numbered sequentially from north to south for the full Proposed Programme of Works.
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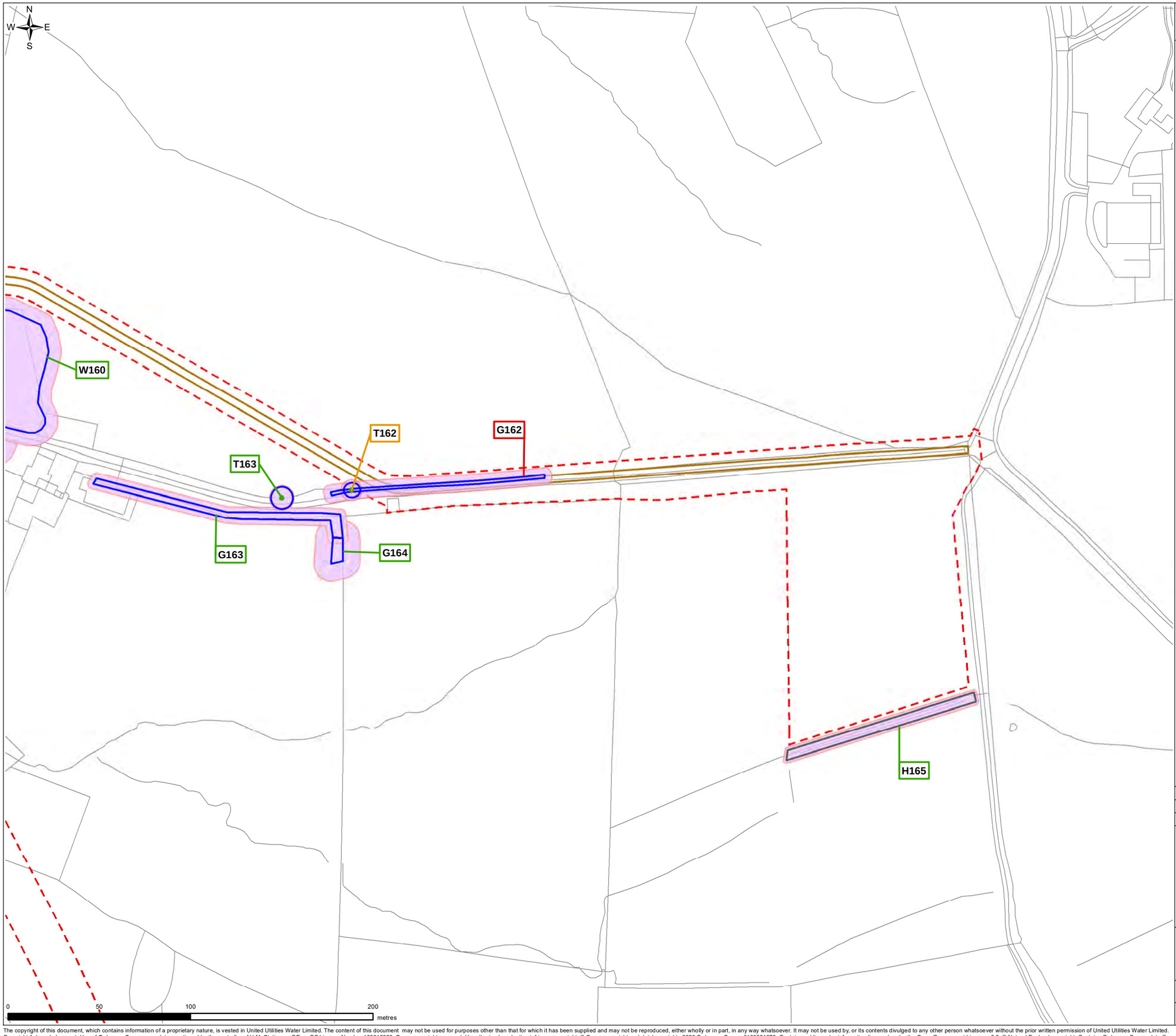
Indicative locations of survey features should be site-verified against a full topographical survey of existing stem locations at a later design stage prior to commencement of works.



Legend

Tree Survey Information
- Individual Tree
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area

RAG Assessment
- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures

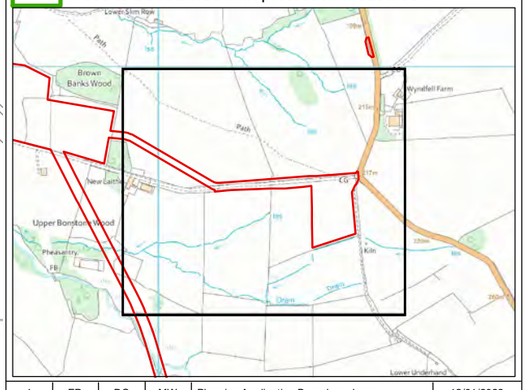


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FIGURE 6.5

Notes
Tree survey features are prefixed with a 'T', 'G', 'H' or 'W' to identify respective feature type as an individual tree, tree group, hedgerow or woodland. Each survey feature is numbered sequentially from north to south for the full Proposed Programme of Works.
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Indicative locations of survey features should be site-verified against a full topographical survey of existing stem locations at a later design stage prior to commencement of works.

T166
T168
G169
T172
T171
T173
T174
G173
G180
G183
T187
T188
T189
T190
G187
T191
W192
W185
G189
T192
T193
T195
N
W
E
S
0
50
100
200
metres

Legend

Tree Survey Information

- Individual Tree
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area
- Standing Advice Buffer Zone

RAG Assessment

- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures

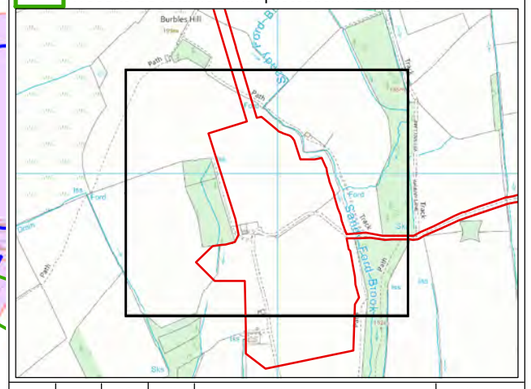

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FIGURE 6.5

Notes
Tree survey features are prefixed with a 'T', 'G', 'H' or 'W' to identify respective feature type as an individual tree, tree group, hedgerow or woodland. Each survey feature is numbered sequentially from north to south for the full Proposed Programme of Works.
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Indicative locations of survey features should be site-verified against a full topographical survey of existing stem locations at a later design stage prior to commencement of works.

T193
T195
W193
W194

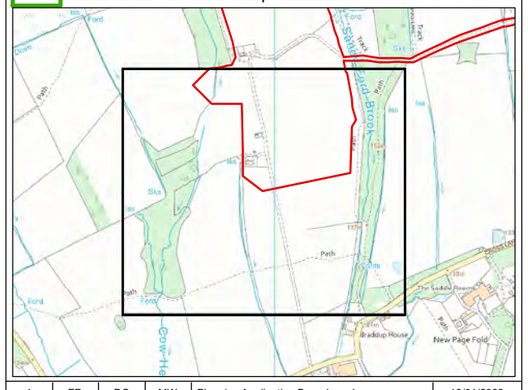
Legend

Tree Survey Information

- Individual Tree
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area

RAG

- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures



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0 50 100 200 metres

FIGURE 6.5

Notes
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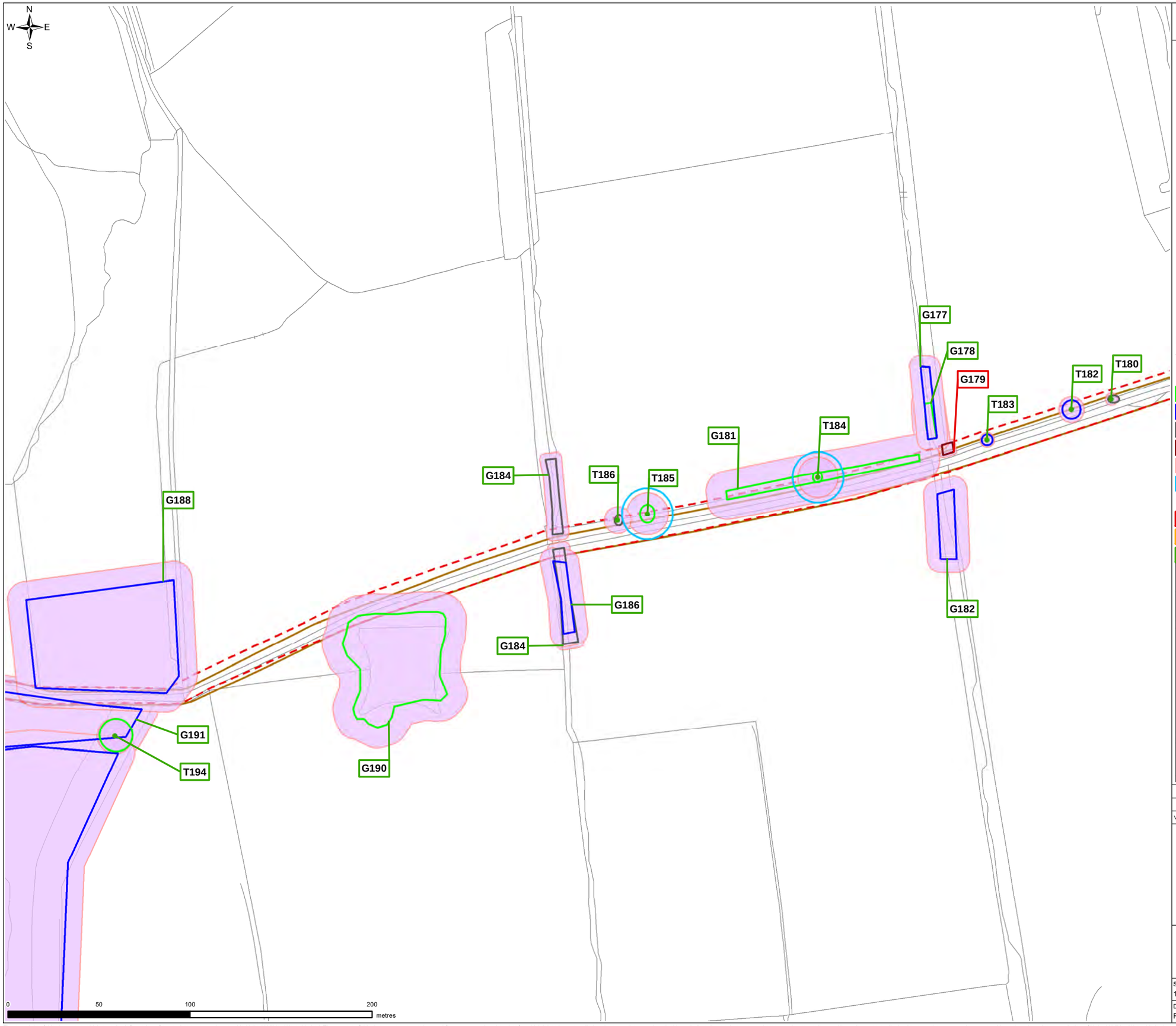

Legend

Tree Survey Information

- Individual Tree
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area
- Standing Advice Buffer Zone

RAG

- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures

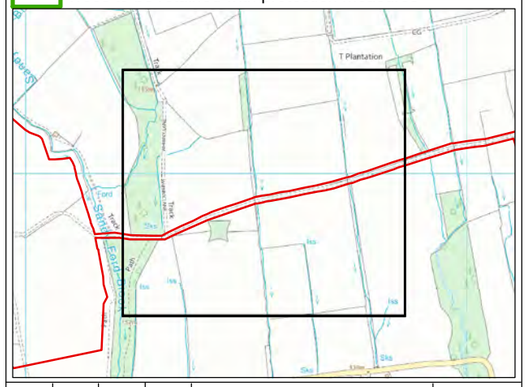

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FIGURE 6.5

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Legend

Tree Survey Information

- Individual Tree
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area
- Standing Advice Buffer Zone

RAG Assessment

- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures

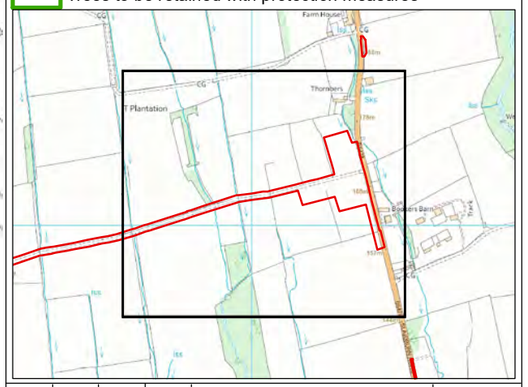

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FIGURE 6.6

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Legend

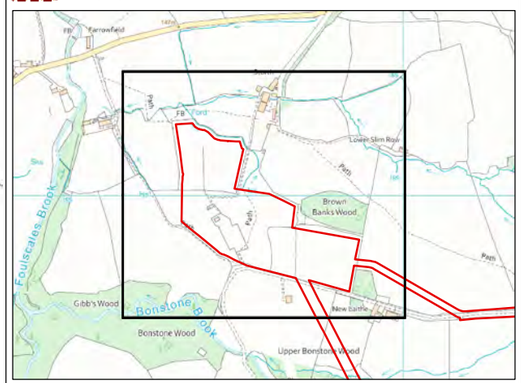
- Planning Application Boundary
- Proposed Core Working Area

Features to be Retained
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area

Features at Risk
- Category A Feature at Risk
- Category B Feature at Risk
- Category C Feature at Risk
- Category U Feature at Risk

Features to be Removed
- Category A Feature to be Removed
- Category B Feature to be Removed
- Category C Feature to be Removed
- Category U Feature to be Removed

RAG Assessment
- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures



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0 50 100 200 metres

FIGURE 6.6

Notes
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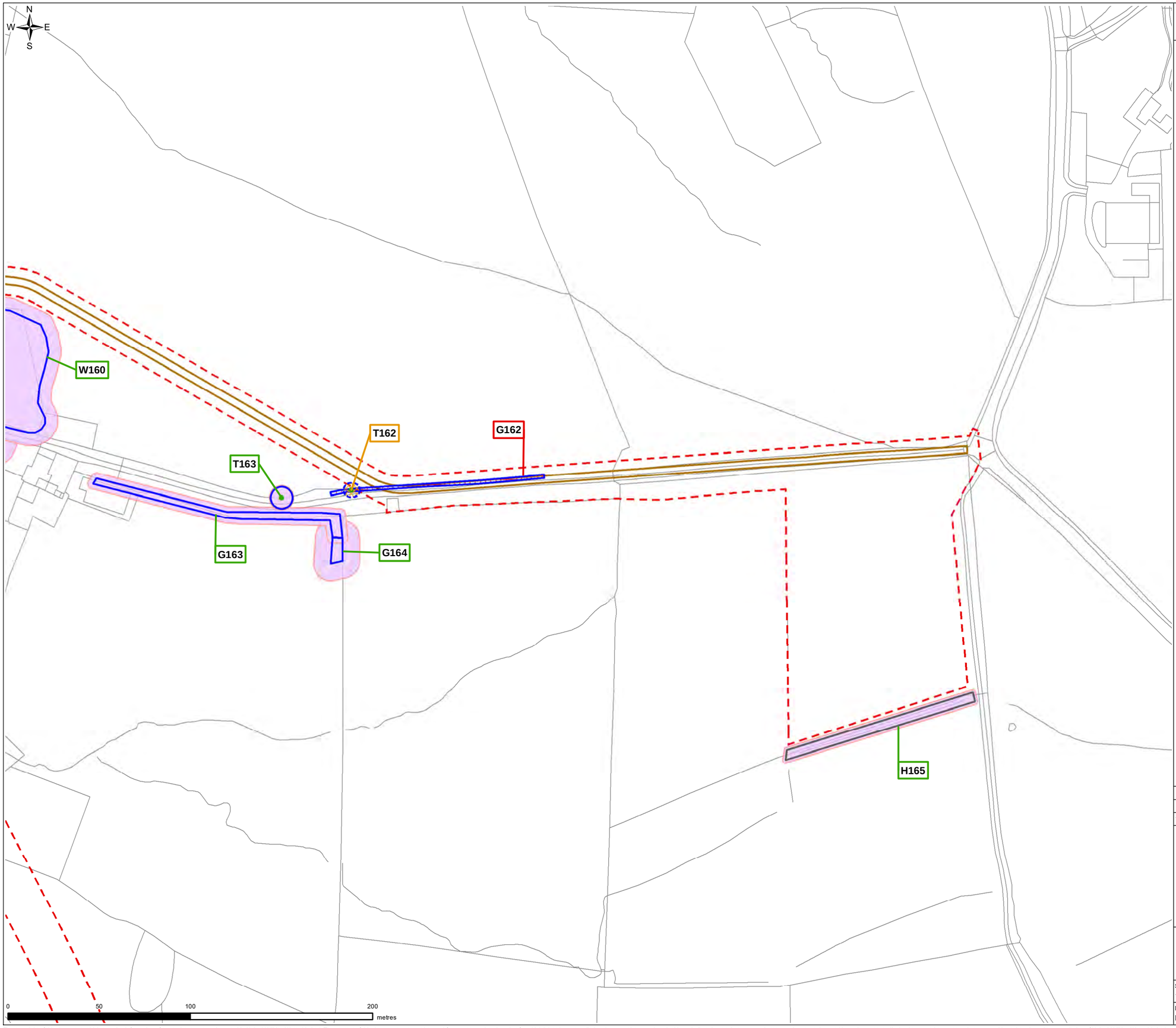

Legend

- Planning Application Boundary
- Proposed Core Working Area

Features to be Retained
- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area

Features at Risk
- Category A Feature at Risk
- Category B Feature at Risk
- Category C Feature at Risk
- Category U Feature at Risk

Features to be Removed
- Category A Feature to be Removed
- Category B Feature to be Removed
- Category C Feature to be Removed
- Category U Feature to be Removed

RAG Assessment
- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures

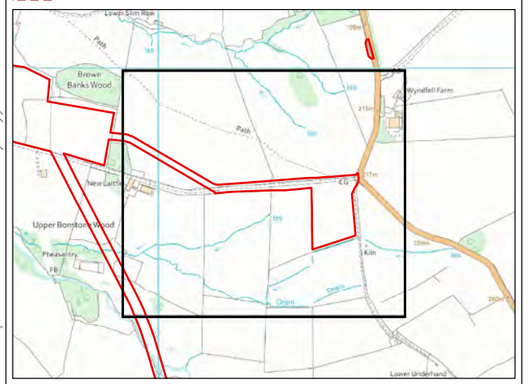

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FIGURE 6.6

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T166
T168
G169
T172
T171
T173
T174
G173
G180
G183
W185
T187
T188
T189
T190
G187
T191
G189
T192
W192
T193
T195

0 50 100 200 metres

Legend

- Planning Application Boundary
- Proposed Core Working Area

Features to be Retained

- Category A Feature
- Category B Feature
- Category C Feature
- Category U Feature
- Root Protection Area

Features at Risk

- Category A Feature at Risk
- Category B Feature at Risk
- Category C Feature at Risk
- Category U Feature at Risk

Features to be Removed

- Category A Feature to be Removed
- Category B Feature to be Removed
- Category C Feature to be Removed
- Category U Feature to be Removed

RAG Assessment

- Trees to be removed/partially removed
- Trees at risk of removal aiming to retain
- Trees to be retained with protection measures

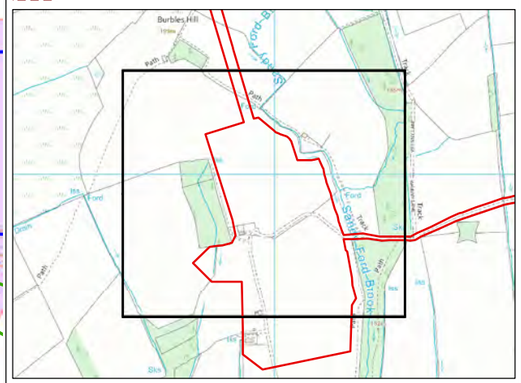

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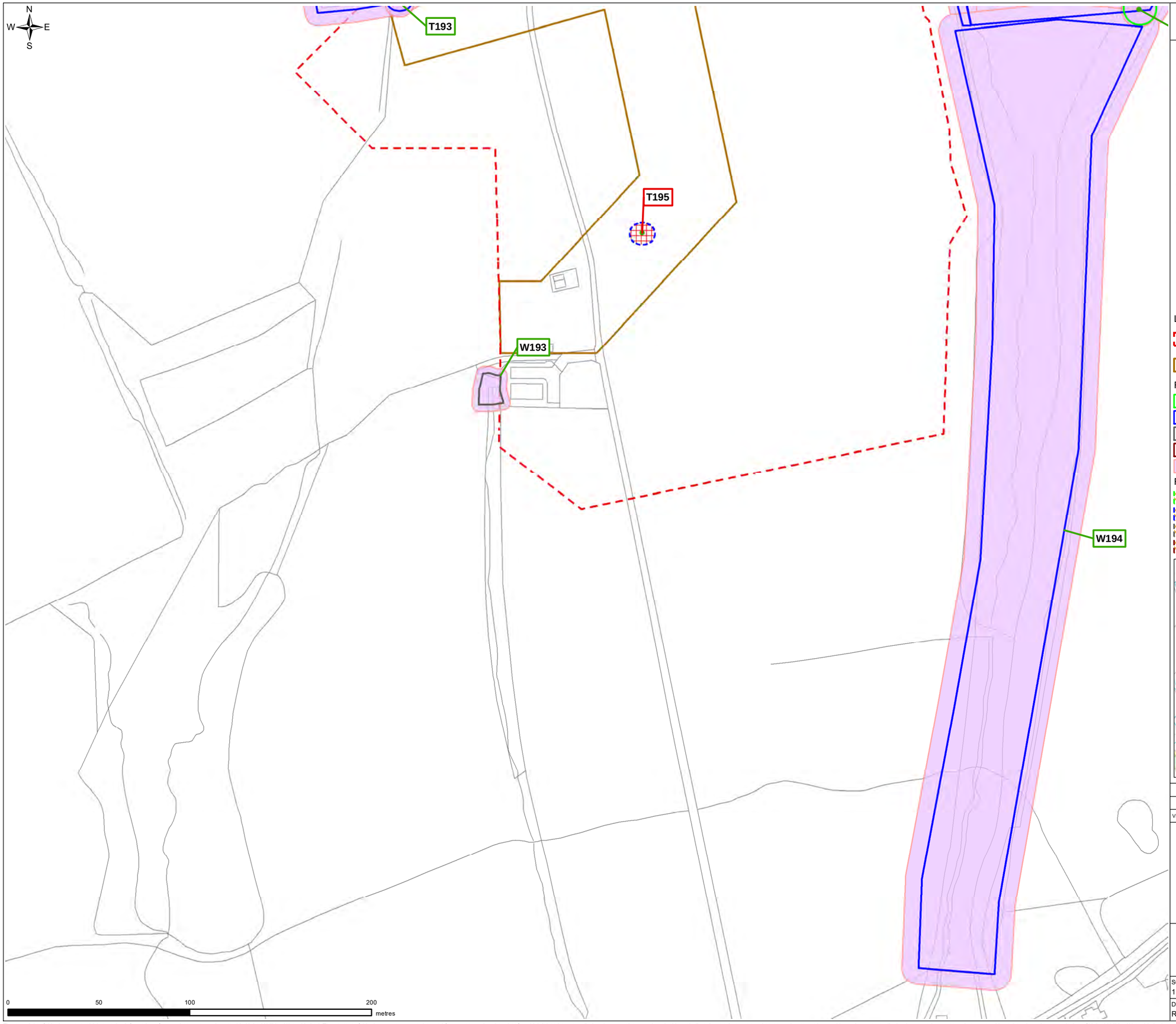
FIGURE 6.6



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RAG Assessment

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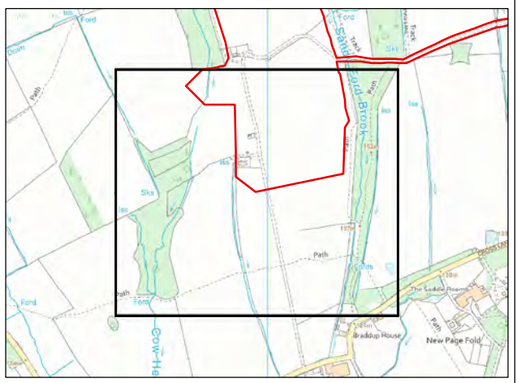

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FIGURE 6.6

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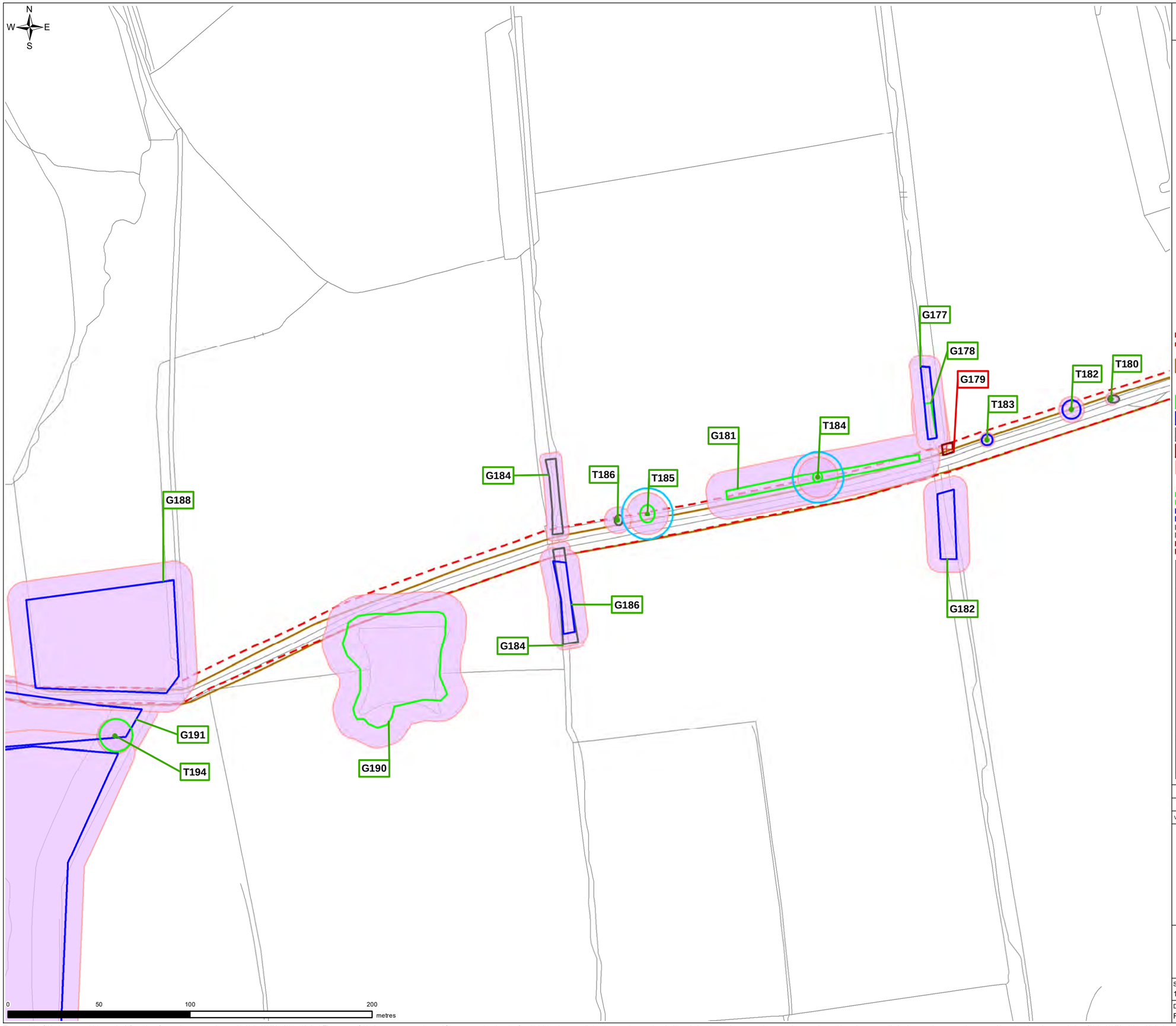

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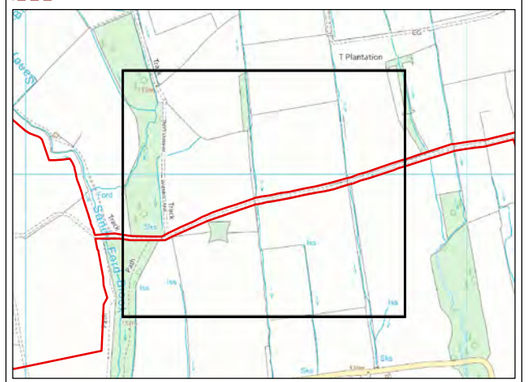

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FIGURE 6.6

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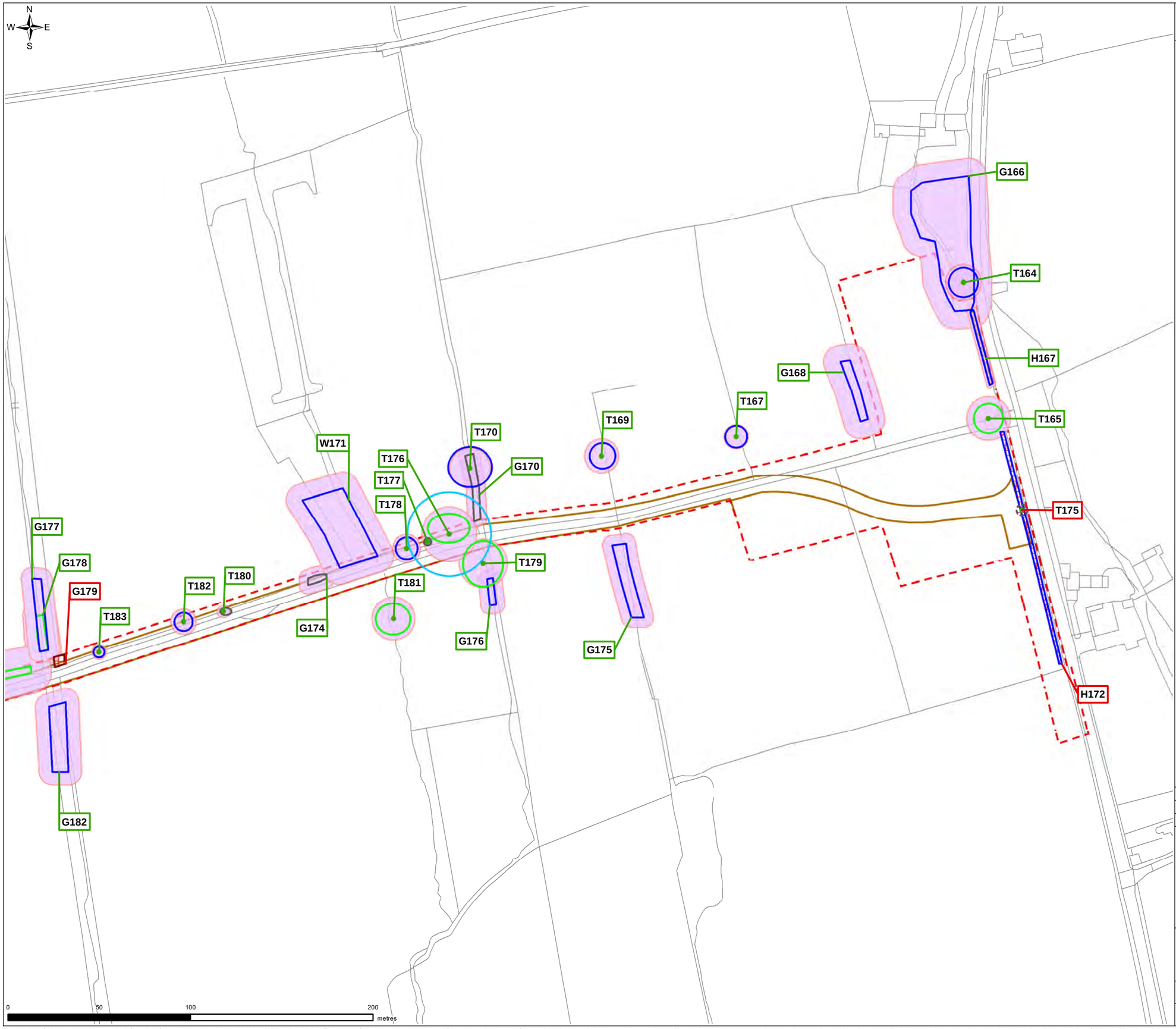

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Features at Risk

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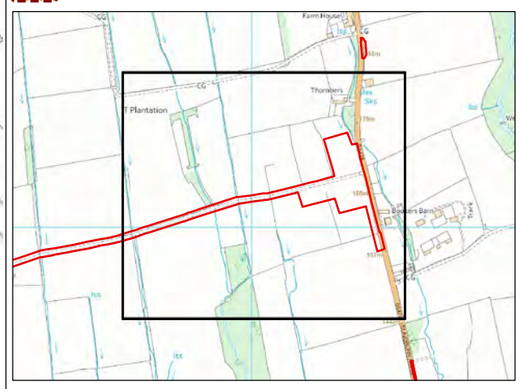

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