THE ENVIRONMENT PARTNERSHIP

HAWESWATER AQUEDUCT RESILIENCE PROGRAMME

MARL HILL SECTION - RIBBLE VALLEY BOROUGH COUNCIL

BIODIVERSITY NET GAIN ASSESSMENT
REF: RVBC-MH-APP-008_01

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Executive Summary

1. TEP was commissioned by United Utilities to undertake a Biodiversity Net Gain (BNG) assessment of the Haweswater Aqueduct Resilience Programme. This report covers the BNG assessment of land within the boundary of Ribble Valley Borough Council only.

2. Full details of the proposed Marl Hill Section, its location and supporting ecological information is found within Chapter 9 of the Environmental Statement.

3. The Biodiversity Net Gain exercise has been completed using the Natural England Biodiversity Metric (v2.0) and has been completed with reference to the Biodiversity Net Gain Good Practice Principles for Development.

4. All habitats to be lost are to be re-instated to the same condition following completion of works with the exception of some small areas of new access track, hard standing and buildings which are required for the permanent maintenance and monitoring of the aqueduct. Habitat enhancement is proposed but is detailed separately within a report produced by WSP (REF: RVBC-MH-APP-008_02).

5. Based on an assessment of habitats to be lost and those to be reinstated to their current condition, and in the absence of habitat enhancement proposals, there is an overall biodiversity net loss of 15.04% for habitats and 46.09% for hedgerows.

6. This report should be read in conjunction with WSP report (REF: RVBC-MH-APP-008_02) for full details of final habitat losses and gains, once habitat enhancement proposals have been incorporated.

1.0 Introduction

Project Background

1.1 TEP was commissioned by United Utilities to undertake a Biodiversity Net Gain (BNG) assessment of the Haweswater Aqueduct Resilience Programme. This report covers the BNG assessment of land within the boundary of Ribble Valley Borough Council only (henceforth referred to as 'the site').

1.2 The section within the Ribble Valley Borough Council boundary includes the following areas:

- Bonstone Compound;
- Braddup Compound; and
- Ribble Crossing.

1.3 Full details of the proposed Marl Hill Section can be found within the Environmental Statement for the project[1].

1.4 The site, as assessed within this document, covers an area of 55.06ha. This is based on the designs provided at the time of assessment. The site boundary is shown in both the pre and post development BNG maps provided within the drawings at the end of this report.

1.5 All habitats to be lost are to be re-instated to the same condition following completion of works with the exception of some small areas of new access track, hard standing and buildings which are required for the permanent maintenance and monitoring of the aqueduct. Habitat enhancement is proposed but is detailed separately within a report written by WSP (REF: RVBC-MH-APP-008_02).

Biodiversity Net Gain

1.6 Paragraph 170(d) of the revised NPPF states that "Planning polices and decisions should contribute to and enhance the natural and local environment by… minimising impacts on and providing net gains for biodiversity…" The Government 25-year Environment Plan states that government will "embed environmental net gain principle for development".

1.7 In July 2019, the government issued revised planning practice guidance (PPG) with details on how planners can implement "net environmental gain" requirements when assessing development proposals, including new advice on protecting wildlife.

1.8 In terms of measuring net gain, the guidance states that using a metric is a pragmatic way to calculate the impact of a development and the net gain that can be achieved. It goes on to state that "tools such as the Defra biodiversity metric can be used to assess whether a biodiversity net gain outcome is expected to be achieved".

[1] Haweswater Aqueduct Resilience Programme - Terrestrial Ecology Chapter (ES Volume 4) Doc Ref: HBC_RBC_BMBC-HW-ES-009-01.

1.9 Biodiversity Net Gain is the end result of a process which is designed to ensure that there is an increase in biodiversity when the value of habitats prior to and post development are considered.

1.10 The process of BNG is designed to align with the mitigation hierarchy to ensure that firstly loss is avoided, secondly loss is minimised and thirdly lost habitats are restored or mitigated for on-site. Where this is not possible and as a last resort remaining losses must be compensated for off-site.

1.11 The impact on biodiversity within this site has been calculated using the Natural England biodiversity metric (v2.0)[2], which is discussed in detail within the methods section below. The metric provides a way to measure biodiversity loss and gain in a consistent and robust way. It can also predict the likely effectiveness of creating new or enhancing existing habitats.

Aims and Objectives

1.12 This report aims to:

- Set out the ecological surveys undertaken to establish a baseline position of biodiversity;
- Provide a biodiversity impact assessment result of the site detailing whether the development will likely achieve net gain, net loss or no net loss of biodiversity; and
- Detail the mitigation required to compensate for the impact of the development.

Relevant Legislation and Policy

1.13 Legislation and policies relevant to this report are shown in Chapter 9, Table 9A.1 of the ES chapter.

[2] Natural England (2010). The Biodiversity metric 2.0 Auditing and accounting for biodiversity. 2019

2.0 Methods

BNG Assessment

2.1 The Site has been assessed using the Natural England biodiversity metric (v2.0) in line with the user guide[3] and technical supplement[4] provided.

2.2 The biodiversity metric (v2.0) is a tool designed to enable developers to measure the change in biodiversity across their site. It determines if there will be net gain, net loss or no net loss of biodiversity following completion of their development and any subsequent management regime.

2.3 In order to calculate the change in biodiversity across the site a site survey is undertaken by a suitably qualified ecologist to determine the habitats present on site, their location, size, condition and connectivity. This information is then digitised and the resulting information fed into the biodiversity metric (v2.0).

2.4 The principles of biodiversity net gain as set out in the Biodiversity Net Gain Good Practice Guidelines[5] have been considered throughout this process as listed below:

- 1. Apply the mitigation hierarchy;
- 2. Avoid losing biodiversity that cannot be offset by gains elsewhere;
- 3. Be inclusive and equitable;
- 4. Address risks;
- 5. Make a measurable net gain contribution;
- 6. Achieve the best outcomes for biodiversity;
- 7. Be additional;
- 8. Create a net gain legacy;
- 9. Optimise sustainability;
- 10. Be transparent.

Data Sources

2.5 The data used to inform the metric, as assessed within this document, have been informed by detailed site survey and a thorough desk-based assessment of habitats present and proposed.

2.6 Pre-development habitats which fall within or adjacent to the indicative Development Envelope were surveyed across the 2019 and 2020 season. Extended Phase 1 habitat survey methods were undertaken in line with JNCC[6] and CIEEM Guidelines[7]. Full details of habitats across the site are found within the Phase 1 Habitat Appendix[8]

[3] Ian Crosher , Susannah Gold , Max Heaver , Matt Heydon , Lauren Moore , Stephen Panks , Sarah Scott, Dave Stone & Nick White . 2019. The Biodiversity Metric 2.0: auditing and accounting for biodiversity value. User guide (Beta Version, July 2019). Natural England

[4] Ian Crosher , Susannah Gold , Max Heaver , Matt Heydon , Lauren Moore , Stephen Panks , Sarah Scott, Dave Stone & Nick White. 2019. The Biodiversity Metric 2.0: Auditing and accounting for biodiversity value: technical supplement (Beta version, July 2019). Natural England

[5] CIEEM, IEMA & CIRIA (2019). Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide;

[6] JNCC 2010. Handbook for Phase 1 Habitat Survey: A technique for environmental audit.

[7] CIEEM 2017. Guidelines for Preliminary Ecological Appraisal.

[8] HARP - Proposed Haslingden and Walmersley Section Phase 1 Habitat Appendix March 2021. Doc No: HBC_RBC_BMBC-HW-TA-009-01-02, Rev 1.0

2.7 Condition assessment of the habitats present pre-development was undertaken by a suitably experienced ecologist. The condition assessments were calculated through consultation with the original habitat surveyor with reference to site and aerial photography and the guidance presented in the Biodiversity Metric 2.0 - Technical Supplement.

2.8 Phase 1 habitats were converted to UK Habitat classification code [9]in line with the conversions provided in the 'Technical Data' button in the calculation tool of the Natural England biodiversity metric (v2.0)

2.9 Strategic significance was determined through a thorough desktop review of local planning policy and other relevant documentation. The desk based assessment[10] provides full details of all local policy and legislation covering the sites.

2.10 For the purpose of the BNG assessment particular reference has been paid to the relevant core strategy and other ecology specific policies. Consideration has also been given to the location of Lancaster's Biological Heritage Sites (BHS's) as well as county wide and nationally designated wildlife sites, specifically where they are referenced in local policy as providing important connectivity.

2.11 Those sites which fall within the green infrastructure policy, within a designated/locally protected wildlife site or sites which fall within other ecology specific local policy are awarded high strategic significance. Those which fall partially within these areas or are directly adjacent are awarded moderate strategic significance and those outside of these areas are awarded low strategic significance.

2.12 Post development calculations have been based on assessment of proposals provided by United Utilities. The post development proposals are shown within drawing G7478.04.018 at the end of this report.

Limitations and Assumptions

2.13 For the purpose of this assessment it is assumed that all habitats across the site will be subject to total loss during the development but will be reinstated following completion of works to an equal condition as measured during the baseline survey. The exceptions to this are any retained trees and some small areas of permanent loss which will form new permanent access roads, hard standing and buildings essential to the continued maintenance of the proposed aqueduct.

2.14 Habitat connectivity values were assigned according to the metric default assumptions, based on habitat distinctiveness scores. Connectivity is assumed to be medium for high and very high distinctiveness habitats and low for low and medium distinctiveness habitats.

Baseline Limitations and Assumptions

2.15 No limitations were encountered during the on-site extended Phase 1 habitat survey.

[9] UK Habitat Classification: ukhab – UK Habitat Classification (Accessed 12/04/21)
[10] HARP - Proposed Haslingden and Walmersley Section Deskbased Appendix, September 2020. Appendix 9A.1

2.16 A variety of weather conditions were encountered during the survey work however none were adverse enough to impact negatively on the completion of the survey work.

2.17 Following discussion between site surveyor and the ecologist completing this report, where there was any doubt on a condition assessment criteria during the condition assessment a higher quality condition has been assumed.

2.18 The condition assessment for trees has been based on the tree categorisation within the Arboricultural assessment[11] for the site with those which are category A being given good condition, those which are category B moderate condition and those which are category C or U Poor condition.

2.19 For the purpose of this assessment where tree canopy cover is above other habitats, the area of tree canopy cover only has been counted and habitats beneath excluded. For tree groups and scattered trees the size of the canopy has been taken as the root protection area given within the Arboricultural assessment.

2.20 The Arboricultural assessment includes three tree categories; tree loss, retained trees and trees which may be lost but will be sought to be retained. For the purpose of this assessment a worst case scenario has been anticipated and all trees that may be lost have been included as a loss.

Post-Development Limitations and Assumptions

2.21 It is assumed that all habitats to be lost can be reinstated in their current position and can be subject to suitable management to achieve a condition identical to that which was achieved pre-development.

2.22 It has been assumed that trees are to be replaced on a 3 to 1 basis. Newly planted trees have been given an assumed canopy cover of $1m^2$.

2.23 There is no on or off-site mitigation considered in this report above re-instatement of habitats lost to their current condition. Mitigation for habitat losses is considered separately within a report produced by WSP (REF: RVBC-MH-APP-008_02).

[11] Arboricultural Impact Assessment (ES Volume 4 Appendix 6.7) Doc Ref: HBC_RBC_BMBC-HW-TA-006-007.

3.0 Results

Biodiversity Impacts

Irreplaceable Habitats

3.1 Veteran trees and areas of Upland Hay Meadow, which are irreplaceable habitats, have been identified on site and cannot be compensated for within the biodiversity metric. Bespoke compensation for the loss of these habitats is provided within the Environmental Statement for the project.

Baseline

3.2 The baseline habitats drawing (TEP Ref: G7478.004.017) illustrates the habitats present across the site. Tables 1-3 list the habitats present, their Phase 1 habitat code and reclassified UK Habitat classification (UK Hab) code with their associated conditions and also provides a summary of how this assessment was derived.

3.3 There are, in some compound areas in the tables below, more than one line per habitat type. This reflects the lines in the BNG metric which are split out into those habitat types with different condition scores and strategic significance. For example there may be two areas of scrub, both which are of moderate condition, however one has high strategic significance and the other low. To identify each different area within the metric and be able to reference it to the table below, a separate column for the area has been included.

3.4 Drawing TEP Ref: G7478.004.017 also illustrates the location of the hedgerows. Table 4 lists the hedgerows present within the application area, their Phase 1 habitat code and reclassified UK Habitat classification code with their associated conditions and provides a summary of how this assessment was derived.

3.5 The comments box in the tables below offers further justification of the condition, based on the technical guidance document for the metric and also based on the surveyors own ecological knowledge. Relevant target notes (TN's) are provided where available however not all individual sections of each habitat had a TN conferred onto them.

Table 1: Baseline Habitats, UK Hab - Bonstone Compound

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[12]	Associated Condition	Comments
Grassland - Modified grassland	Poor semi-improved grassland	6.61	1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site. **NOT MET** 2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation. **NOT MET** 3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat. **NOT MET** 4. Undesirable species and physical damage is below 5% cover. **NOT MET** 5. Cover of bare ground not greater than 10% (including localised areas, for example, rabbit warrens). 6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.	poor	Relevant TN's:N/A A large expanse of improved grassland.

[12] Natural England (2010). The Biodiversity metric 2.0 Auditing and accounting for biodiversity. Technical Supplement. 2019

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[12]	Associated Condition	Comments
Grassland - Other neutral grassland	Species rich semi-improved neutral grassland	0.57	1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site. 2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation. 3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat. 4. Undesirable species and physical damage is below 5% cover. 5. Cover of bare ground not greater than 10% (including localised areas, for example, rabbit warrens). 6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.	good	Relevant TN's: TR4.TN13, TR4.TN23, An area incorporating expanses of species rich semi-improved grassland with a number of acid indicators present and some more neutral grassland areas.

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[12]	Associated Condition	Comments
Grassland - Upland hay meadows	Unimproved neutral grassland	1.57	1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site. 2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation. 3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat. 4. Undesirable species and physical damage is below 5% cover. 5. Cover of bare ground not greater than 10% (including localised areas, for example, rabbit warrens). 6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.	good	Relevant TN's: TR4.TN16 A traditional hay meadow which has been restored.

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[12]	Associated Condition	Comments
Lakes - Temporary lakes, ponds and pools	Ephemeral pool	0.01	1. Are of good water quality and contain a range of features characteristic of that waterbody type. 2. There should be no obvious sign of pollution or of inappropriate quality of the water supply. 3. The water body should be set within a semi-natural habitat. 4. Clear water is dominated by plants (and the water is not turbid or green). 5. A marginal fringe of emergent vegetation is present. **NOT MET** 6. A range of submerged and floating leaved plants is present. 7. The fish community comprises a range of suitable species if the water body is large enough to support them. 8. There is no artificial drainage impacting on water bodies, or lowering of the waterbody, which would include outfalls that have been deepened and widened. 9. The water level and its management should be appropriate throughout the year for the waterbody type.	moderate	Relevant TN's: TR4.TN15 Approximately five scrapes within neutral grassland, which have been purposefully excavated for lapwing breeding but fill with water.
Urban - Developed land; sealed surface	Buildings/hardstanding	0.15	No condition assessment is required.	N/A - Other	Relevant TN's: N/A An existing area of hard standing and buildings. No condition assessment required
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.03	Scattered trees - No condition assessment required	good	Category A trees within the Arboricultural report.
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.1	Scattered trees - No condition assessment required	moderate	Category B trees within the Arboricultural report.
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.1	Scattered trees - No condition assessment required	moderate	Category B trees within the Arboricultural report.

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[12]	Associated Condition	Comments
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.2	Scattered trees - No condition assessment required	poor	Category C trees within the Arboricultural report.

Table 2 Baseline Habitats, UK Hab - Braddup Compound

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[13]	Associated Condition	Comments
Grassland - Modified grassland	Poor semi-improved grassland	13.8	1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site. **NOT MET** 2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation. **NOT MET** 3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat. **NOT MET** 4. Undesirable species and physical damage is below 5% cover. 5. Cover of bare ground not greater than 10% (including localised areas, for example, rabbit warrens). 6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.	poor	Relevant TN's: N/A Expanse of largely grazed species poor semi-improved grassland

[13] Natural England (2010). The Biodiversity metric 2.0 Auditing and accounting for biodiversity. Technical Supplement. 2019

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[13]	Associated Condition	Comments
Grassland - Other neutral grassland	Marshy grassland	1.19	1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site. 2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation. **NOT MET** 3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat. **NOT MET** 4. Undesirable species and physical damage is below 5% cover. 5. Cover of bare ground not greater than 10% (including localised areas, for example, rabbit warrens). 6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.	moderate	Relevant TN's: TR4.TN3 An area of marshy grassland dominated by compact rush and soft rush
Sparsely vegetated land - ruderal/ephemeral	Tall ruderal	0.09	This habitat is not grass dominated so does not fall within the grassland habitat and does also not meet the criteria of Open Mosaic Habitat on Previously Developed Land (OMH). It is therefore assessed as ruderal habitat within the sparsely vegetated and rock habitat type. This ruderal habitat is dominated by undesirable species including nettle. It has low biodiversity value and therefore is assigned as being in poor condition.	poor	Relevant TN's: N/A Species poor ruderal habitat with presence of undesirable species more than 10%.
Urban - Developed land; sealed surface	Buildings and hard standing	0.48	No condition assessment required.	N/A - Other	Relevant TN's: N/A An existing area of hard standing and buildings. No condition assessment required

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[13]	Associated Condition	Comments
Urban - Vacant/derelict land/ bareground	Bareground	0.01	1. Known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site. Extraneous materials/substrates such as industrial spoil may have been added which in turn has led to a low nutrient environment. **NOT MET** 2. The site contains some vegetation. This will comprise of early successional communities consisting mainly of stress-tolerant species (e.g. indicative of low nutrient status or drought). Early successional communities are composed of (a) annuals, or (b) mosses/liverworts, or (c) lichens, or (d) ruderals, or (e) inundation species, or (f) open grassland, or (g) flower-rich grassland, or (h) heathland. 3. The site contains unvegetated, loose bare substrate and pools may be present and desirable. **NOT MET** 4. The site shows spatial variation, forming a mosaic of one or more of the early successional communities (a)–(h) above plus bare substrate or pools. **NOT MET**	Poor	Relevant TN's: N/A An existing area of bareground.

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[13]	Associated Condition	Comments
Woodland and forest - Other woodland; mixed	Plantation mixed woodland	0.06	1. This should be an area of trees with complete canopy cover. 2. Native species are dominant. Non-native and invasive species account for less than 10% of the vegetation cover. **NOT MET** 3. A diverse age and height structure of the trees. **NOT MET** 4. Free from damage [Bark stripping; Browse line; Damage shoot tips] (in the last five years) from stock or wild mammals with less than 20% of vegetation being browsed. 5. There should be evidence of successful (i.e. not browsed off before it gets well established) tree regeneration such as seedlings, saplings and young trees. **NOT MET** 6. Standing and fallen dead wood of over 20 cm diameter are present including fallen large dead branches/stems and stumps. 7. Wetland habitat if they exist within the wood has little sign of drainage or channel straightening. 8. The area is protected from damage by agricultural and other adjacent operations. 9. There should be no evidence of inappropriate management (e.g. deep ruts, animal poaching or compaction). 10. Invasive non-native plants are below 5% (see list below). **NOT MET** 11. No signs of significant nutrient enrichment present.	poor	Relevant TN's: TR4.TN41 Semi-mature mixed plantation woodland to the north of an access track which is fenced off. The understory is dominated by mature and dense rhododendron growth
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.39	Scattered trees - No condition assessment required	good	Category A trees within the Arboricultural report.
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.36	Scattered trees - No condition assessment required	moderate	Category B trees within the Arboricultural report.
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.05	Scattered trees - No condition assessment required	poor	Category C/U trees within the Arboricultural report.

Table 3 Baseline Habitats, UK Hab - Ribble Crossing

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[14]	Associated Condition	Comments
Grassland - Other neutral grassland	Semi-improved neutral grassland	0.16	1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site. **NOT MET** 2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation. 3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat. **NOT MET** 4. Undesirable species and physical damage is below 5% cover. 5. Cover of bare ground not greater than 10% (including localised areas, for example, rabbit warrens). 6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.	Moderate	Relevant TN's: TN4 Stream edge with no distinct aquatic or marginal vegetation but grassy sward along embankment comprising coarse, unmanaged grasses with tall ruderal species

[14] Natural England (2010). The Biodiversity metric 2.0 Auditing and accounting for biodiversity. Technical Supplement. 2019

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[14]	Associated Condition	Comments
Grassland - Modified grassland	Improved grassland	28.44	1. The area is clearly and easily recognisable as a good example of this type of habitat and there is little difference between what is described in the relevant habitat classifications and what is visible on site. **NOT MET** 2. The appearance and composition of the vegetation on site should very closely match the characteristics for the specific Priority Habitat [i.e as described by either the Phase 1 Habitat Classification or the UK Habitat Classification], with species typical of the habitat representing a significant majority of the vegetation. **NOT MET** 3. Wildflowers, sedges and indicator species for the specific Priority grassland habitat are very clearly and easily visible throughout the sward and occur at high densities in high frequency. See relevant Habitat Classification for details of indicator species for specific habitat. **NOT MET** 4. Undesirable species and physical damage is below 5% cover. **NOT MET** 5. Cover of bare ground not greater than 10% (including localised areas, for example, rabbit warrens). 6. Cover of bracken less than 20% and cover of scrub and bramble less than 5%.	poor	Relevant TN's: TN1 Improved grassland fields, grazed short by sheep at the time of survey
Heathland and shrub - Blackthorn scrub	Dense continuous scrub	0.06	2. There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be 100% cover). **NOT MET** 3. There is a good age range – a mixture of seedlings, saplings, young shrubs and mature shrubs. **NOT MET** 4. Pernicious weeds and invasive species make up less than 5% of the ground cover. 5. The scrub has a well-developed edge with un-grazed tall herbs. **NOT MET** 6. There are many clearings and glades within the scrub.	Moderate	Relevant TN's: N/A

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[14]	Associated Condition	Comments
Heathland and shrub - Mixed scrub	Dense continuous scrub	0.16	2. There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be 100% cover). 3. There is a good age range – a mixture of seedlings, saplings, young shrubs and mature shrubs. **NOT MET** 4. Pernicious weeds and invasive species make up less than 5% of the ground cover. 5. The scrub has a well-developed edge with un-grazed tall herbs. 6. There are many clearings and glades within the scrub. **NOT MET**	Poor	Relevant TN's: TN9 Thicket of dense blackthorn scrub which has encroached from the outgrown hedge to the south.
Sparsely vegetated land - ruderal/ephemeral	Bare ground and tall ruderal mosaic	0.1	This habitat is not grass dominated so does not fall within the grassland habitat and does also not meet the criteria of Open Mosaic Habitat on Previously Developed Land (OMH). It is therefore assessed as ruderal habitat within the sparsely vegetated and rock habitat type. This ruderal habitat is dominated by undesirable species such as nettle. It has low biodiversity value and therefore is assigned as being in poor condition.	poor	Relevant TN's: N/A Species poor ruderal habitat with presence of undesirable species more than 10%.
Urban - Developed land; sealed surface	Buildings and hard standing	0.11	No condition assessment required.	N/A - Other	Relevant TN's: N/A An existing area of hard standing and buildings. No condition assessment required

UK Hab Type	Associated Phase 1 Code	Area (ha)	Condition assessment[14]	Associated Condition	Comments
Urban - Vacant/derelict land/ bareground	Bare ground	0.1	1. Known history of disturbance at the site or evidence that soil has been removed or severely modified by previous use(s) of the site. Extraneous materials/substrates such as industrial spoil may have been added which in turn has led to a low nutrient environment. **NOT MET** 2. The site contains some vegetation. This will comprise of early successional communities consisting mainly of stress-tolerant species (e.g. indicative of low nutrient status or drought). Early successional communities are composed of (a) annuals, or (b) mosses/liverworts, or (c) lichens, or (d) ruderals, or (e) inundation species, or (f) open grassland, or (g) flower-rich grassland, or (h) heathland. 3. The site contains unvegetated, loose bare substrate and pools may be present and desirable. **NOT MET** 4. The site shows spatial variation, forming a mosaic of one or more of the early successional communities (a)–(h) above plus bare substrate or pools. **NOT MET**	poor	Relevant TN's: N/A Area of bare ground present in the west of site, forming part of an access track.
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.03	Scattered trees - No condition assessment required	moderate	Category B trees within the Arboricultural report.
Woodland and forest - Other woodland; broadleaved	Scattered trees	0.07	Scattered trees - No condition assessment required	poor	Category C/U trees within the Arboricultural report.

Table 4 - Baseline Habitats - hedgerows - Bonstone Compound

UKHab Type	Associated Phase 1 Code	Hedgerow No	Condition assessment	Associated Condition
Native Hedgerow	Species poor intact hedge	TR4.H5	A1. Height: >1.5 m average along length A2. Width: >1.5 m average along length B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	Good

Table 5- Baseline Habitats - hedgerows - Bonestone Compound

UKHab Type	Associated Phase 1 Code	Hedgerow No	Condition assessment	Associated Condition
Native Species Rich Hedgerow with Trees	Species rich intact hedgerow	N/A	A1. Height: >1.5 m average along length A2. Width: >1.5 m average along length B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m **NOT MET** C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) **NOT MET** C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground **NOT MET** D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	moderate

UKHab Type	Associated Phase 1 Code	Hedgerow No	Condition assessment	Associated Condition
Native Species Rich Hedgerow	Species rich intact hedgerow	TR4.H12	A1. Height: >1.5 m average along length **NOT MET** A2. Width: >1.5 m average along length **NOT MET** B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') **NOT MET** B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities **NOT MET**	Moderate
Native Species Rich Hedgerow	Species rich intact hedgerow	TR4.H12	A1. Height: >1.5 m average along length **NOT MET** A2. Width: >1.5 m average along length **NOT MET** B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') **NOT MET** B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities **NOT MET**	Moderate

Table 6: Baseline Habitats - Hedgerows - Ribble Crossing

UKHab Type	Associated Phase 1 Code	Hedgerow No	Condition assessment	Associated Condition
Native Species Rich Hedgerow with trees - Associated with bank or ditch	Native Species-rich Hedge with trees and ditch	TR4.WBH2	A1. Height: >1.5 m average along length A2. Width: >1.5 m average along length **NOT MET** B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) **NOT MET** C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground **NOT MET** D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species **NOT MET** D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	moderate

UKHab Type	Associated Phase 1 Code	Hedgerow No	Condition assessment	Associated Condition
Native Species Rich Hedgerow - Associated with bank or ditch	Native species-rich intact hedge and ditch	TR4.WBH4	A1. Height: >1.5 m average along length **NOT MET** A2. Width: >1.5 m average along length **NOT MET** B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m **NOT MET** C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) **NOT MET** C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground **NOT MET** D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species **NOT MET** D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	poor
Native Species Rich Hedgerow - Associated with bank or ditch	Native species-rich intact hedge and ditch	TR4.WBH1	A1. Height: >1.5 m average along length A2. Width: >1.5 m average along length B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) **NOT MET** C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species **NOT MET** D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	good

UKHab Type	Associated Phase 1 Code	Hedgerow No	Condition assessment	Associated Condition
Native Species Rich Hedgerow - Associated with bank or ditch	Native species-rich intact hedge and ditch	TR4.WBH5	A1. Height: >1.5 m average along length **NOT MET** A2. Width: >1.5 m average along length B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground **NOT MET** D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	good
Native Hedgerow with trees - Associated with bank or ditch	Native species-rich intact hedge with trees and ditch	TR4.WBH3	A1. Height: >1.5 m average along length **NOT MET** A2. Width: >1.5 m average along length **NOT MET** B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) **NOT MET** C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground **NOT MET** D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities	poor

UKHab Type	Associated Phase 1 Code	Hedgerow No	Condition assessment	Associated Condition
Native Hedgerow - Associated with bank or ditch	Native species-rich intact hedge and ditch	RC.H10	A1. Height: >1.5 m average along length **NOT MET** A2. Width: >1.5 m average along length **NOT MET** B1. Gap – hedge base: Gap between ground and base of canopy 90% of length (unless 'line of trees') B2. Gap - hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5m **NOT MET** C1. Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length measured from outer edge of hedgerow, and is present on one side of the hedge (at least) **NOT MET** C2. Undesirable perennial vegetation: Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground **NOT MET** D1. Invasive and neophyte species: >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species D2. Current damage >90% of the hedgerow or undisturbed ground is free of damage caused by human activities **NOT MET**	poor
Line of Trees	Scattered trees	RC.H5	N/A - Trees with continuous canopy	moderate
Line of Trees	Scattered trees	RC.H16	N/A - Mature trees with continuous canopy	good
Line of Trees	Scattered trees	RC.H1	N/A - Trees with continuous canopy	moderate

Post-development Biodiversity

3.6 The areas of Grassland - Upland hay meadows identified in Table 1 above is an irreplaceable habitat and cannot be compensated for within the biodiversity metric. The Environmental Statement for the project confirms that this hay meadow is to be retained and protected during development.

3.7 As shown in the BNG metric all other habitats to be lost will be reinstated to the same condition they achieved during the baseline assessment. The exceptions to this are any retained trees and some small areas of permanent loss which will form new permanent access roads, hard standing and buildings essential to the continued maintenance of the proposed aqueduct.

3.8 An Ecological Management Plan will be committed to, which will provide detailed prescriptions for ongoing management of existing and new habitats. Measures will be detailed of how habitats can be reinstated to their current level and the required management practices to maintain this.

Overall Biodiversity Change

3.9 The results of the assessment are set out below. The calculator provides baseline units for the habitats, hedgerows and trees, with the total net unit change and total net percentage change post development.

3.10 The baseline habitat units for the site are 131.65, following development the habitat units on-site will be 111.85. Baseline hedgerow units are 13.47, following development the hedgerow units on-site will be 7.26.

3.11 The completed metric is presented as a separate document. A summary of the total net change is provided in Figure 1 below.

On-site baseline	*Habitat units*	131.65
	Hedgerow units	13.47
	River units	0.00
On-site post-intervention (Including habitat retention, creation, enhancement & succession)	*Habitat units*	111.85
	Hedgerow units	7.26
	River units	0.00
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation, enhancement &	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention/creation)	*Habitat units*	-19.80
	Hedgerow units	-6.21
	River units	0.00
Total net % change (including all on-site & off-site habitat creation + retained habitats)	*Habitat units*	-15.04%
	Hedgerow units	-46.09%
	River units	0.00%

Figure 1: BNG Headline Results Summary Table

3.12 As can be seen in the above figure there is a biodiversity net habitat unit loss of 19.80 habitat units which equates to an overall biodiversity net loss of 15.04%.

3.13 Hedgerow unit losses will be 6.21 units equating to an overall biodiversity net loss of 46.09%.

4.0 Conclusions

4.1 There is an overall biodiversity net loss of 15.04% for habitats and 46.09% for hedgerows from the development. Under the current requirements of National Planning Policy Framework (NPPF) a development must achieve net gain. NPPF does not state what percentage net gain must be achieved.

4.2 The draft Environment Bill includes a requirement for 10% net gain on all developments, however, this is yet to be passed through Parliament.

4.3 It is understood this document is to be considered by the Greater Manchester Ecology unit (GMEU) whose latest guidance[15] requires all new development to aim to:

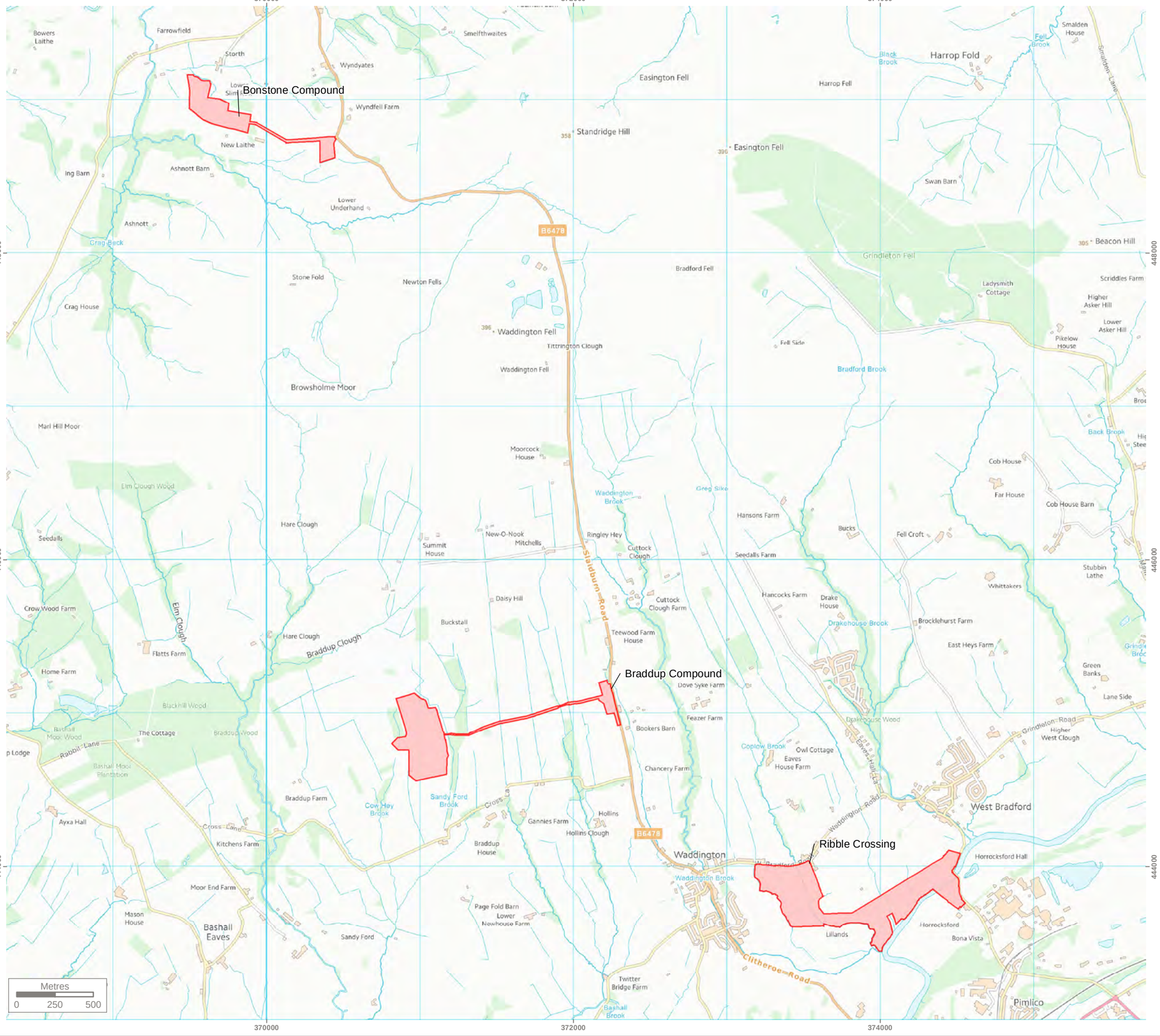
- Deliver net gains in biodiversity using the Biodiversity Metric 2.0 to demonstrate the gain and contributing to Local Plans and local biodiversity and green infrastructure plans, strategies and policies; and
- Describe how they have met the requirements set by the Biodiversity Net Gain Good Practice Principles as part of any planning application.

4.4 The losses in this report reflect those within the Ribble Valley Borough Council area only. This report does not take account of the mitigation to be created off site and therefore, as a stand-alone document, does not accurately reflect the change in biodiversity across the site. This document should be read in conjunction with WSP document (REF: RVBC-MH-APP-008_02) which details the proposed mitigation measures and provides a final change in biodiversity score.

[15] GMCA Biodiversity Net Gain Guidance for Greater Manchester February 2021, WSP, Footprint Ecology.

DRAWINGS

Drawing 1 – G7478.04.16 Ribble Valley District Compound Overview
Drawing 2 – G7478.04.17 Ribble Valley District Baseline Habitats
Drawing 3 – G7478.04.18 Ribble Valley District Post Development Habitats



KEY

Compound boundary

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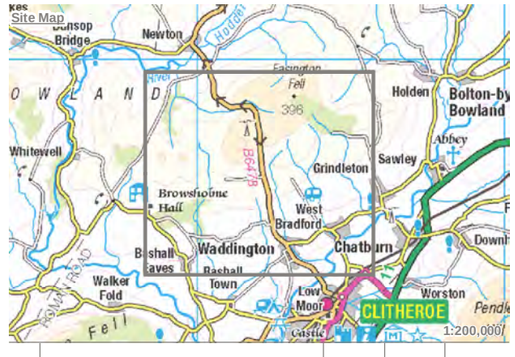

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Project
Haweswater Aqueduct Resilience Programme
Biodiversity Net Gain

Title
Ribble Valley District Compound Overview - Marl Hill Section

Drawing Number
G7478.04.016

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:25,000 @ A3	07/05/2021

KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Native hedgerow
- Purple moor grass and rush pastures
- Upland hay meadow
- Other neutral grassland
- Modified grassland
- Temporary lakes, ponds and pools
- Developed land/sealed surface
- Other woodland - broadleaved

Note:
The locations of habitats and habitat features are indicative.

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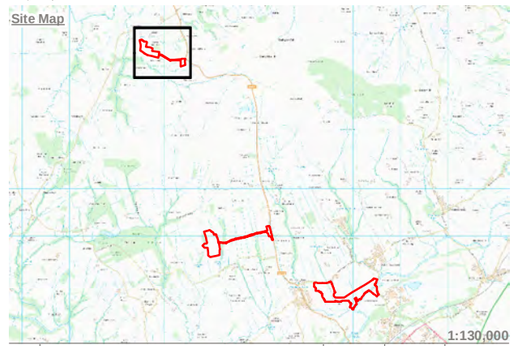

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Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Bonstone Compound

Drawing Number
G7478.04.017.1

Sheet 1 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:4,000 @ A3	14/05/2021

KEY

Compound boundary

UK Habitat Classification

- Native species rich hedgerow
- Native species rich hedgerow with trees
- Other neutral grassland
- Modified grassland
- Bramble scrub
- Temporary lakes, ponds and pools
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Vegetated garden
- Lowland mixed deciduous woodland
- Other woodland - broadleaved
- Other woodland - mixed

Note:
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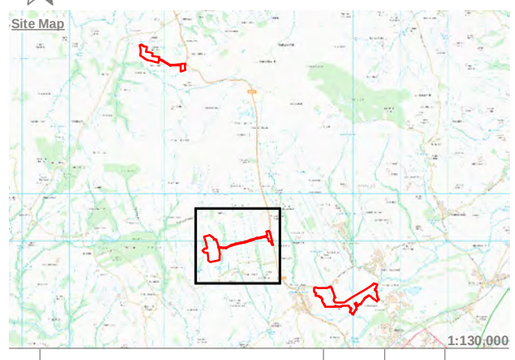

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Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.017.2

Sheet 2 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:6,000 @ A3	14/05/2021

371250

371500

4450000

444750

Temporary lakes, ponds and pools

Bramble scrub

Vacant/derelict/bare ground

Other woodland - mixed

KEY

Compound boundary

UK Habitat Classification

- Other neutral grassland
- Modified grassland
- Bramble scrub
- Temporary lakes, ponds and pools
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Lowland mixed deciduous woodland
- Other woodland - broadleaved
- Other woodland - mixed

Note:
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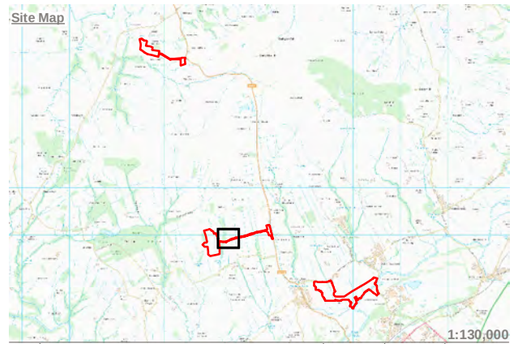

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Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.017.3

Sheet 3 of 9

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JO	AH	IH	1:1,500 @ A3	14/05/2021

371750

372000

445000

445000

371750

372000

KEY

Compound boundary

UK Habitat Classification

- Other neutral grassland
- Modified grassland
- Developed land/sealed surface
- Other woodland - broadleaved

Note:
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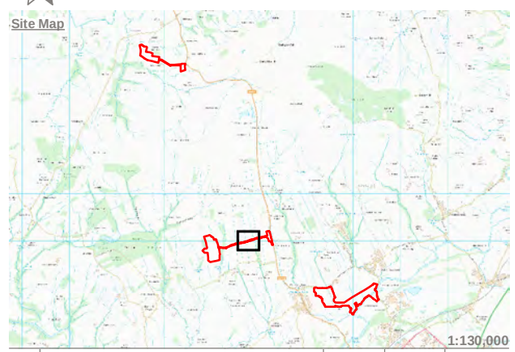

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Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.017.4

Sheet 4 of 9

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JO	AH	IH	1:1,500 @ A3	14/05/2021

372000

372250

445250

445000

TR4.H12

KEY

Compound boundary

UK Habitat Classification

- Native species rich hedgerow
- Native species rich hedgerow with trees
- Other neutral grassland
- Modified grassland
- Developed land/sealed surface
- Other woodland - broadleaved

Note:
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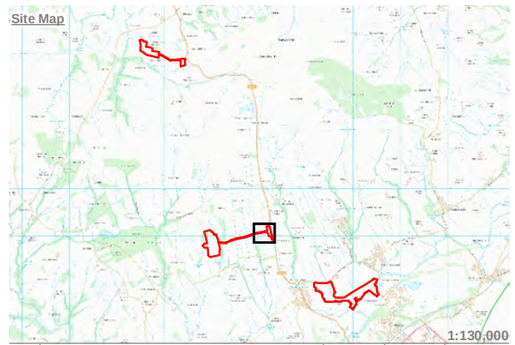

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Project
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Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.017.5

Sheet 5 of 9

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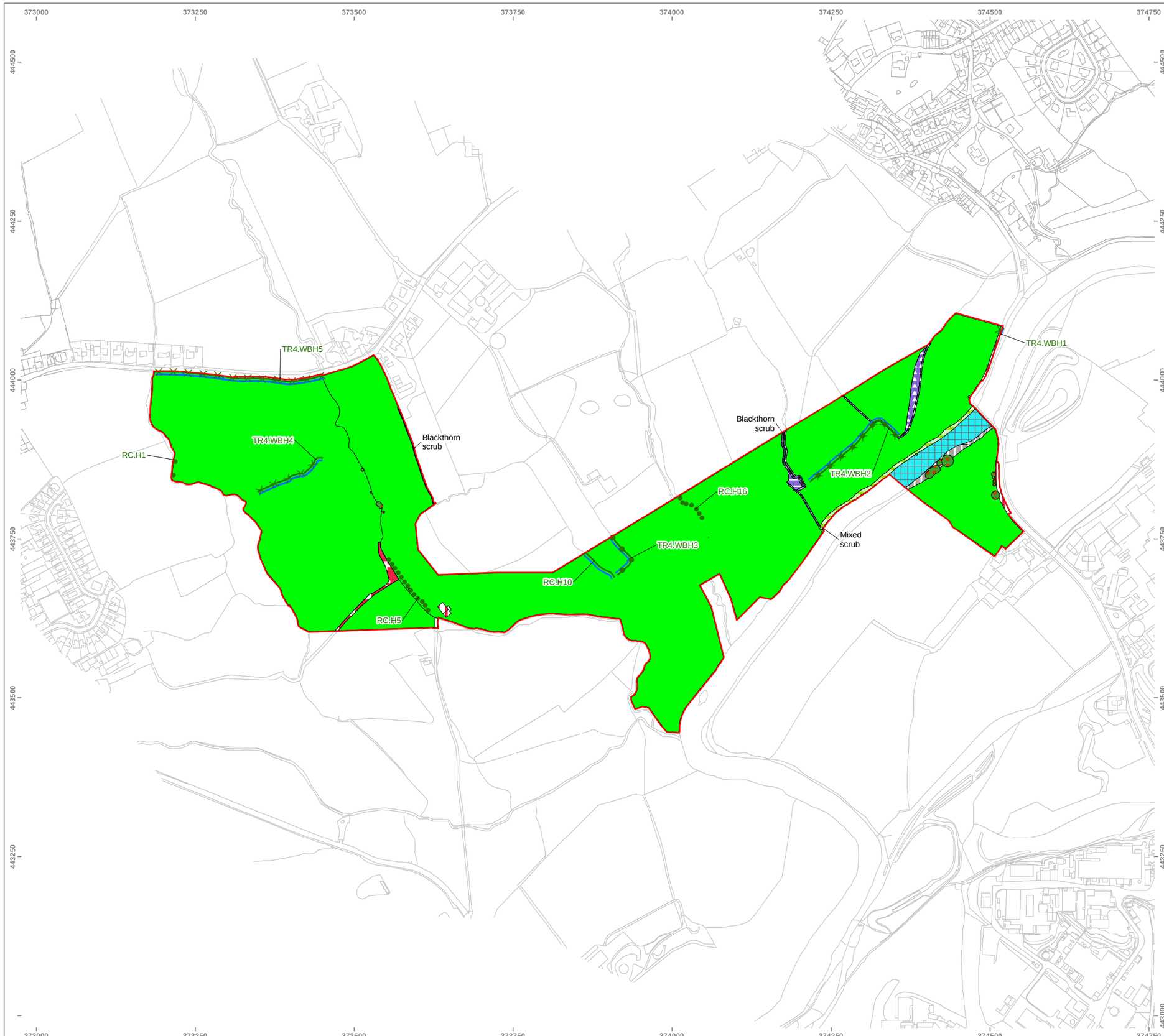

KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Line of Trees
- Native hedgerow associated with bank or ditch
- Native hedgerow with trees associated with bank or ditch
- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Other woodland - broadleaved

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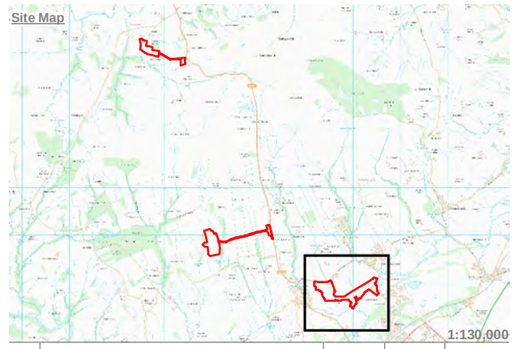

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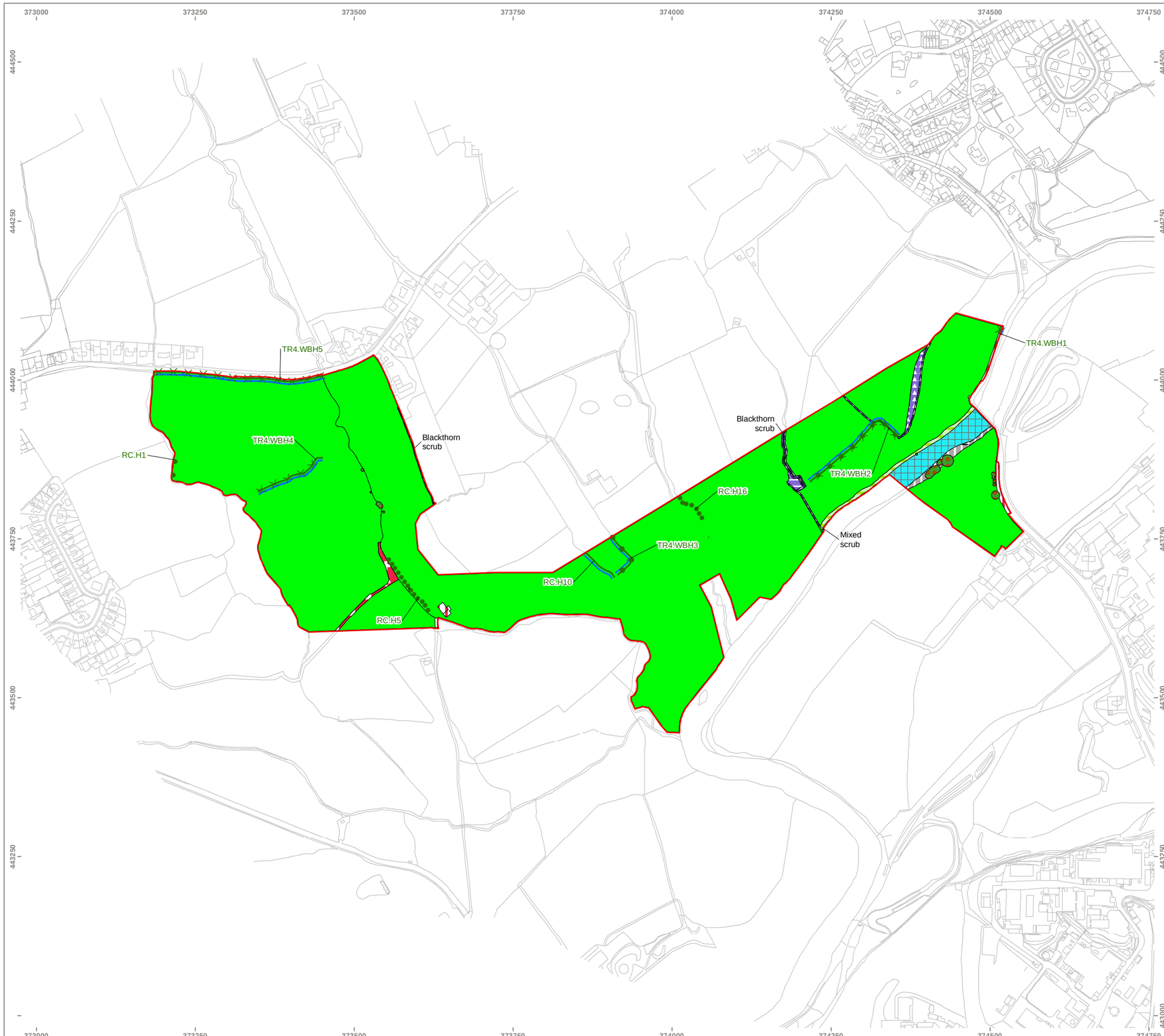
Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Ribble Crossing

Drawing Number				
G7478.04.017.6				Sheet 6 of 9
Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:6,000 @ A3	14/05/2021



KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Line of Trees
- Native hedgerow associated with bank or ditch
- Native hedgerow with trees associated with bank or ditch
- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Other woodland - broadleaved

Note:
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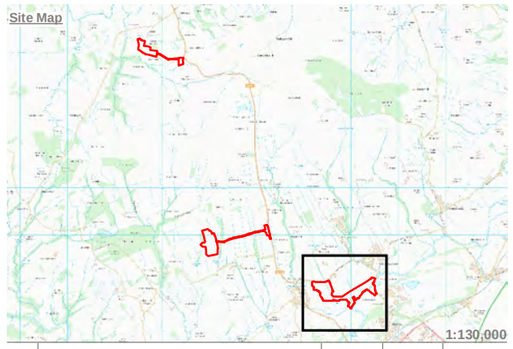

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Project
Haweswater Aqueduct Resilience Programme
Biodiversity Net Gain

Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Ribble Crossing

Drawing Number				
G7478.04.017.7				Sheet 7 of 9
Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:6,000 @ A3	14/05/2021

374250

374500

444000

443750

TR4.WBH1

TR4.WBH2

Blackthorn scrub

Mixed scrub

KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Other woodland - broadleaved

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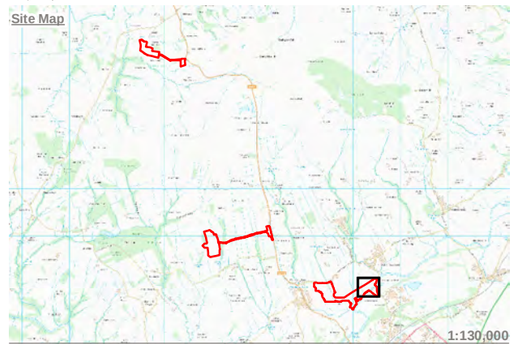

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Project
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Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Ribble Crossing

Drawing Number
G7478.04.017.8

Sheet 8 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:1,500 @ A3	14/05/2021

374250

374500

444000

443750

TR4.WBH1

TR4.WBH2

Blackthorn scrub

Mixed scrub

KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Other woodland - broadleaved

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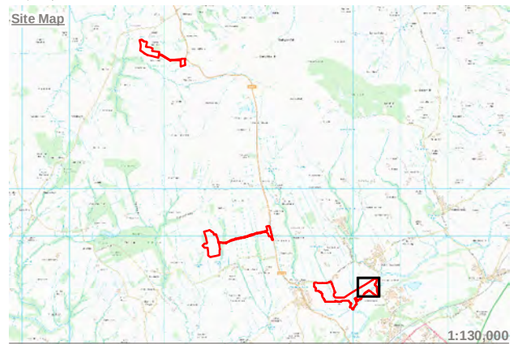

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Biodiversity Net Gain

Title
Ribble Valley District Baseline Habitats - Marl Hill Section, Ribble Crossing

Drawing Number
G7478.04.017.9

Sheet 9 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:1,500 @ A3	14/05/2021

KEY

- Compound boundary
- Habitat excluded from calculations
- Permanent loss of habitat

UK Habitat Classification

- Native hedgerow
- Purple moor grass and rush pastures
- Upland hay meadow
- Other neutral grassland
- Modified grassland
- Temporary lakes, ponds and pools
- Developed land/sealed surface
- Other woodland - broadleaved

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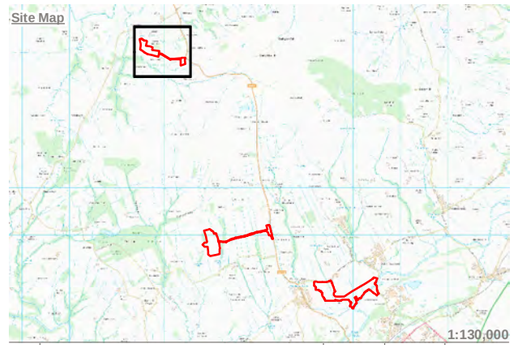

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Project
Haweswater Aqueduct Resilience Programme
Biodiversity Net Gain

Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Bonstone Compound

Drawing Number				
G7478.04.018.1				Sheet 1 of 9
Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:4,000 @ A3	14/05/2021

KEY

- Compound boundary
- Permanent loss of habitat

UK Habitat Classification

- Native species rich hedgerow
- Native species rich hedgerow with trees
- Other neutral grassland
- Modified grassland
- Bramble scrub
- Temporary lakes, ponds and pools
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Vegetated garden
- Lowland mixed deciduous woodland
- Other woodland - broadleaved
- Other woodland - mixed

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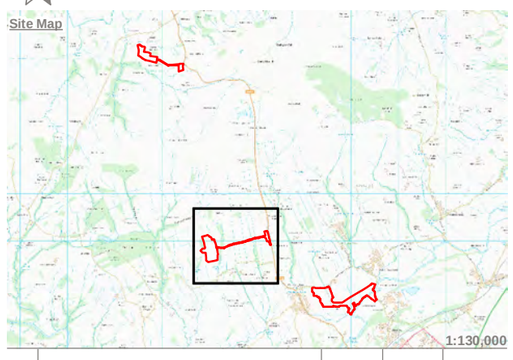

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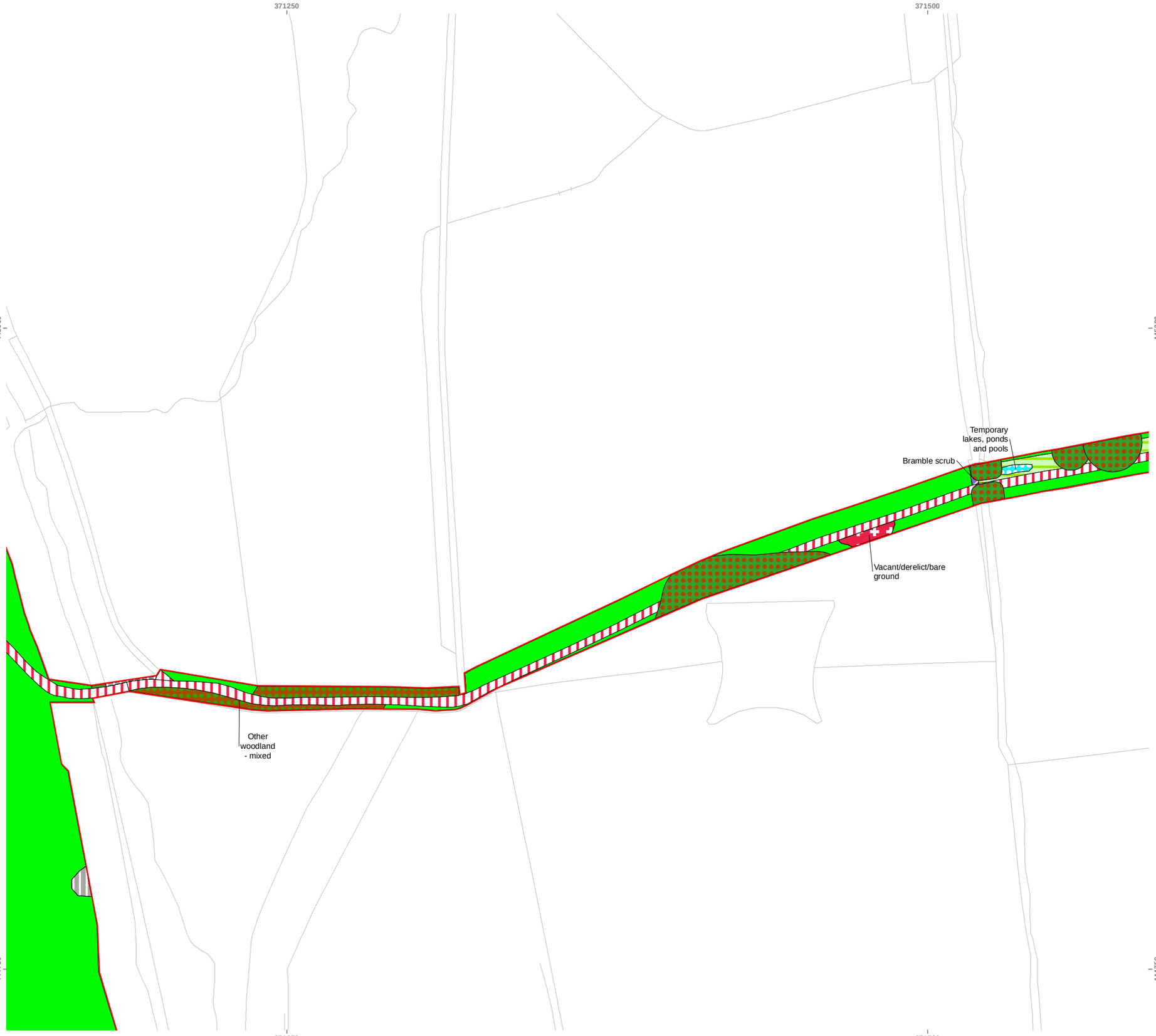
Biodiversity Net Gain

Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.018.2

Sheet 2 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:6,000 @ A3	14/05/2021



KEY

Compound boundary

UK Habitat Classification

- Other neutral grassland
- Modified grassland
- Bramble scrub
- Temporary lakes, ponds and pools
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Lowland mixed deciduous woodland
- Other woodland - broadleaved
- Other woodland - mixed

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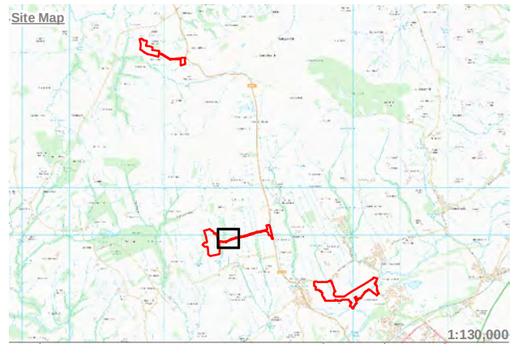

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Project
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Biodiversity Net Gain

Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.018.3

Sheet 3 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:1,500 @ A3	14/05/2021

371750

372000

445000

KEY

Compound boundary

UK Habitat Classification

- Other neutral grassland
- Modified grassland
- Developed land/sealed surface
- Other woodland - broadleaved

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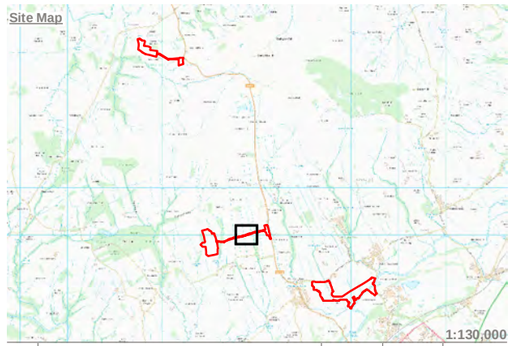

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Project
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Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.018.4

Sheet 4 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:1,500 @ A3	14/05/2021

372000
372250
445250
445000

KEY

Compound boundary

UK Habitat Classification

- Native species rich hedgerow
- Native species rich hedgerow with trees
- Other neutral grassland
- Modified grassland
- Developed land/sealed surface
- Other woodland - broadleaved

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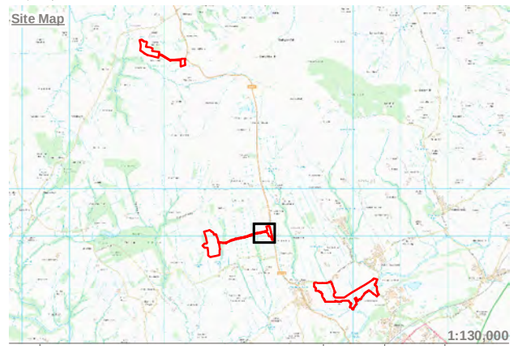

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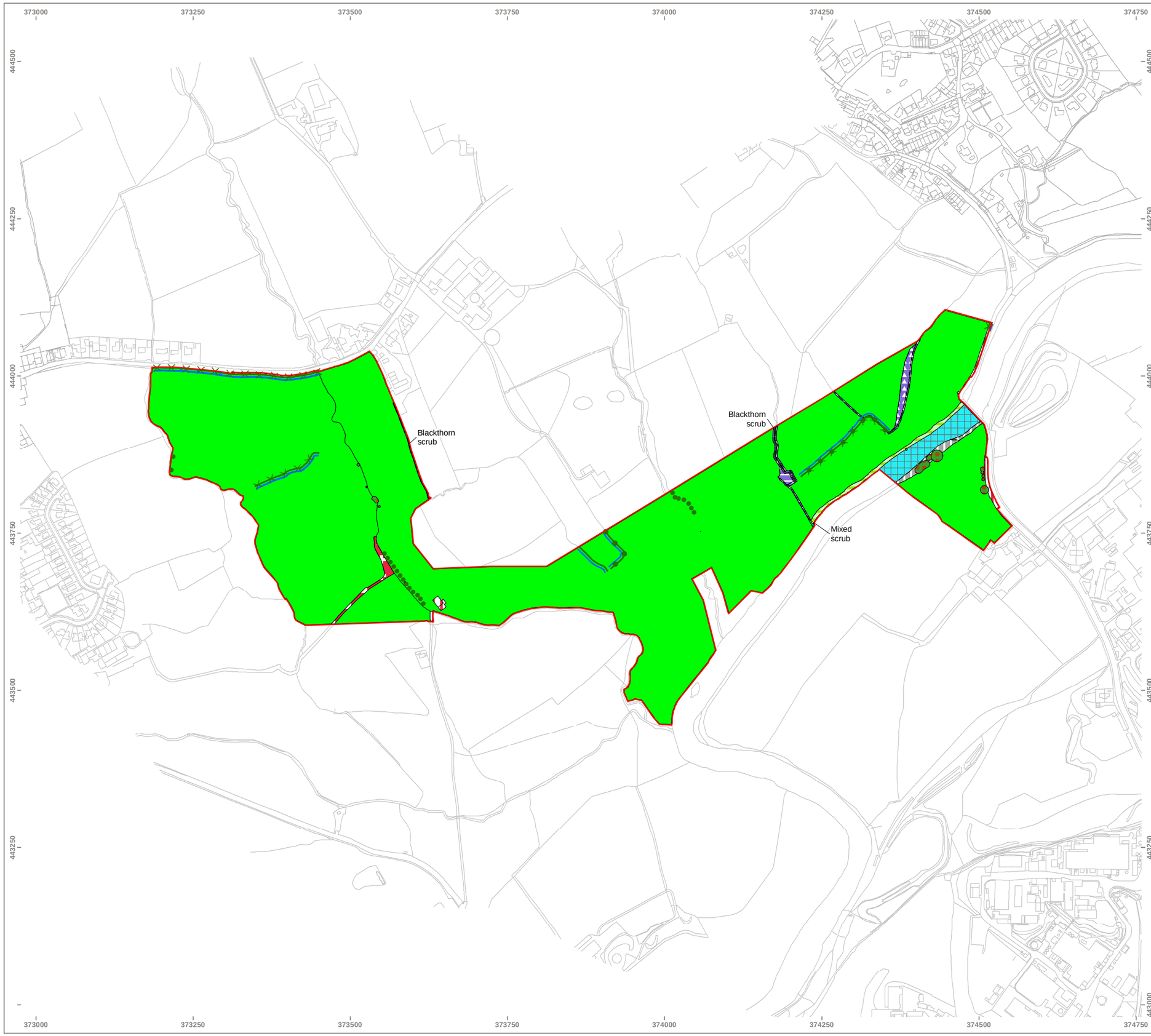
Biodiversity Net Gain

Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Braddup Compound

Drawing Number
G7478.04.018.5

Sheet 5 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:1,500 @ A3	14/05/2021



KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Line of Trees
- Native hedgerow associated with bank or ditch
- Native hedgerow with trees associated with bank or ditch
- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Other woodland - broadleaved

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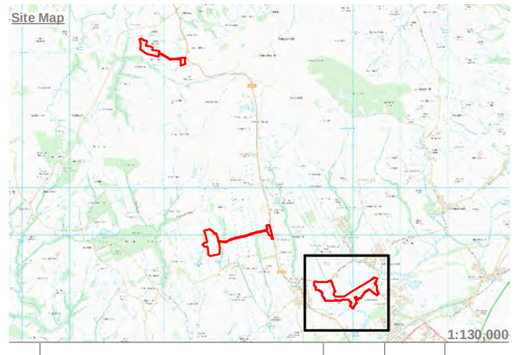

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Project
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Biodiversity Net Gain

Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Ribble Crossing

Drawing Number
G7478.04.018.6

Sheet 6 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:6,000 @ A3	14/05/2021

373000 373250 373500 373750 374000 374250 374500 374750

444500 444250 444000 443750 443500 443250 443000

Blackthorn scrub

Blackthorn scrub

Mixed scrub

KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Line of Trees
- Native hedgerow associated with bank or ditch
- Native hedgerow with trees associated with bank or ditch
- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Vacant/derelict land/bare ground
- Other woodland - broadleaved

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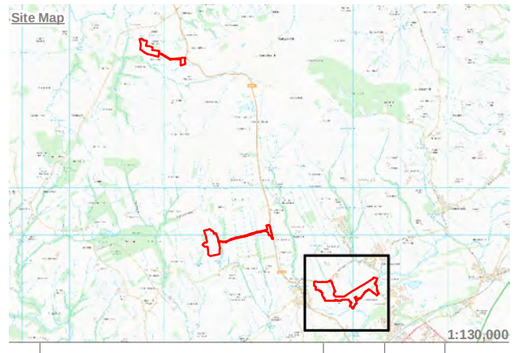

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Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Ribble Crossing

Drawing Number
G7478.04.018.7

Sheet 7 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:6,000 @ A3	14/05/2021

374250

374500

444000

443750

Blackthorn scrub

Mixed scrub

KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Other woodland - broadleaved

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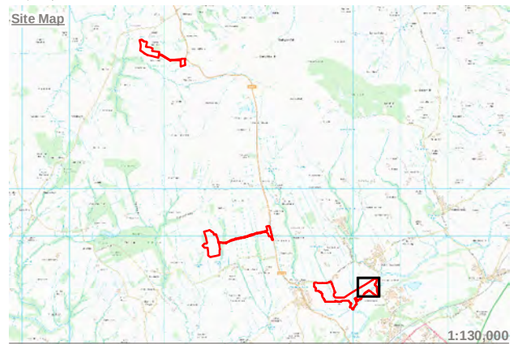

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Project
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Biodiversity Net Gain

Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Ribble Crossing

Drawing Number
G7478.04.018.8

Sheet 8 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:1,500 @ A3	14/05/2021

374250

374500

444000

443750

Blackthorn scrub

Mixed scrub

KEY

- Compound boundary
- Habitat excluded from calculations

UK Habitat Classification

- Native species rich hedgerow and trees associated with bank or ditch
- Native species rich hedgerow associated with bank or ditch
- Other neutral grassland
- Modified grassland
- Blackthorn scrub
- Mixed scrub
- River
- Ruderal/Ephemeral
- Developed land/sealed surface
- Other woodland - broadleaved

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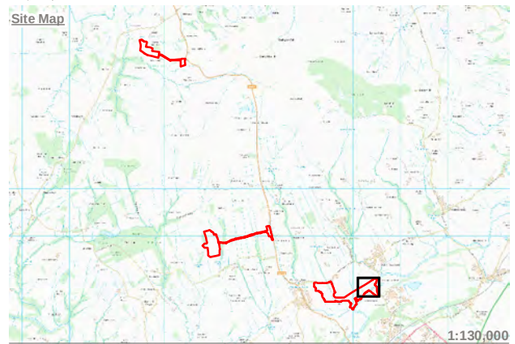

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Title
Ribble Valley District Post Development Habitats - Marl Hill Section, Ribble Crossing

Drawing Number
G7478.04.018.9

Sheet 9 of 9

Drawn	Checked	Approved	Scale	Date
JO	AH	IH	1:1,500 @ A3	14/05/2021

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