BIODIVERSITY NET GAIN ASSESSMENT

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(q)

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1.1. PROJECT BACKGROUND

1.1.1. WSP UK Ltd (WSP) was commissioned by Drax Power Limited (the Applicant) to undertake a Biodiversity Net Gain (BNG) assessment to support the 'Proposed Scheme' (as it will be hereafter referred). The Proposed Scheme is a Nationally Significant Infrastructure Project (NSIP). A Development Consent Order (DCO) application was submitted to the Secretary of State (SoS) in May 2022 and accepted for examination in June 2022.

1.1.2. The Proposed Scheme involves the installation of post-combustion carbon capture technology to capture carbon dioxide from up to two existing 660-megawatt electrical ('MWe') biomass power generating units at the Drax Power Station (Unit 1 and Unit 2).

1.1.3. The installation of this technology constitutes an extension to the biomass Units 1 and 2 and is referred to as post-combustion carbon capture as the carbon dioxide is captured from the flue gas produced during the combustion of biomass in Units 1 and 2. The Proposed Scheme is designed to remove approximately 95% of the carbon dioxide from the flue gas from these two units.

1.1.4. An illustrative 3D drawing showing the indicative plant equipment layout for the main Carbon Capture Plant components alongside the existing Drax Power Station infrastructure is provided in **Plate 2.2 (Illustrative 3D Plant Equipment Layout Drawing)** in **Chapter 2 (Site and Project Description)** (APP-038). A more detailed 2D layout can be seen in **Figure 2.2 (Indicative Plant Equipment Layout)** (APP-060). Construction sequencing for the Proposed Scheme and information regarding construction activities is provided in **Section 2.3** of **Chapter 2 (Site and Project Description)**. Construction is planned to commence in 2024, with completion in 2029.

OTHER WORKS

1.1.5. Above and beyond the main works, the Proposed Scheme also includes Work No. 7 of the DCO, which involves the provision of the Flood Compensation Area (FCA) within Drax Power Station identified as being required in the **Flood Risk Assessment (FRA)** for the Proposed Scheme (APP-160). The Proposed Scheme also includes Work No. 8 which comprises the modification and undergrounding of overhead lines (OHL) along Rawcliffe Road and the A645, to facilitate the delivery of Abnormal Indivisible Loads (AIL) to Drax Power Station during construction of the Proposed Scheme. A full description of Work No. 7 and Work No. 8 is provided in the **Proposed Changes Application Report (PCAR)** (AS-045). The areas required for the modification of OHL are hereafter referred to as the 'OHL Areas'.

1.1.6. This BNG assessment is based on the Order Limits, shown on the updated **Site Location Plan** (AS-071) and hereafter referred to as the 'Site'.

1.2. BIODIVERSITY NET GAIN

1.2.1. BNG is the end result of a process applied to development so that overall, there is a positive outcome for biodiversity, whereby the biodiversity value attributable to a development exceeds the baseline value. The process itself follows the mitigation hierarchy, which sets out that everything possible must be done to firstly avoid, secondly minimise and thirdly restore / rehabilitate losses of biodiversity on Site. Only as a last resort, residual losses are compensated for using biodiversity offsets, which are distinguished from other forms of mitigation in that they are outside of the development Site.

1.2.2. A BNG assessment report is intended to provide a detailed insight into the adherence of a project to the Chartered Institute of Ecology and Environmental Management (CIEEM), Construction Institute Research and Information Association (CIRIA) and Institute of Environmental Management and Assessment (IEMA) BNG Good Practice Principles (which are presented in **Table 3-3**).

1.3. RELEVANT LEGISLATION AND POLICY

1.3.1. This appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England, including:

- **a.** UK Government's 25 Year Environmental Plan (DEFRA, 2018)
- **b.** Biodiversity 2020: A strategy for England's wildlife and ecosystem services (DEFRA, 2011);
- **c.** National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021)
- **d.** The Natural Environment and Rural Communities (NERC) Act (HMSO, 2006);
- **e.** The Environment Act 2021 (HMSO);
- **f.** The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)
- **g.** UK Biodiversity Action Plan (UK BAP)[1];
- **h.** The Hedgerows Regulations (1997);
- **i.** Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change, 2011);
- **j.** Draft Overarching NPS for Energy (EN-1) (Department for Business, Energy and Industrial Strategy, 2021)
- **k.** Selby District Local Plan. – ENV9, ENV12 and ENV13. Updated in 2019. (Selby District Council, 2005); and
- **l.** Selby District Core Strategy Local Plan. SP18 (Selby District Council, 2013).

1.3.2. The NPPF makes clear the current expectations for development to achieve BNG in England. The NPPF states underneath section 15, paragraph 174 (d) that development should contribute to enhancing the natural environment by '*minimising*

[1] The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'. The Environment Act strengthens this requirement for BNG, however, there is currently a development period for the detail that underpins/will further develop the Act's provisions which is anticipated to conclude in 2025 for NSIPs.

1.3.3. Once the relevant provisions are in force, the Act mandates projects under the Town and Country Planning Act 1990 and NSIPs to achieve a minimum of 10% BNG. The Government is currently developing the process as to how this will be required to be demonstrated for NSIPs (including the prospective introduction of a biodiversity net gain statement) Whilst NSIPs are not currently required to achieve a 10% BNG the Applicant is targeting a minimum of 10% BNG for the Proposed Scheme.

1.3.4. The Act also includes measures (not yet in force) to strengthen the NERC Act 2006 duty on public bodies to have regard to the purpose of conserving and enhancing biodiversity.

1.4. SCOPE OF REPORT

1.4.1. The report documents the assessment of the outcome of BNG taking account of the Proposed Scheme as documented in **Chapter 2 (Site and Project Description)** of the Environmental Statement (ES) (APP-038) and the **PCAR** (AS-045) and associated on-Site mitigation and compensation which includes compensatory habitat provision outside of the Order Limits in an 'Off-site Habitat Provision Area'. Provision of off-Site habitat enhancement for rivers and streams has also been developed, in light of the requirements of the BNG metric discussed below.

1.4.2. The report is supported by a series of figures which include: **Figure 1: Biodiversity Net Gain Land Use and Habitat Change Plan)** (document reference 6.10.1), **Landscape and Biodiversity Management Plans** (APP-181 and APP-182) which form part of the updated **Outline Landscape and Biodiversity Strategy** (AS-094), **Landscape and Biodiversity Plans** (AS-048 and REP2-059) that form part of the **PCAR** and which also can be considered to form part of the **Outline Landscape and Biodiversity Strategy** and **Figure CCRT 2101_02** of the **Bowers Mill Black Brook Habitat Restoration Project Report** (in Appendix C). The following information is set out in this report:

a. A description of baseline habitat types within and outside of the Order Limits;

b. The methodology of the assessment and associated limitations and assumptions;

c. A summary of the quantitative outcome predicted for the Proposed Scheme (based on a worst-case scenario of the Proposed Scheme parameters and including other works as identified within the **PCAR**);

d. Commentary regarding adherence to the Good Practice Principles (CIEEM, CIRIA, IEMA 2016).

2. METHODOLOGY

2.1. BNG ASSESSMENT

2.1.1. This BNG assessment was undertaken with reference to the following industry recognised best practice methodologies:

- **a.** Biodiversity Net Gain Good Practice Principles for Development (CIEEM, CIRIA and IEMA, 2016)
- **b.** Biodiversity Net Gain. Good Practice Principles for Development. A Practical Guide (CIEEM, CIRIA and IEMA, 2019)
- **c.** The Biodiversity Metric 3.1 (JP039) auditing and accounting for biodiversity - user guide (Natural England, 2022);
- **d.** The Biodiversity Metric 3.1 (JP039) Technical Supplement (Natural England, 2022); and
- **e.** BS8683:2021 Process for designing and implementing Biodiversity Net Gain – specification (British Standards Institute, 2021).

2.1.2. CIRIA, CIEEM and IEMA have set out ten principles that define good practice for achieving BNG to be applied together as a single approach. This BNG assessment has assessed the Proposed Scheme for compliance with these Good Practice Principles.

2.1.3. As part of this assessment of compliance a quantitative assessment of the biodiversity value of the baseline habitats was carried out. The initial BNG assessment is designed to provide guidance on compliance with the ten BNG Good Practice Principles, and a summary of the baseline calculations. Further detail can be found on the Natural England website.

2.1.4. The Biodiversity Metric 3.1 (BM3.1) has been used to quantify the biodiversity value of existing habitats present on Site. Baseline calculations were then carried out to determine the quantitative effect the Proposed Scheme will likely have on biodiversity value (based on retained and lost baseline biodiversity units) and to inform requirements for further habitat compensation. To aid in estimating compensation requirements, it has been assumed that certain areas within the Order Limits will be retained, and some will be cleared. A worst-case scenario of habitat loss for these areas is located on **Figure 1 – Biodiversity Net Gain: Land Use and Habitat Change Plan**. This plan has been devised based on the updated **Works Plans** (AS-073) and includes areas of habitat change which include temporary and permanent loss and habitat enhancement, and hence also inform the plans associated with the Outline Landscape and Biodiversity Strategy (FCA Landscape and Biodiversity Plan (AS-048) and OHL Landscape and Biodiversity Plan (AS-049). This is based on a worst-case scenario of habitat loss for the Proposed Scheme.

2.1.5. BM3.1 calculates biodiversity units provided by area-based habitats, hedgerows, and rivers / watercourses separately, which are calculated using the following units:

- **a.** Area-based habitats;
- **b.** Hedgerow habitats; and

c. Rivers and stream habitats.

2.1.6. The quantitative outcome awarded to the Proposed Scheme is dependent on the area-based, hedgerow or river/watercourse habitat value with the lowest net percentage change value. This could be the lowest positive or highest negative percentage change.

2.1.7. It should be noted that a previous iteration of this BNG assessment report (APP-196) using the previous version of the BM (BM3.0) was undertaken and submitted as part of the DCO application in May 2022.

2.2. SOURCES OF HABITAT DATA

2.2.1. The BNG assessment is informed by:

a. A Phase 1 habitat survey of the Proposed Scheme's footprint, undertaken over several visits in 2021. The habitat survey was undertaken by experienced WSP ecologists, following best practice guidelines (Joint Nature Conservation Committee (JNCC, 2016)). This survey provided a baseline habitat database which details the habitat types present on Site and their area (in hectares (ha)). Habitats were translated from Phase 1 into UK Habitat Classification (UKHab) habitats using the 'G-9 Translation Phase 1' tab within the BM3.1, along with professional judgement from a suitably experienced ecologist using condition assessment data and habitat notes. In BM3.1, distinctiveness is pre-assigned for each habitat based upon the UKHab system.

b. A habitat condition assessment of the habitat areas was carried out retrospectively by an experienced ecologist in 2021. The condition assessment was undertaken using the BM3.0 Guidelines and the Biodiversity Condition Assessment Sheets (Natural England, 2021). Habitat conditions were then re-assessed using the Condition Assessment Sheets released as part of BM3.1.

c. UKHab habitat and condition assessment surveys undertaken in 2022 to collect baseline habitat data for Arthur's Wood and Fallow Field within the Off-Site Habitat Provision Area, and areas needed for flood compensation and OHL modification.

d. A River Condition Assessment, which was undertaken for all watercourse habitats within the Order Limits and within riparian encroachment zones[2] outside of the Order Limits. This included a field survey as per the Modular River Survey and a desk-based assessment looking at Modular River Physical (MoRPh) indices. This survey provided appropriate condition assessment data to support use within the rivers and streams tab of BM3.1. The survey was undertaken by Natural England accredited surveyors.

e. Post-development habitats identified on the **Landscape and Biodiversity Management Plans** (APP-181 – 182) which form part of the updated **Outline**

[2] Riparian encroachment zones are defined as a 10m zone from the top of a riverbank. Development within the riparian zone is termed riparian encroachment as per the Biodiversity Metric 3.0 User Guide.

Landscape and Biodiversity Strategy (AS-094) which have been designed by the project ecologist and landscape architect.

f. The Order Limits boundaries were converted to a shapefile using ArcGIS. The quantitative outcomes of the BNG assessment calculations were rounded to the nearest % between 100 and 101 and can then be categorised as achieving one of the outcomes listed in **Table 2.1** below.

g. The habitat improvement proposals set out in the **Bowers Mill Black Brook Habitat Restoration Project Report** (in Appendix C) (in Appendix C).

Table 2-1 Quantitative Outcomes of BNG Calculations

Post-development biodiversity value	Predicted Scheme-wide outcome
Less than 100% of the baseline value	Net Loss (NL) of biodiversity
100% of baseline value	No Net Loss (NNL) of biodiversity
101% or more of baseline value	Biodiversity Net Gain (BNG)

2.2.4. BM3.1 uses UKHab to classify habitat types. UKHab has therefore been used in this report. All data collected prior to the release of BM3.1 (i.e data collected and used as part of the previous iteration of this BNG assessment) has been analysed to ensure it corresponds to BM3.1 and its related material. This includes JNCC Phase 1 habitat types identified during field surveys and translated to UKHab and respective condition assessment data. This analysis has been undertaken by a suitably experienced ecologist consulting field data and the habitat translation information provided as part of the BM3.1 update, to allow for use within BM3.1.

2.2.5. **Table 2.2** below shows the Phase 1 habitats that have been converted to UKHab. The habitats collected during the UKHab surveys referred to in 2.2.1 c above do not feature in **Table 2.2** as habitat translation was not required.

Table 2-2 Translation of baseline habitats from JNCC Phase 1 habitats to UKHab

JNCC Phase 1 Habitat Types	UKHab Habitat Types
A1.1.2 Broadleaved woodland plantation	w1g Other broadleaved woodland
A1.3.2 Mixed woodland	w1h Other mixed woodland
A1.2.2 Coniferous woodland	w2c Other coniferous woodland
A2.1 Dense/continuous scrub	h3h Mixed scrub
A2.2 Scattered scrub	w1g6 Line of trees
A3.1 Broadleaved scattered trees	w1g Other broadleaved woodland
B4 Improved grassland	g4 Modified grassland
B6 Species poor semi-improved grassland	g4 Modified grassland
C3.1 Ruderal tall herb and fern	s 17 Sparsely vegetated land (Ruderal/Ephemeral)
G2 Running water	r1e Ditch
F1 Swamp	f2e Reedbeds
J1.1 Arable land	c1c Cropland cereal crops
J1.2 Amenity grassland	g4 Modified grassland

JNCC Phase 1 Habitat Types	UKHab Habitat Types
B2.2 Semi improved neutral grassland	g3c Other neutral grassland
B2.2 Semi improved neutral grassland (poor quality)	g4 Modified grassland
J2.1.1 Species rich intact hedge	h2a Native species rich hedge
J2.1.2 Species poor intact hedge (alongside J2.6 dry ditch)	h2a Native hedgerow (with ditch)

2.2.8. As per the updated **Site Location Plan** (AS-071) and the **Works Plans**, the BNG assessment is based on the Proposed Scheme works and habitat creation/enhancement proposals in six main areas. These are:

a. Drax Power Station Site (including FCA);
b. East Construction Laydown Area;
c. Habitat Provision Area;
d. Off-Site Habitat Provision Area;
e. OHL Areas (Work Number 8); and
f. Proposed river and stream habitat enhancement to the Bowers Brook, to be delivered off-site by the CCRT.

2.2.9. Land use and habitat change areas are illustrated on Figure 1. The land use and habitat change areas show anticipated construction activity within areas inside the Order Limits. These areas are defined below:

a. Permanent Loss: Areas within the Order Limits to be removed and not replaced
b. Temporary Loss: Areas to be removed for the duration of construction and reinstated on completion
c. Retained: Natural habitats that are to be retained as part of the Proposed Scheme
d. Modifications to Urban Features Only: Areas where hard standing, hard landscaping, built structures and power station infrastructure are to be removed only

2.3. IRREPLACEABLE HABITATS AND HABITATS OF PRINCIPAL IMPORTANCE

2.3.1. Following national good practice guidance, irreplaceable habitats and statutory designated Sites are excluded from BNG calculations. BNG or NNL of biodiversity cannot be achieved for the Proposed Scheme as a whole if there is a negative impact on an irreplaceable habitat or a statutory designated Site.

2.3.2. The Site was overlaid with Natural England's Ancient Woodland Inventory dataset to identify presence of irreplaceable habitat on Site. Statutory designated sites were identified by overlaying publicly available open source Natural England datasets with the Order Limits and Off-Site Habitat Provision Area. No irreplaceable habitats were identified within or adjacent to the Proposed Scheme.

2.3.3. Habitats of Principal Importance (HPI) were identified by overlaying publicly available open source Natural England datasets with the Site boundary, followed by a quality assurance assessment to ensure that the national dataset was consistent with the habitat types found on the ground. Where there were inconsistencies in habitat type, the field survey data were assumed to be correct. HPI were identified to enable indicative compensation requirements to target achievement of like-for-like habitat replacement for HPI.

2.4. NOTES, LIMITATIONS AND ASSUMPTIONS

2.4.1. The following notes, limitations and assumptions have been applied when using the above methodologies. None of the present limitations were considered to be significant.

BASELINE BIODIVERSITY

2.4.2. The biodiversity unit calculations do not account for temporary and / or indirect impacts to habitats outside of the Order Limits and Off-Site Habitat Provision Area boundary arising during construction of the Proposed Scheme. At present no such areas are expected to be required.

2.4.3. Some of the baseline habitat conditions within the Site have been determined retrospectively, based on existing data gathered during the Phase 1 habitat survey carried out during 2021 and targeted condition assessments in 2022 for the Off-Site Habitat Provision Area, FCA and OHL areas. Some of the survey visits were not conducted within optimal survey times for habitats contained within the Site, including woodland and grassland.

2.4.4. It is important to recognise that the quantification of biodiversity is one of a number of factors to be considered when assessing the impact of the Proposed Scheme on biodiversity. It should be noted that this BNG assessment report does not cover potential impacts of the Proposed Scheme on protected species and designated sites which are set out in **Chapter 8** (**Ecology**) of the ES (APP-044) and the **Habitats Regulations Assessment** report (REP2-101).

2.4.5. The Proposed Scheme has set aside areas within and outside of the Order Limits for the purposes of ecological and landscape mitigation and compensation. The area set aside within the Order Limits is referred to as the Habitat Provision Area whilst the area outside the Order Limits is called the Off-Site Habitat Provision Area. The Proposed Scheme does not depend on this area to facilitate construction, with no temporary or permanent habitat loss required for demolition, construction, or decommissioning activities. This area is required/proposed only for the purpose of achieving ecological and landscape mitigation and enhancement, and for supporting the delivery of BNG.

2.4.6. Within the BM3.1 a temporal multiplier is factored into the calculations to account for the delay in habitat creation for a particular project. At this stage it is assumed that habitat reinstatement within the Drax Power Station would be delayed for a period of five years until construction has been completed. Habitat creation measures within the FCA would commence on completion of the flood compensation measures and

has been set at 2 years. Habitat reinstatement within the OHL Areas is expected to be delayed for up to a year. It is assumed that habitat creation and enhancement within the Off-Site Habitat Provision Area would begin upon commencement of construction of the Proposed Scheme.

POST-DEVELOPMENT BIODIVERSITY

2.4.7. An assumption has been made in relation to retained habitats within the Site. Habitat polygons that would remain entirely unaffected by the built footprint of the Proposed Scheme were marked as 'retained' within the BM3.1 calculation tool. Where a habitat falls within a particular Works Plan number, a number of assumptions have been made regarding the habitat change. Habitats are considered to be permanently or temporarily lost or not lost at all based on the type of activity within that Works number. This is considered to be a reasonable worst-case scenario.

2.4.8. It is acknowledged that there will be scope to optimise habitat retention on Site, with the potential for more habitat units to be retained and/or enhanced during detailed design of the Proposed Scheme (post-consent). For example, wholesale loss of all habitats within all Drax Power Station Construction Laydown Areas is unlikely to occur. A final BNG report utilising finalised biodiversity and landscape plans would need to be undertaken in this instance, in order to accurately quantify where this retention, enhancement, and additional creation, would take place.

2.4.9. This will also allow off-Site ecological compensation requirements to be finalised where necessary. Predicted habitat change areas for this assessment include those that are to be retained. Habitat loss / retention / enhancement categories of land can be viewed on **Figure 1 – Biodiversity Net Gain: Land Use and Habitat Change Plan.**

2.4.10. Given the above, this BNG assessment report is to be updated upon receipt of detailed design information post-consent and in advance of construction commencing, at a point to be agreed with the LPAs once the phasing of the Proposed Scheme is known. Post-development data obtained through analysis of detailed design information of the Proposed Scheme would be used to update the BM (the most recent BM version at that time) to present a more accurate understanding of the habitat change. As a result, the BM3.1 outcome documented in this report should not be taken as final. With that said, the Applicant is committed to delivering a minimum of 10% BNG as part of the Proposed Scheme.

2.4.11. Habitat creation and enhancement measures included within BM3.1 are set out in further detail in the updated **Outline Landscape and Biodiversity Strategy** (OLBS) (AS-094).

RIVERS AND STREAMS COMPONENT

2.4.12. A culverted section of Carr Dyke (a watercourse habitat) is located underneath the Power Station running for approximately 0.72 km from south-west to north-east. Although not directly impacted by the Proposed Scheme, the culverted section of Carr Dyke has been included within the Rivers and Streams component of the BM3.1 calculations, as it falls within the Order Limits and is within areas that will be subject to construction activities.

BIODIVERSITY METRIC APPROACH

2.4.13. As part of this BNG Assessment, two approaches were previously used to calculate biodiversity units (area-based habitats and linear (hedgerow) habitats) in areas set aside for habitat enhancements for the Proposed Scheme. The difference between approaches related to the inclusion of habitat data within the 'off-site' or 'on-site' tabs of the Biodiversity Metric.

2.4.14. The Proposed Scheme has set aside areas within the Order Limits and outside for the purposes of ecological and landscape mitigation and compensation. The area set aside within the Order Limits is referred to as the Habitat Provision Area whilst the area outside the Order Limits is called the Off-Site Habitat Provision Area. The Proposed Scheme does not depend on these areas to facilitate construction, with no temporary or permanent habitat loss required for demolition, construction, or decommissioning activities. These are as required/proposed only for the purpose of achieving ecological and landscape mitigation and enhancement, and for supporting BNG.

2.4.15. In May 2022 BNG Report (APP-196) submitted with the DCO application, he Applicant had taken an approach which was informed by the Consultation on BNG Regulations and Implementation document (the 'BNG consultation') issued by the Department for Environment, Food and Rural Affairs (Department for Environment, Food and Rural Affairs, 2022), specifically page 45 and 46, 'Process and demonstrating biodiversity net gain gains' of Part 2: Applying the biodiversity net gain objective to different types of development. This states:

'*We have heard from stakeholders that NSIPs often need to incorporate significant areas for environmental mitigation or compensation within their development site boundaries. This may have the effect of making biodiversity net gain relatively more challenging than for development consented under the Town and Country Planning Act 1990. This is because the percentage gain would also apply to these mitigation areas and other development types may be able to exclude such areas from their development boundary and treat them as off-site enhancements (so that the percentage gain target does not apply*).

We are therefore considering whether a distinction should be made for NSIPs between onsite habitats in the development area and any dedicated mitigation areas'

2.4.16. As a result, the initial BNG assessment included the Habitat Provision Area (on-site within the Order Limits) in the 'off-site' tabs for area and hedgerow units within BM3.1. Natural England have previously provided advice that the Habitat Provision Area should be included in the 'on-site' tab of the BM3.1 metric.

2.4.17. Defra published the government response to the BNG consultation on the 21 February 2023 (Department for Environment, Food and Rural Affairs, 2023). This states at section 4.3 that:

2.4.18. *'We intend to apply BNG for NSIPs without any broad exemptions other than the provision made for development on irreplaceable habitats. Using the same broad approach for NSIPs will help to create consistency between different types of*

projects, reducing the scope for confusion and the need to define requirements in reporting.';

and

"Some NSIPs need to include significant areas for environmental mitigation within their project boundaries. We do not intend to make a distinction for NSIPs between on-site habitats (which are subject to BNG) and any dedicated environmental mitigation areas included in the project boundary. This maintains consistency with the approach for TCPA development. We will consult further on this proposal through the draft biodiversity gain statement".

2.4.19. In light of the Defra consultation response and Natural England advice, the BM3.1 metric has been updated for this iteration of the BNG report. The Habitat Provision Area has now been included in the 'on-site' part of the BNG metric. The off-site Habitat Provision Area remains within the off-site part of the BNG metric. The Riverine habitats associated with the proposed off-site rivers and stream enhancements to be delivered by the CCRT, have also been included in the off-site part of the BNG metric.

3. RESULTS

3.1. OVERVIEW

3.1.1. The BM3.1 toolkit is included within Appendix B. The results below summarise the output of the approach which includes the Habitat Provision Area and associated habitats proposed for creation and/or enhancement as 'on-site', in accordance with Natural England's advice as set out in their Relevant Representation (document reference AS-011) and the BNG consultation response (Department for Environment, Food and Rural Affairs, 2023).

3.2. RIVERS AND STREAMS

3.2.1. The Bowers Mill Black Brook Habitat Restoration Project has been developed by the Calder and Colne Rivers Trust in collaboration with the Applicant and is planned to be delivered in summer 2023. This scheme will:

a. Remove the right bank retaining wall and re-profile the bank to restore floodplain connectivity

b. Expand the footprint and improve the quality of existing floodplain wetland habitat

c. Divert and improve the field boundary ditch to feed floodplain wetlands

d. Remove a weir to restore sediment flow and habitat connectivity within the river

3.2.2. These interventions will result in an uplift of biodiversity units and deliver natural flood management as a co-benefit. The scheme is the first phase of a larger, whole-site, restoration plan for habitats, biodiversity, access and recreation, and local business. The **Bowers Mill Black Brook Habitat Restoration Project Report**¸ which explains the works proposed, is located in Appendix C.

3.2.3. At the time of writing the Applicant is in the process of drafting appropriate wording for the S106 agreement to secure the delivery of CCRT's proposed habitat enhancement and restoration measures and their allocation to the Proposed Scheme's BNG requirements.

3.3. BASELINE BIODIVERSITY

3.3.1. The Site (being all areas within the Order limits including the Habitat Provision Area and the Off-site Habitat Provision Area) was checked against Natural England's Ancient Woodland Inventory dataset, no areas of Ancient Woodland or other irreplaceable habitat were identified within or in proximity to the Order Limits.

3.3.2. The Site was checked against Natural England's HPI dataset, and then checked with data collected for the **Preliminary Ecological Appraisal** report (document reference 6.3.8.1) (APP-136). There is one HPI (hedgerows) identified within the Order Limits. No reedbed HPI is present within the Order Limits, with the limited extent of 'reedbed' habitats present (see Table 2.2) not meeting the JNCC description for this HPI. No statutory or non-statutory designated sites were present within the Order Limits.

3.3.3. The area/length and baseline biodiversity unit totals for each habitat category were as follows:

a. **Area-based habitats:** 141.30 ha and 218.17 biodiversity units

b. **Hedgerow habitats:** 3.99 km and 31.80 biodiversity units

c. **Rivers and streams habitats:** 1.58 km and 5.50 biodiversity units

3.3.4. The number of biodiversity units generated by each habitat type is shown in the appended BM3.1 toolkit, in Appendix B. The baseline biodiversity within the Order Limits displaying the existing habitats is located on Figure 4 of the PEA (document reference APP-136) and **Landscape and Biodiversity Plans** (document reference 8.5.2.3 and 8.5.2.4) of the **PCAR**.

3.4. POST-DEVELOPMENT BIODIVERSITY

3.4.1. The post-development habitats expected within the Order Limits after construction (at the current stage) is based on the **Landscape and Biodiversity Management Plans** (APP-181 and APP-182) which form part of the updated **Outline Landscape and Biodiversity Strategy** (AS-094) and **Landscape and Biodiversity Plans** (AS-048 and AS-049) which form part of the **PCAR** (AS-045) and form part of the **Outline Landscape and Biodiversity Strategy**. **Figure CCRT 2101_02** of the **Bowers Mill Black Brook Habitat Restoration Project Report** (see Appendix C) displays the habitat enhancement for rivers and streams habitats.

3.4.2. The following area/length and post-development biodiversity unit totals of retained and proposed (created and enhanced) habitats were as follows:

a. **Area-based habitats[3]:** 72.85 ha and 81.12 habitat units retained. 11.7 ha enhanced, 75.27 ha created, totalling 75.12 habitat units created and 99.4 habitat units delivered through enhancement.

b. **Hedgerow habitats:** 2.14 km and 18.94 hedgerow units retained. 0.89 km enhanced, 2.31 km created, totalling 18.82 hedgerow units created and 11.22 units delivered through enhancement.

c. **Rivers and streams habitats:** 1.09 km and 2.75 river units retained. 0.44 km enhanced, 0.03 km created, totalling 0.12 river units created and 4.13 units delivered through enhancement.

3.5. QUANTITATIVE ASSESSMENT OUTCOME

3.5.1. **Table 3.1** and **Table 3.2** below summarises the outcome of the BNG calculation for the Proposed Scheme at the current stage (taking habitat data from BM3.1), considering both on-Site and off-Site habitat loss, retention, reinstatement, creation and enhancement proposals. The quantitative outcome presented below has been taken from the BM3.1 which has used the 'on-Site' approach to the Habitat Provision Area as described in the Methodology section of this report. The full outcome of the BM3.1 toolkit is located within the detailed results in **Appendix B** of this document.

[3] Includes construction of new, urban habitats and Proposed Scheme infrastructure

Table 3-1 Headline Results of Biodiversity Metric 3.1 Calculation for the Proposed Scheme – On-Site

Biodiversity Units	Baseline Value	Post-Development Units	Change in Units	Quantitative Outcome %
Habitat units	157.11	154.30	-2.81	-1.79
Hedgerow units	29.69	43.84	14.15	47.65
River units	2.83	2.85	+0.02	0.58

Table 3-2 Headline Results of Biodiversity Metric 3.1 Calculation for the Proposed Scheme – Off-Site

Biodiversity Units	Baseline Value	Post-Development Units	Change in units
Habitat units	61.06	101.35	40.29
Hedgerow units	1.93	5.15	3.22
River units	2.67	4.13	1.46

3.5.2. The total on-site net % change plus off-Site surplus equates to a **23.86%** net gain in habitats and a **58.52%** net gain in hedgerows. The net % change for rivers and streams **is 52.50%.** Both the headline and detailed results can be seen in the BM3.1 toolkit in **Appendix B**.

3.6. QUALITATIVE RESULTS

3.6.1. **Table 3.3** below documents the adherence of the Proposed Scheme to each of the BNG good practice principles.

Table 3-3 Adherence to the Qualitative Assessment of BNG

Principle	Description	Evidence of Compliance	Current Outcome
1. Apply the mitigation hierarchy	Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.	The mitigation hierarchy has been followed for the Proposed Scheme. Details on avoidance and minimising of effects are considered in Chapter 8 (Ecology) of the ES (APP-044). A quantitative net gain has been achieved through all habitat categories.	Achieved.
2. Avoid losing biodiversity that cannot be offset by gains elsewhere	Avoid impacts on irreplaceable biodiversity – these impacts cannot be offset to achieve No Net Loss or BNG.	No impacts to irreplaceable habitats are predicted.	Achieved.
3. Be inclusive and equitable	Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to BNG. Achieve BNG in partnership with stakeholders where possible and share the benefits fairly among stakeholders.	Natural England and North Yorkshire County Council (NYCC) have been consulted throughout the BNG process. See Table 8-1 Consultation Summary Table in Chapter 8 (Ecology) (APP-044) of the ES and Statements of Common Ground between the Applicant and Natural England and NYCC (REP-020 and REP-018 respectively). The biodiversity and landscape design has been shared with NYCC (acting on behalf of Selby District Council (SDC)) and Natural England, as have the Rivers BNG proposals set out in the **Bowers Mill Black Brook Habitat Restoration Project Report.**. Through consultation, NYCC have stated that they are in agreement with the proposed landscape and biodiversity plans prepared for the Proposed Scheme. This is in the Statement of Common Ground between NYCC, SDC and the Applicant (AS-030) Consultation with Natural England and the Environment Agency has been undertaken with regards to enhancements for rivers and streams habitats off-Site. This will be able to move forward on the basis of the proposals set out the **Bowers Mill Black Brook Habitat Restoration Project Report.** Consultation will continue with NYCC, Natural England and the Environment Agency during Examination of the DCO application and post-consent.	Achieved.
4. Address risks	Mitigate difficulty, uncertainty and other risks to achieving BNG. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.	The BNG assessment has used industry recognised risk multipliers included in BM3.1.	Achieved.
5. Make a measurable Net Gain contribution	Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.	A net gain of 23.86% in habitats, 58.52% in hedgerows and 52.50% in rivers and streams can be achieved for the Proposed Scheme. This assessment has been undertaken based on a reasonable worst-case	Achieved.

Principle	Description	Evidence of Compliance	Current Outcome
		scenario for habitat loss and disturbance arising from the Proposed Scheme. The Applicant will revisit the assessment prior to and during detailed design of the Proposed Scheme to determine whether assumptions regarding habitat loss can be tightened and thus the net gain position updated.	
6. Achieve the best outcomes for biodiversity	Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when: ~ Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses; ~ Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation; ~ Achieving BNG locally to the development while also contributing towards nature conservation priorities at local, regional and national levels; ~ Enhancing existing or creating new habitat. Enhancing ecological connectivity by creating more bigger, better and joined areas for biodiversity.	At the time of writing, this assessment used the most recent data and followed a rigorous method and quality assurance process. Habitat creation and enhancement are proposed within the Order Limits and within an area off-Site but in proximity to the Order Limits. The Applicant has committed to delivering a minimum of 10% net gain for the Proposed Scheme across each habitat category. As a result, enhancement of rivers and streams habitats have been sought. Due to the nature of rivers and streams habitats within the Order Limits and the difficulty associated with enhancing the existing culverted river and ditches within and in proximity to these habitats, off-Site enhancement has been sought. Whilst this is located in West Yorkshire, it is within the same catchment area as the rivers and streams habitats identified within the Order Limits. An agreement is to be made with the Colne and Calder Rivers Trust and though a section 106 Agreement to secure this.	Achieved.
7. Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e., do not deliver something that would occur anyway).	The Habitat Provision Area and Off-Site Habitat Provision Area is proposed to deliver habitat creation and enhancement above and beyond simple reinstatement. Upon completion of FCA works, the existing grassland is to be enhanced to become a species-rich grassland.	Achieved
8. Create a Net Gain legacy	Ensure BNG generates long-term benefits by: ~ Engaging stakeholders and jointly agreeing practical solutions that secure BNG in perpetuity; ~ Planning for adaptive management and securing dedicated funding for long-term management; ~ Designing BNG for biodiversity to be resilient to external factors, especially climate change; ~ Mitigating risks from other land uses; ~ Avoiding displacing harmful activities from one location to another. Supporting local-level management of BNG activities.	The Applicant owns the majority of land within the Habitat Provision Area and all land within the Off-Site Habitat Provision Area and is therefore able to commit to its long-term management. An updated Outline Landscape and Biodiversity Strategy (AS-094) has been prepared which demonstrates the design and management of habitat creation and enhancement. A s106 agreement will secure the delivery of river and stream enhancements as part of the Bowers Mill Black Brook restoration project. These works go above and beyond the 10% target for the Proposed Scheme and will therefore provide a long term additional legacy.	Achieved
9. Optimise sustainability	Prioritise BNG and, where possible, optimise the wider environmental benefits for a sustainable society and economy.	Proposals for habitat creation include a range of habitats such as woodland, scrub and grassland which would contribute to wider environmental gains.	Achieved

Principle	Description	Evidence of Compliance	Current Outcome
		The Applicant's support of the Bowers Mill Black Brook restoration project will enable the delivery of wider environmental benefits.	
10. Be transparent	Communicate all BNG activities in a transparent and timely manner, sharing the learning with all stakeholders.	The methodology and approach to this BNG assessment has been communicated to all relevant stakeholders including approach to rivers and streams enhancement measures.	Achieved.

4. CONCLUSION

4.1.1. The Proposed Scheme could achieve a minimum of 10% net gain in all habitat categories based on the assessment undertaken at the current stage, with headroom. Overall, the Proposed Scheme could achieve a net gain in biodiversity. The outcome for the Proposed Scheme is based on the lowest outcome of the biodiversity metric calculation, which is 23.86% for area-based habitats. The BNG assessment is based on a reasonable worst-case scenario for habitat loss and disturbance arising from the Proposed Scheme, with habitat losses expected to be reduced as the design of the Proposed Scheme is refined. This BNG assessment has therefore taken a conservative approach to calculating the BNG outcomes for area-based and hedgerow units.

4.1.2. The Proposed Scheme has achieved all ten Good Practice Principles.

4.1.3. It is proposed that the BNG assessment is updated with information obtained during the detailed design stage, post-consent, at a point to be agreed with the LPAs once the phasing of the Proposed Scheme is known. This would include revisiting areas of currently predicted permanent or temporary loss as a result of the Proposed Scheme, to ascertain if habitats can be retained. Additionally, the qualitative element of the BNG assessment should continue to be adhered to as the Proposed Scheme design progresses and the BNG assessment is refined.

5. REFERENCES

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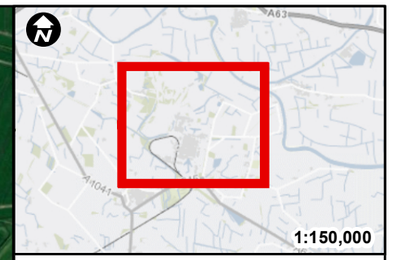
Figure 1 – Biodiversity Net Gain: Land Use and Habitat Change Areas of the Proposed Scheme



Key:

- Order Limits
- Off-Site Habitat Provision Area
- Permanent Habitat Removal
- Temporary Habitat Removal
- Temporary Loss but replanted with other habitat
- Retained Habitats
- Modifications to Urban Features Only
- Habitat Provision Area

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PROJECT TITLE

DRAX BECCS DCO

DRAWING TITLE

DRAX BECCS:
BIODIVERSITY NET GAIN PLAN - LAND USE AND ASSUMPTIONS AERIAL IMAGERY
SHEET 1 OF 3

DRAWING STATUS

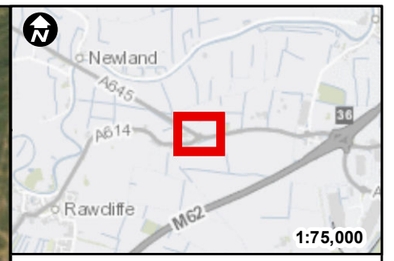
FOR ISSUE

DRAWN	CHECKED	APPROVED	AUTHORISED
BS	PP	LR	PP

SCALE @ A3 SIZE	DATE	REVISION
1:10,000	21/02/2023	P02

DRAWING NUMBER

EN010120-PA-FCA-EC-22



Key:

- Order Limits
- Retained Habitats
- Temporary Habitat Removal

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PROJECT TITLE

DRAX BECCS DCO

DRAWING TITLE

DRAX BECCS:
BIODIVERSITY NET GAIN PLAN - LAND USE AND ASSUMPTIONS
AERIAL IMAGERY
SHEET 2 OF 3

DRAWING STATUS

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SCALE @ A3 SIZE	DATE	REVISION
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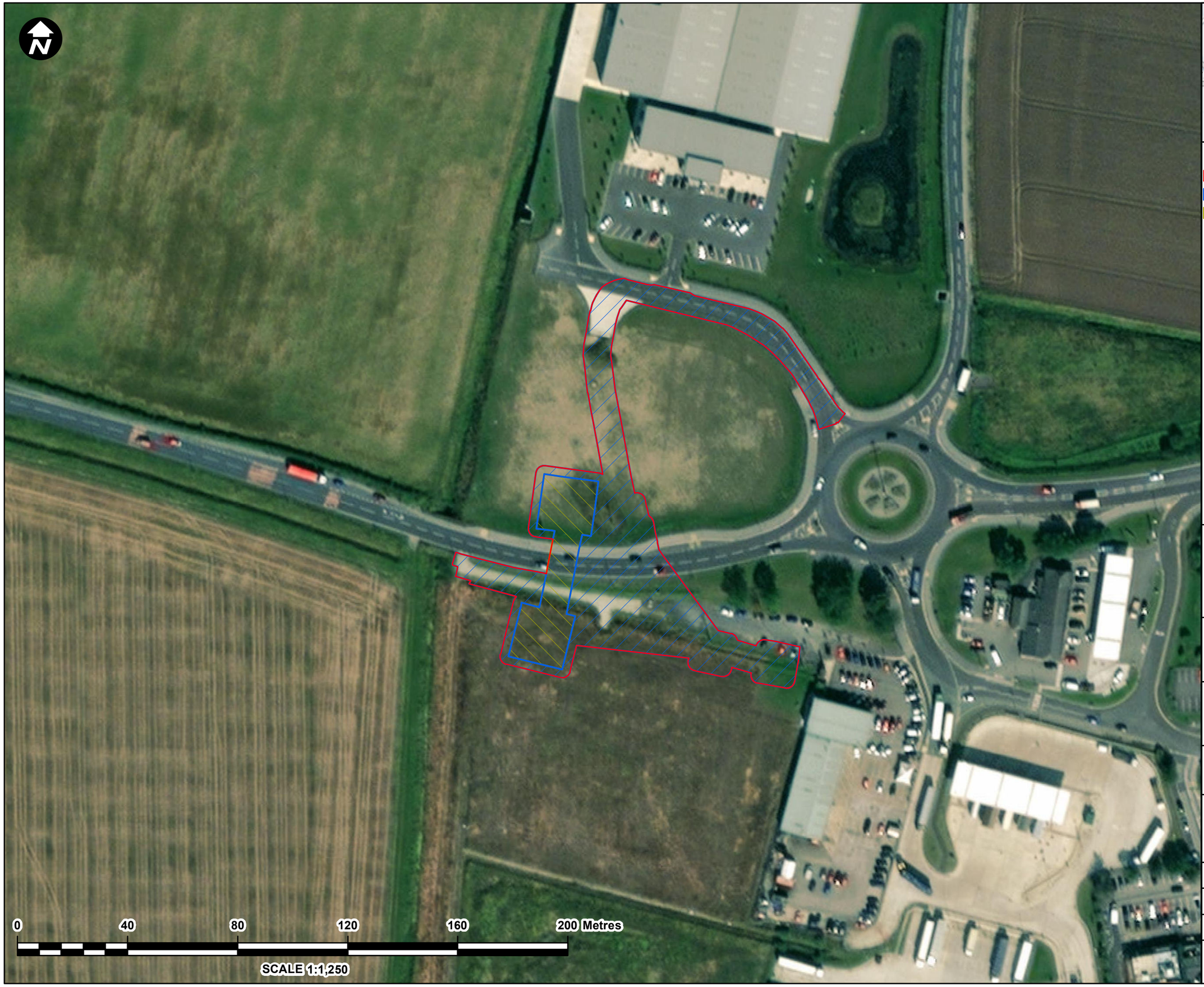

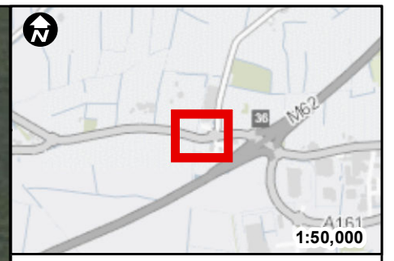

Key:

- Order Limits
- Retained Habitats
- Temporary Habitat Removal

drax

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PROJECT TITLE

DRAX BECCS DCO

DRAWING TITLE

DRAX BECCS:
BIODIVERSITY NET GAIN PLAN -
LAND USE AND ASSUMPTIONS
AERIAL IMAGERY
SHEET 3 OF 3

DRAWING STATUS

DRAWN	CHECKED	APPROVED	AUTHORISED
BS	PP	LR	PP

SCALE @ A3 SIZE	DATE	REVISION
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DRAWING NUMBER

EN010120-PA-FCA-EC-22

6. APPENDICES

6.1. APPENDIX A – BIODIVERSITY NET GAIN PRINCIPLES

Biodiversity Net Gain

Good practice principles for development

ciria

CIEEM Chartered Institute of Ecology and Environmental Management

IEMA Transforming the world to sustainability

Contents

Introduction

Achieving Biodiversity Net Gain

Designing, building, operating and maintaining - each of these stages of a development scheme generates opportunities to help achieve an overall benefit for biodiversity. Realising these opportunities is vital because biodiversity, and the functions it provides, are essential to sustain our society and economy.

Achieving these net gains in biodiversity, where there are wider benefits for society, is more than simply outweighing losses with gains. It requires doing everything possible to avoid losing biodiversity in the first place, as well as involving stakeholders especially as partners. It also requires the gains in biodiversity to be valuable locally, and to make important contributions towards regional and national priorities for nature conservation. In other words, there is a right way to achieve 'Biodiversity Net Gain' that brings about long-lasting and meaningful benefits for our environment, society and economy.

This 'right way' is articulated in standards and guidelines produced by an international community on achieving No Net Loss and Net Gain targets for biodiversity. In the United Kingdom, the government has international and national commitments on biodiversity that include halting the loss of biodiversity and reaching net gains. Development can contribute significantly towards realising these commitments. However, until now there has been no standard for the UK industry on good practice for achieving Biodiversity Net Gain.

Establishing good practice

CIRIA, CIEEM and IEMA have developed the first UK principles on good practice to achieve Biodiversity Net Gain. These principles provide a framework that helps improve the UK's biodiversity by contributing towards strategic priorities to conserve and enhance nature while progressing with sustainable development. They also provide a way for industry to show that projects followed good practice.

It is important that these principles are tested, refined and improved through feedback and review. CIRIA, CIEEM and IEMA will undertake a first review within 12 months.

Supporting guidance

The principles are broad by necessity so that they apply to a wide-ranging industry. This means that their proper interpretation is critical. CIRIA, CIEEM and IEMA are developing guidance that will contain practical advice on implementing the Net Gain principles and definitions of key terms. This guidance will be available in 2017, and a steering group will be overseeing its production and consultation with a variety of stakeholders.

Part of that stakeholder consultation is discussing a credible, proportionate way to audit implementation of Biodiversity Net Gain. While this is in progress, developments claiming to achieve Biodiversity Net Gain must provide evidence that clearly demonstrates they have implemented and adhered to the good practice principles.

Biodiversity Net Gain

Good practice principles for development

Biodiversity Net Gain is development that leaves biodiversity in a better state than before. It is also an approach where developers work with local governments, wildlife groups, land owners and other stakeholders in order to support their priorities for nature conservation. These ten principles set out good practice for achieving Biodiversity Net Gain and must be applied all together, as one approach.

Principle 1. Apply the Mitigation Hierarchy

Do everything possible to first avoid and then minimise impacts on biodiversity. Only as a last resort, and in agreement with external decision-makers where possible, compensate for losses that cannot be avoided. If compensating for losses within the development footprint is not possible or does not generate the most benefits for nature conservation, then offset biodiversity losses by gains elsewhere.

Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere

Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve No Net Loss or Net Gain.

Principle 3. Be inclusive and equitable

Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to Net Gain. Achieve Net Gain in partnership with stakeholders where possible, and share the benefits fairly among stakeholders.

Principle 4. Address risks

Mitigate difficulty, uncertainty and other risks to achieving Net Gain. Apply well-accepted ways to add contingency when calculating biodiversity losses and gains in order to account for any remaining risks, as well as to compensate for the time between the losses occurring and the gains being fully realised.

Principle 5. Make a measurable Net Gain contribution

Achieve a measurable, overall gain[1] for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.

1 Net Gain has been described as a measurable target for development projects where impacts on biodiversity are outweighed by a clear mitigation hierarchy approach to first avoid and then minimise impacts, including through restoration and / or compensation. Adhering to these Net Gain principles (i.e. pursuing all principles together) will help in under-pinning good practice for achieving and sustaining Net Gain.

Principle 6. Achieve the best outcomes for biodiversity

Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices when:

- Delivering compensation that is ecologically equivalent in type, amount and condition, and that accounts for the location and timing of biodiversity losses
- Compensating for losses of one type of biodiversity by providing a different type that delivers greater benefits for nature conservation
- Achieving Net Gain locally to the development while also contributing towards nature conservation priorities at local, regional and national levels
- Enhancing existing or creating new habitat
- Enhancing ecological connectivity by creating more, bigger, better and joined areas for biodiversity

Principle 7. Be additional

Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e. do not deliver something that would occur anyway).

Principle 8. Create a Net Gain legacy

Ensure Net Gain generates long-term benefits by:

- Engaging stakeholders and jointly agreeing practical solutions that secure Net Gain in perpetuity[2]
- Planning for adaptive management and securing dedicated funding for long-term management
- Designing Net Gain for biodiversity to be resilient to external factors, especially climate change
- Mitigating risks from other land uses
- Avoiding displacing harmful activities from one location to another
- Supporting local-level management of Net Gain activities

Principle 9. Optimise sustainability

Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy.

Principle 10. Be transparent

Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

2 Biodiversity compensation should be planned for a sustained Net Gain over the longest possible timeframe. For development in the UK, the expectation is that compensation sites will be secured for at least the lifetime of the development (e.g. often 25-30 years) with the objective of Net Gain management continuing in the future.

Acknowledgements

Principal Co-ordinating Author	
Julia Baker	Balfour Beatty

Project Team and Contributors	
Martina Girvan	Arcadis
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Owen Jenkins	CIRIA
Michael Small (Project Manager)	CIRIA
Nick Blyth	IEMA
Alex Saponja	Interserve
Bob Edmonds	SLR Consulting

The project team consisted of staff representatives from the three partner organisations, together with industry members of each organisation.
We would like to thank the numerous stakeholders who provided comment on earlier drafts of the principles in the form of online surveys, a consultation workshop and a webinar.

The Biodiversity Net Gain good practice principles were first drafted based on several sources: responses to the UK government's 2013 Green Paper Consultation on Biodiversity Offsetting; experience gained from the national pilot on biodiversity offsetting led by the UK's Department for Environment, Food and Rural Affairs; experience from Network Rail Infrastructure Projects' and from other leading corporations' work on net positive approaches; and also on principles developed for the international community by the Business and Biodiversity Offset Programme.

The draft principles were refined following initial consultation with various stakeholders including government, NGOs, regulators and private and public-sector organisations. The refined version was presented to over 450 professionals during a webinar where the majority supported this approach to Biodiversity Net Gain and the principles. The principles were revised based on feedback received during the webinar, assessed by the project team and the final set are presented in this document. It is envisaged that the principles will be further refined following a period of application, feedback and review.

Supporting guidance

The principles are broad by necessity so that they apply to a wide-ranging industry. This means that their proper interpretation is critical. CIRIA, CIEEM and IEMA are developing guidance that will contain practice advice on implementing the Net Gain principles and definitions of key terms. This guidance will be available in 2017, and a steering group will be overseeing its production and consultation with a variety of stakeholders.

Part of that stakeholder consultation is discussing a credible, proportionate way to audit implementation of Biodiversity Net Gain. While this is in progress, developments claiming to achieve Biodiversity Net Gain must provide evidence that clearly demonstrates they have implemented and adhered to the good practice principles.

How you can get involved

If you would like to be kept informed of progress with our Biodiversity Net Gain practical guidance, please visit [redacted] for further information.

If you are able to sponsor or otherwise contribute towards the cost of developing the Biodiversity Net Gain practical guidance, please contact [redacted]

Biodiversity Net Gain

Good practice principles for development

CIRIA is the construction industry research and information association. It is an independent, not-for profit, member-based research organisation that exists to champion performance improvement in construction. Since 1960, CIRIA has delivered support and guidance to the construction, built environment and infrastructure sectors. CIRIA works with members from all parts of the supply chain to co-ordinate collaborative projects, industry networks and events. Its high quality guidance is delivered to industry through publications, training and other performance improvement activities.

The Chartered Institute of Ecology and Environmental Management (CIEEM) is the leading professional membership body representing and supporting ecologists and natural environment managers in the UK, Ireland and abroad. Our Vision is of a society which values the natural environment and recognises the contribution of professional ecologists and environmental managers to its conservation. We have members drawn from across the employment sectors including local authorities, government agencies, NGOs, environmental consultancy, academia and industry. The diversity of our membership is our greatest strength, enabling us to take an integrated and holistic approach to furthering the management and enhancement of biodiversity and the ecological processes essential to a fully functional biosphere.

IEMA is the worldwide alliance of environment and sustainability professionals. We believe there's a practical way to a bright future for everyone, and that our profession has a critical role to play. Ours is an independent network of more than 15,000 people in over 100 countries, working together to make our businesses and organisations future-proof. Belonging gives us each the knowledge, connections, recognition, support and opportunities we need to lead collective change, with IEMA's global sustainability standards as our benchmark. By mobilising our expertise we will continue to challenge norms, influence governments, drive new kinds of enterprise, inspire communities and show how to achieve measurable change on a global scale. This is how we will realise our bold vision: transforming the world to sustainability

Balfour Beatty This initiative has also been supported by Balfour Beatty

6.2. APPENDIX B – BIODIVERSITY METRIC 3.1 TOOLKIT

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Headline Results

Return to results menu

On-site baseline	*Habitat units*	157.11
	Hedgerow units	29.69
	River units	2.83
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	154.30
	Hedgerow units	43.84
	River units	2.85
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	-1.79%
	Hedgerow units	47.65%
	River units	0.58%
Off-site baseline	*Habitat units*	61.06
	Hedgerow units	1.93
	River units	2.61
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	101.35
	Hedgerow units	5.15
	River units	4.08
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	37.49
	Hedgerow units	17.37
	River units	1.49
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	23.86%
	Hedgerow units	58.52%
	River units	52.50%
Trading rules Satisfied?		Yes ✓

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Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)		
	Habitat units	**37.49**
	Hedgerow units	**17.37**
	River units	**1.49**

Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)		
	Habitat units	**85.89%**
	Hedgerow units	**86.88%**
	River units	**62.50%**

Combined habitat retention and enhancement

	Habitats	Hedgerows	Rivers
Total on-site and off-site baseline area / length	161.30	2.00	1.20
Total on-site and off-site baseline units	218.13	2.00	2.38
Total on-site and off-site baseline area / length retained	73.80	0.13	1.20
Total on-site and off-site baseline units retained	80.13	0.14	2.38
Area / length proposed for enhancement	11.70	1.88	1.15
Baseline units proposed for enhancement	30.42	2.13	4.28
Total on-site and off-site baseline area / length lost	88.70	1.88	0.04
Total on-site and off-site baseline units lost	57.99	1.85	0.10

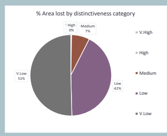
Area Habitats

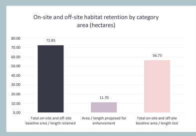
Area habitats

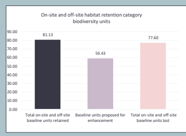
On site change by broad habitat type

	Baseline		Post development on site		Onsite Change	
Habitat group	Existing area	Existing value	Proposed area	Proposed value	Area change	Onsite Unit change
Cropland	8.61	17.21	7.54	12.54	-1.07	-4.68
Grassland	24.33	48.72	22.76	61.78	-1.57	13.06
Heathland and shrub	3.00	12.00	2.90	12.19	-0.11	0.18
Lakes	0.44	5.27	0.92	7.93	0.48	2.65
Sparsely vegetated land	0.10	0.19	0.09	0.18	-0.01	-0.02
Urban	84.56	8.41	87.36	8.06	2.80	-0.35
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	7.83	65.29	7.30	51.63	-0.53	-13.66
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

Combined area lost by distinctiveness band		
Category	**Area lost (hectares)**	**Area lost (%)**
V.High	0	
High	0.172959	0
Medium	4.079025	7
Low	23.88494488	42
V.Low	28.616805	50



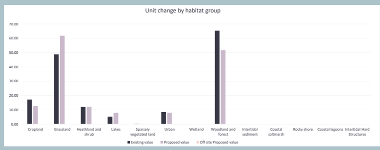


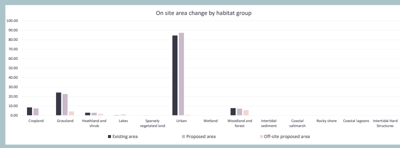


Area Habitats

Off site change by broad habitat type

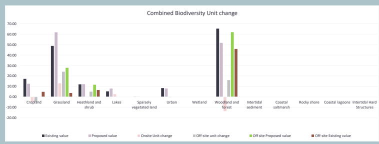
	Baseline		Post development Off-site		Off-site Change	
Habitat group	Existing area	Off-site Existing value	Off-site proposed area	Off site Proposed value	Off-site area change	Off-site unit change
Cropland	2.42	4.85	0.00	0.00	-2.42	-4.85
Grassland	1.87	3.74	4.30	27.84	2.42	24.10
Heathland and shrub	1.65	6.62	1.65	11.61	0.00	5.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.75	0.00	0.75	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	5.73	45.85	5.73	61.90	0.00	16.05
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00

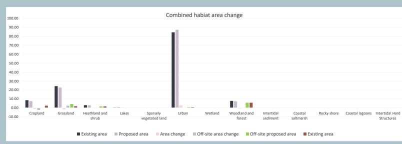




Combined on site and off site change by broad habitat type

	Baseline		On-site and Off-site post development		Combined change	
Habitat group	Existing area	Existing value	Combined proposed area	Combined proposed value	Proposed area	Proposed value
Cropland	11.03	22.06	7.54	12.54	-3.49	-9.52
Grassland	26.20	52.47	27.06	89.62	0.86	37.16
Heathland and shrub	4.65	18.62	4.55	23.80	-0.11	5.18
Lakes	0.44	5.27	0.92	7.93	0.48	2.65
Sparsely vegetated land	0.10	0.19	0.09	0.18	-0.01	-0.02
Urban	85.31	8.41	88.11	8.06	2.80	-0.35
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	13.57	111.14	13.03	113.53	-0.53	2.39
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal Hard Structures	0.00	0.00	0.00	0.00	0.00	0.00





Area Habitats

Hedgerows and lines of trees

Hedgerows and Lines of Trees

On site change by hedgerow type						
	Baseline		Post development on site		Onsite Change	
Hedgerow type	Existing length on-site	Existing value	Proposed length on-site	Proposed value on-site	On-site length change	On-site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.27	3.12	0.27	3.12
Native Species Rich Hedgerow with trees	0.32	4.29	0.64	8.85	0.32	4.56
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.63	5.32	0.63	5.32
Native Hedgerow with trees - Associated with bank or ditch	0.36	4.38	0.36	4.38	0.00	0.00
Native Species Rich Hedgerow	0.76	8.38	2.03	18.17	1.26	9.79
Native Hedgerow - Associated with bank or ditch	0.74	5.94	0.11	0.88	-0.63	-5.06
Native Hedgerow with trees	0.41	3.24	0.00	0.00	-0.41	-3.24
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.60	2.42	0.60	2.26	0.00	-0.16
Line of Trees	0.31	1.05	0.22	0.87	-0.09	-0.18
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

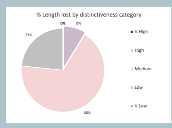
Hedgerows and Lines of Trees

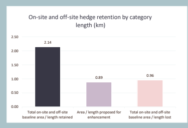
Off site change by hedgerow type						
	Off site baseline		Post development off site		Off site Change	
Hedgerow type	Existing length off-site	Existing value off-site	Proposed length off-site	Proposed value off-site	Off-site length change	Off site Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Species Rich Hedgerow	0.00	0.00	0.48	5.15	0.48	5.15
Native Hedgerow - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow with trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	0.48	1.93	0.00	0.00	-0.48	-1.93
Line of Trees	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

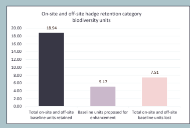
Hedgerows and Lines of Trees

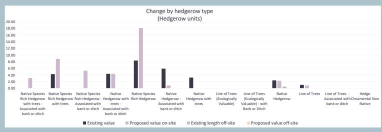
Combined on and off site change by hedgerow type						
	Baseline		Post development on site		Onsite Change	
Hedgerow type	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.27	3.12	0.27	3.12
Native Species Rich Hedgerow with trees	0.32	4.29	0.64	8.85	0.32	4.56
Native Species Rich Hedgerow - Associated with bank or ditch	0.00	0.00	0.63	5.32	0.63	5.32
Native Hedgerow with trees - Associated with bank or ditch	0.36	4.38	0.36	4.38	0.00	0.00
Native Species Rich Hedgerow	0.76	8.38	2.51	23.32	1.74	14.94
Native Hedgerow - Associated with bank or ditch	0.74	5.94	0.11	0.88	-0.63	-5.06
Native Hedgerow with trees	0.41	3.24	0.00	0.00	-0.41	-3.24
Line of Trees (Ecologically Valuable)	0.00	0.00	0.00	0.00	0.00	0.00
Line of Trees (Ecologically Valuable) - with Bank or Ditch	0.00	0.00	0.00	0.00	0.00	0.00
Native Hedgerow	1.09	4.34	0.60	2.26	-0.48	-2.09
Line of Trees	0.31	1.05	0.22	0.87	-0.09	-0.18
Line of Trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.00	0.00
Hedge Ornamental Non Native	0.00	0.00	0.00	0.00	0.00	0.00

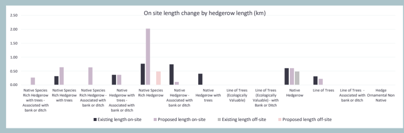
Combined length lost by distinctiveness band		
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0.084061	9
Medium	0.651333	68
Low	0.223967	23
V.Low	0	

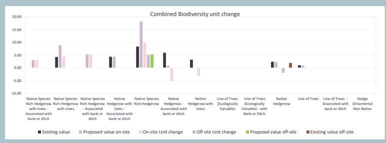


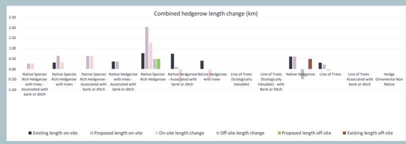












Rivers and Streams

On site change by river type

River type	Baseline		Post development on site		On-site Change	
	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.0	0.0	0.0	0.0	0.0	0.0
Ditches	0.4	1.0	0.4	1.0	0.0	0.0
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.7	1.1	0.7	1.1	0.0	0.0

Off site change by river type

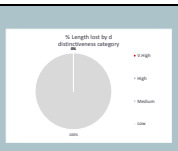
River type	Baseline		Post development off-site		Off-site Change	
	Existing length off-site	Existing value off site	Proposed length off-site	Proposed value off-site	Off-site length change	Off-site unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.3	2.0	0.3	0.0	0.0	-2.0
Ditches	0.1	0.4	0.1	0.0	0.0	-0.4
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.0	0.0	0.0	0.0	0.0	0.0

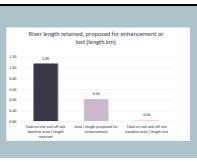
Combined on and off site changes by river type

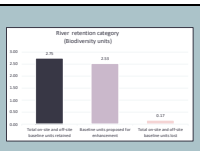
River type	Baseline		Post development on site		On-site Change	
	Existing length	Existing value	Proposed length	Proposed value	length change	Onsite Unit change
Priority Habitat	0.0	0.0	0.0	0.0	0.0	0.0
Other Rivers and Streams	0.3	2.0	0.3	0.0	0.0	-2.0
Ditches	0.5	1.4	0.5	1.0	0.0	-0.4
Canals	0.0	0.0	0.0	0.0	0.0	0.0
Culvert	0.7	1.1	0.7	1.1	0.0	0.0

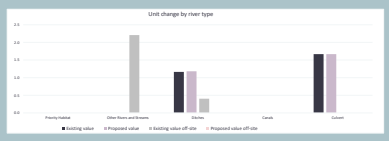
Combined length lost by distinctiveness band

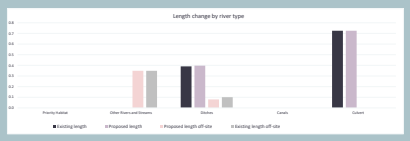
Category	Length lost (KM)	Length lost (%)
V.High	0	
High	0	
Medium	0.0665	100
Low	0	

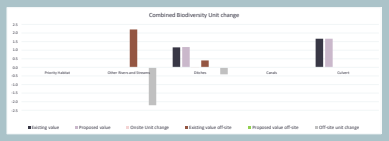












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Trading Summary

Distinctiveness Group	Trading Rule	Trading Satisfied?
Very High	Bespoke compensation likely to be required ✕	Yes ✓
High	Same habitat required =	Yes ✓
Medium	Same broad habitat or a higher distinctiveness habitat required (≥)	Yes ✓
Low	Same distinctiveness or better habitat required ≥	Yes ✓

Very High Distinctiveness

Habitat group	Group	On Site Unit Change	Off Site Unit Change	Project wide Unit Change	Unit Losses
Grassland - Lowland dry acid grassland	Grassland	0.00	0.00	0.00	
Grassland - Lowland meadows	Grassland	0.00	0.00	0.00	
Grassland - Upland hay meadows	Grassland	0.00	0.00	0.00	
Heathland and shrub - Mountain heaths and willow scrub	Heathland and shrub	0.00	0.00	0.00	
Lakes - Aquifer fed naturally fluctuating water bodies	Lakes	0.00	0.00	0.00	
Sparsely vegetated land - Calaminarian grasslands	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Limestone pavement	Sparsely vegetated land	0.00	0.00	0.00	
Wetland - Blanket bog	Wetland	0.00	0.00	0.00	
Wetland - Depressions on Peat substrates (H7150)	Wetland	0.00	0.00	0.00	
Wetland - Fens (upland and lowland)	Wetland	0.00	0.00	0.00	
Wetland - Lowland raised bog	Wetland	0.00	0.00	0.00	
Wetland - Oceanic Valley Mire[1] (D2.1)	Wetland	0.00	0.00	0.00	
Wetland - Purple moor grass and rush pastures	Wetland	0.00	0.00	0.00	
Wetland - Transition mires and quaking bogs (H7140)	Wetland	0.00	0.00	0.00	
Woodland and forest - Wood-pasture and parkland	Woodland and forest	0.00	0.00	0.00	
Rocky shore - High energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Rocky shore - Moderate energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Rocky shore - Low energy littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Rocky shore - Features of littoral rock - on peat, clay or chalk	Rocky shore	0.00	0.00	0.00	
Intertidal sediment - Littoral seagrass on peat, clay or chalk	Intertidal sediment	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00

Very High Distinctiveness Summary

Very High Distinctiveness Units available to offset lower distinctiveness defecit	0.00

High Distinctiveness

Habitat group	Group	On Site Unit Change	Off Site Unit Change	Project wide Unit Change	Losses not yet accounted for
Grassland - Traditional orchards	Grassland	0.00	0.00	0.00	
Grassland - Floodplain Wetland Mosaic (CFGM)	Grassland	0.00	0.00	0.00	
Grassland - Lowland calcareous grassland	Grassland	0.00	0.00	0.00	
Grassland - Tall herb communities (H6430)	Grassland	0.00	0.00	0.00	
Grassland - Upland calcareous grassland	Grassland	0.00	0.00	0.00	
Heathland and shrub - Lowland Heathland	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Sea buckthorn scrub (Annex 1)	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Upland Heathland	Heathland and shrub	0.00	0.00	0.00	
Lakes - High alkalinity lakes	Lakes	0.00	0.00	0.00	
Lakes - Low alkalinity lakes	Lakes	0.00	0.00	0.00	
Lakes - Marl Lakes	Lakes	0.00	0.00	0.00	
Lakes - Moderate alkalinity lakes	Lakes	0.00	0.00	0.00	
Lakes - Peat Lakes	Lakes	0.00	0.00	0.00	
Lakes - Ponds (Priority Habitat)	Lakes	1.95	0.00	1.95	
Lakes - Temporary lakes, ponds and pools	Lakes	0.71	0.00	0.71	
Sparsely vegetated land - Coastal sand dunes	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Coastal vegetated shingle	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Inland rock outcrop and scree habitats	Sparsely vegetated land	0.00	0.00	0.00	
Sparsely vegetated land - Maritime cliff and slopes	Sparsely vegetated land	0.00	0.00	0.00	
Urban - Open Mosaic Habitats on Previously Developed Land	Urban	0.00	0.00	0.00	
Wetland - Reedbeds	Wetland	0.00	0.00	0.00	
Woodland and forest - Felled	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Lowland beech and yew woodland	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Lowland mixed deciduous woodland	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Native pine woodlands	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Upland birchwoods	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Upland mixed ashwoods	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Upland oakwood	Woodland and forest	0.00	0.00	0.00	
Woodland and forest - Wet woodland	Woodland and forest	0.00	0.00	0.00	
Coastal lagoons - Coastal lagoons	Coastal lagoons	0.00	0.00	0.00	
Rocky shore - High energy littoral rock	Rocky shore	0.00	0.00	0.00	
Rocky shore - Moderate energy littoral rock	Rocky shore	0.00	0.00	0.00	
Rocky shore - Low energy littoral rock	Rocky shore	0.00	0.00	0.00	
Rocky shore - Features of littoral rock	Rocky shore	0.00	0.00	0.00	
Intertidal sediment - Littoral mud	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Littoral mixed sediments	Intertidal sediment	0.00	0.00	0.00	
Coastal saltmarsh - Saltmarshes and saline reedbeds	Coastal Saltmarsh	0.00	0.00	0.00	
Intertidal sediment - Littoral biogenic reefs - Mussels	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Littoral biogenic reefs - Sabellaria	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Features of littoral sediment	Intertidal sediment	0.00	0.00	0.00	
Intertidal sediment - Littoral muddy sand	Intertidal sediment	0.00	0.00	0.00	
		2.66	0.00	2.66	0.00

High Distinctiveness Summary

High Distinctiveness Units available to offset lower distinctiveness defecit	2.65
Unit Defecit: Like for like not satisfied	0.00

Medium Distinctiveness

Habitat Group	Group	On site unit change	Off Site unit Change	Project wide unit change	Cumulative Broad Habitat Change
Cropland - Arable field margins cultivated annually	Cropland	0.00	0.00	0.00	0.00
Cropland - Arable field margins game bird mix	Cropland	0.00	0.00	0.00	
Cropland - Arable field margins pollen & nectar	Cropland	0.00	0.00	0.00	
Cropland - Arable field margins tussocky	Cropland	0.00	0.00	0.00	
Grassland - Other lowland acid grassland	Grassland	0.00	0.00	0.00	56.75
Grassland - Other neutral grassland	Grassland	28.91	27.84	56.75	
Grassland - Upland acid grassland	Grassland	0.00	0.00	0.00	
Heathland and shrub - Blackthorn scrub	Heathland and shrub	0.00	0.00	0.00	5.18
Heathland and shrub - Bramble scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Gorse scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Hawthorn scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Hazel scrub	Heathland and shrub	0.00	0.00	0.00	
Heathland and shrub - Mixed scrub	Heathland and shrub	0.18	5.00	5.18	
Lakes - Ponds (Non- Priority Habitat)	Lakes	0.00	0.00	0.00	0.00
Lakes - Reservoirs	Lakes	0.00	0.00	0.00	
Sparsely vegetated land - Other inland rock and scree	Sparsely vegetated land	0.00	0.00	0.00	0.00
Urban - Cemeteries and churchyards	Urban	0.00	0.00	0.00	0.00
Urban - Biodiverse green roof	Urban	0.00	0.00	0.00	
Urban - Urban Tree	Urban	0.00	0.00	0.00	
Woodland and forest - Other Scot's Pine woodland	Woodland and forest	0.00	0.00	0.00	2.39
Woodland and forest - Other woodland: broadleaved	Woodland and forest	12.78	18.06	2.39	
Woodland and forest - Other woodland: mixed	Woodland and forest	0.93	0.00	-0.93	
Intertidal sediment - Littoral coarse sediment	Intertidal sediment	0.00	0.00	0.00	0.00
Intertidal sediment - Littoral sand	Intertidal sediment	0.00	0.00	0.00	
Intertidal Hard Structures - Artificial hard structures with Integrated Greening of Grey Infrastructure (IGGI)	Intertidal	0.00	0.00	0.00	
		15.43	48.89	64.33	

Medium Distinctiveness Summary

Medium Distinctiveness Units available to offset lower distinctiveness defecit	64.32
Medium Distinctiveness Broad Habitat Deficit to be offset by trading up	0.00
Higher distinctiveness surplus units minus Medium Distinctiveness Broad Habitat Defecit	2.65
Cumulative surplus of units	66.97

Low Distinctiveness

Habitat group	Group	On site unit change	Off Site Unit Change	Project wide unit change
Cropland - Cereal crops	Cropland	-4.56	-4.83	-9.51
Cropland - Horticulture	Cropland	0.00	0.00	0.00
Cropland - Intensive orchards	Cropland	0.00	0.00	0.00
Cropland - Non-cereal crops	Cropland	-0.01	0.00	-0.01
Cropland - Temporary grass and clover leys	Cropland	-0.01	0.00	-0.01
Cropland - Cereal crops winter stubble	Cropland	0.00	0.00	0.00
Grassland - Modified grassland	Grassland	-15.85	-3.74	-19.59
Grassland - Bracken	Grassland	0.00	0.00	0.00
Heathland and shrub - Rhododendron scrub	Heathland and shrub	0.00	0.00	0.00
Lakes - Ornamental lake or pond	Lakes	0.00	0.00	0.00
Sparsely vegetated land - Ruderal/Ephemeral	Sparsely vegetated land	-0.02	0.00	-0.02
Urban - Bioswale	Sparsely vegetated land	0.00	0.00	0.00
Urban - Allotments	Urban	0.00	0.00	0.00
Urban - Facade-bound green wall	Urban	0.00	0.00	0.00
Urban - Ground based green wall	Urban	0.00	0.00	0.00
Urban - Ground level planters	Urban	0.00	0.00	0.00
Urban - Other green roof	Urban	0.00	0.00	0.00
Urban - Intensive green roof	Urban	0.00	0.00	0.00
Urban - Introduced shrub	Urban	-0.13	0.00	-0.13
Urban - Rain garden	Urban	0.00	0.00	0.00
Urban - Actively worked sand pit quarry or open cast mine	Urban	0.00	0.00	0.00
Urban - Sustainable urban drainage feature	Urban	0.00	0.00	0.00
Urban - Vacant/derelict land/ bareground	Urban	-0.22	0.00	-0.22
Urban - Vegetated garden	Urban	0.00	0.00	0.00
Woodland and forest - Other coniferous woodland	Woodland and forest	0.00	0.00	0.00
Coastal saltmarsh - Artificial saltmarshes and saline reedbeds	Coastal saltmarsh	0.00	0.00	0.00
Intertidal sediment - Artificial littoral coarse sediment	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral mud	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral sand	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral muddy sand	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral mixed sediments	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral seagrass	Intertidal sediment	0.00	0.00	0.00
Intertidal sediment - Artificial littoral biogenic reefs	Intertidal sediment	0.00	0.00	0.00
Intertidal Hard Structures - Artificial hard structures	Intertidal	0.00	0.00	0.00
Intertidal Hard Structures - Artificial features of hard structures	Intertidal	0.00	0.00	0.00
Heathland and shrub - Sea buckthorn scrub (other)	Heathland and shrub	0.00	0.00	0.00
		-20.89		-29.49

Low Distinctiveness Summary

Low Distinctiveness Net Chance in Units	-29.49
Cumulative surplus of units	37.48

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A-1 Site Habitat Baseline

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	Habitats and areas			Distinctiveness		Condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comments	
Ref	Broad Habitat	Habitat Type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier		Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost	Units lost		Assessor comments	Reviewer comments
1	Grassland	Modified grassland	2.969002	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	5.94	2.969002		5.94	0.00	0.00	0.00		Modification to Urban Features Only	
2	Grassland	Other neutral grassland	0.011138	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.09	0.011138		0.09	0.00	0.00	0.00		Modification to Urban Features Only	
3	Heathland and shrub	Mixed scrub	1.537477	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	6.15	1.537477		6.15	0.00	0.00	0.00		Modification to Urban Features Only	
4	Sparsely vegetated land	Ruderal/Ephemeral	0.087742	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.18	0.087742		0.18	0.00	0.00	0.00		Modification to Urban Features Only	
5	Urban	Vacant/derelict land/ bareground	0.941806	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.88	0.941806		1.88	0.00	0.00	0.00		Modification to Urban Features Only	
6	Urban	Artificial unvegetated, unsealed surface	1.094056	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	1.094056		0.00	0.00	0.00	0.00		Modification to Urban Features Only	
7	Urban	Developed land; sealed surface	48.555369	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	48.555369		0.00	0.00	0.00	0.00		Modification to Urban Features Only	
8	Urban	Introduced shrub	0.941684	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.88	0.941684		1.88	0.00	0.00	0.00		Modification to Urban Features Only	
9	Lakes	Temporary lakes, ponds and pools	0.093867	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	1.13	0.093867		1.13	0.00	0.00	0.00		Modification to Urban Features Only	
10	Woodland and forest	Other coniferous woodland	0.106455	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.21	0.106455		0.21	0.00	0.00	0.00		Modification to Urban Features Only	
11	Woodland and forest	Other woodland; broadleaved	0.994071	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	11.93	0.994071		11.93	0.00	0.00	0.00		Modification to Urban Features Only	
12	Woodland and forest	Other woodland; mixed	0.351602	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	2.81	0.351602		2.81	0.00	0.00	0.00		Modification to Urban Features Only	
13								Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1											
14	Grassland	Modified grassland	1.688135	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	3.38			0.00	0.00	1.69	3.38		BECCS Infrastructure - Permanent Loss	
15	Heathland and shrub	Mixed scrub	0.278957	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	1.12			0.00	0.00	0.28	1.12		BECCS Infrastructure - Permanent Loss	
16	Sparsely vegetated land	Ruderal/Ephemeral	0.009636	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.02			0.00	0.00	0.01	0.02		BECCS Infrastructure - Permanent Loss	
17	Urban	Vacant/derelict land/ bareground	0.045465	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.09			0.00	0.00	0.05	0.09		BECCS Infrastructure - Permanent Loss	
18	Lakes	Temporary lakes, ponds and pools	0.172959	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	2.08			0.00	0.00	0.17	2.08		BECCS Infrastructure - Permanent Loss	
19	Urban	Artificial unvegetated, unsealed surface	0.081769	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00			0.00	0.00	0.08	0.00		BECCS Infrastructure - Permanent Loss	
20	Urban	Developed land; sealed surface	19.701966	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00			0.00	0.00	19.70	0.00		BECCS Infrastructure - Permanent Loss	
21	Urban	Introduced shrub	0.0617	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.12			0.00	0.00	0.06	0.12		BECCS Infrastructure - Permanent Loss	
22	Woodland and forest	Other woodland; broadleaved	0.532617	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	4.26			0.00	0.00	0.53	4.26		BECCS Infrastructure - Permanent Loss	
23	Woodland and forest	Other woodland; mixed	0.116237	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.93			0.00	0.00	0.12	0.93		BECCS Infrastructure - Permanent Loss	
24								Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1											
25	Grassland	Modified grassland	5.312435	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	10.62	5.312435		10.62	0.00	0.00	0.00		Retained	
26	Heathland and shrub	Mixed scrub	0.407668	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	1.63	0.407668		1.63	0.00	0.00	0.00		Retained	
27	Lakes	Temporary lakes, ponds and pools	0.17275	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	2.07	0.17275		2.07	0.00	0.00	0.00		Retained	
28	Urban	Developed land; sealed surface	0.894055	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.894055		0.00	0.00	0.00	0.00		Retained	
29	Urban	Introduced shrub	0.296579	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.59	0.296579		0.59	0.00	0.00	0.00		Retained	
30	Woodland and forest	Other coniferous woodland	0.119514	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.24	0.119514		0.24	0.00	0.00	0.00		Retained	
31	Woodland and forest	Other woodland; broadleaved	1.570362	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	12.56	1.570362		12.56	0.00	0.00	0.00		Retained	
32	Woodland and forest	Other woodland; mixed	1.563885	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	12.51	1.563885		12.51	0.00	0.00	0.00		Retained	
33																					
34	Cropland	Cereal crops	6.575727	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	13.15			0.00	0.00	6.58	13.15		Temporary Loss	
35	Grassland	Modified grassland	8.511479	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	17.02			0.00	0.00	8.51	17.02		Temporary Loss	
36	Heathland and shrub	Mixed scrub	0.04311	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.17			0.00	0.00	0.04	0.17		Temporary Loss	
37	Urban	Vacant/derelict land/ bareground	1.906364	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	3.81			0.00	0.00	1.91	3.81		Temporary Loss	
38	Urban	Developed land; sealed surface	8.784213	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00			0.00	0.00	8.78	0.00		Temporary Loss	
39	Urban	Introduced shrub	0.009662	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.02			0.00	0.00	0.01	0.02		Temporary Loss	
40	Woodland and forest	Other woodland; broadleaved	2.196697	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	17.57			0.00	0.00	2.20	17.57		Temporary Loss	
41																					
42						Poor		Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1											
43																					
44	Heathland and shrub	Mixed scrub	0.06273	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.25			0.00	0.00	0.06	0.25		NG CO2 Pipeline / Temporary Loss (replanted with other habitat)	
45																					
46	Grassland	Modified grassland	0.907887	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.82		0.907887	0.00	1.82	0.00	0.00		Retained and Enhanced	
47																					
48	Cropland	Cereal crops	1.478837241	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	2.96	0.413645		0.83	0.00	1.07	2.13		Habitat Provision Area	
49	Grassland	Modified grassland	2.699243185	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	5.40	0.6930702	1.724479	1.39	3.45	0.28	0.56		Habitat Provision Area	
50	Urban	Developed land; sealed surface	0.610816	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.610816		0.00	0.00	0.00	0.00		Habitat Provision Area	
51	Woodland and forest	Other woodland; broadleaved	0.242751	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	1.94	0.242751		1.94	0.00	0.00	0.00		Habitat Provision Area	
52																					
53																					
54	Cropland	Temporary grass and clover leys	0.326971	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.65	0.287667		0.58	0.00	0.04	0.08		Overhead Line Area	
55	Cropland	Non-cereal crops	0.225611	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.45	0.163002		0.33	0.00	0.06	0.13		Overhead Line Area	
56	Grassland	Modified grassland	0.500868	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.00	0.388275		0.78	0.00	0.11	0.23		Overhead Line Area	
57	Heathland and shrub	Mixed scrub	0.088199	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.35	0.081515		0.33	0.00	0.01	0.03		Overhead Line Area	
58	Urban	Developed land; sealed surface	0.618826	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.569969		0.00	0.00	0.05	0.00		Overhead Line Area	
59	Urban	Artificial unvegetated, unsealed surface	0.012212	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.012212		0.00	0.00	0.00	0.00		Overhead Line Area	
60	Woodland and forest	Other woodland; broadleaved	0.040111	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.32	0.025734		0.21	0.00	0.01	0.12		Overhead Line Area	
61																					
62	Grassland	Modified grassland	1.09092464	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	2.18			0.00	0.00	1.09	2.18		Flood Compensation Area	
63	Grassland	Modified grassland	0.339755739	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.68		0.33975574	0.00	0.68	0.00	0.00		Flood Compensation Area	
64	Grassland	Modified grassland	0.296092405	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.59		0.29609241	0.00	0.59	0.00	0.00		Flood Compensation Area	
65	Heathland and shrub	Mixed scrub	0.581270337	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	2.33	0.5812703		2.33	0.00	0.00	0.00		Flood Compensation Area	
66	Heathland and shrub	Mixed scrub	0.0016	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	0.01	0.0016		0.01	0.00	0.00	0.00		Flood Compensation Area	
67																					
68																					
69																					
70																					
71																					
		Total habitat area	128.86									157.11	72.09	3.27	81.13	6.54	53.50	69.44			

Total area lost (excluding area of Urban trees and Green walls)	53.50

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A-2 Site Habitat Creation

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Post development/ post intervention habitats

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Strategic significance			Temporal multiplier						Difficulty multipliers				Habitat units delivered	Comments	
			Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
Cropland	Cereal crops	6.575727	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠	6	0.808	Low	Standard difficulty applied	Low	1	10.62	Temporary Loss	
Grassland	Modified grassland	8.511479	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠	6	0.808	Low	Standard difficulty applied	Low	1	13.75	Temporary Loss	
Heathland and shrub	Mixed scrub	0.04311	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠	6	0.808	Low	Standard difficulty applied	Low	1	0.14	Temporary Loss	
Urban	Vacant/derelict land/ bareground	1.906364	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	3.68	Temporary Loss	
Urban	Developed land; sealed surface	8.784213	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Temporary Loss	
Urban	Introduced shrub	0.009662	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠	6	0.808	Low	Standard difficulty applied	Low	1	0.02	Temporary Loss	
Woodland and forest	Other woodland; broadleaved	2.196697	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	5	Check details- Delay in starting habitat in required condition? ⚠	20	0.490	Low	Standard difficulty applied	Low	1	8.62	Temporary Loss	
Grassland	Modified grassland	0.06273	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	5	Check details- Delay in starting habitat in required condition? ⚠	6	0.808	Low	Standard difficulty applied	Low	1	0.10	NG C02 Pipeline / Temporary Loss (replanted with other habitat)	
Grassland	Other neutral grassland	1.09092464	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	2	Check details- Delay in starting habitat in required condition? ⚠	7	0.779	Low	Standard difficulty applied	Low	1	6.80	Flood Compensation Area	
Urban	Developed land; sealed surface	22.689441	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Permanent Habitat Loss - BECCS Infrastructure	
Woodland and forest	Other woodland; broadleaved	0.114347	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	0	Standard time to target condition applied	15	0.586	Low	Standard difficulty applied	Low	1	0.54	Habitat Provision Area	
Grassland	Other neutral grassland	0.341556	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	2.29	Habitat Provision Area	
Heathland and shrub	Mixed scrub	0.236562	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	1.58	Habitat Provision Area	
Lakes	Ponds (Priority Habitat)	0.269337	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied	3	0.899	Medium	Standard difficulty applied	Medium	0.67	1.95	Habitat Provision Area	
Lakes	Temporary lakes, ponds and pools	0.38508	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied	3	0.899	Medium	Standard difficulty applied	Medium	0.67	2.78	Habitat Provision Area	
Cropland	Temporary grass and clover leys	0.039304	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠	2	0.931	Low	Standard difficulty applied	Low	1	0.07	Overhead Line Area Reinstatement	
Cropland	Non-cereal crops	0.062609	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠	2	0.931	Low	Standard difficulty applied	Low	1	0.12	Overhead Line Area Reinstatement	
Grassland	Modified grassland	0.112593	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠	2	0.931	Low	Standard difficulty applied	Low	1	0.21	Overhead Line Area Reinstatement	
Heathland and shrub	Mixed scrub	0.006684	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	1	Check details- Delay in starting habitat in required condition? ⚠	2	0.931	Low	Standard difficulty applied	Low	1	0.02	Overhead Line Area Reinstatement	
Urban	Developed land; sealed surface	0.048857	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	1	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Medium	0.67	0.00	Overhead Line Area Reinstatement	
Woodland and forest	Other woodland; broadleaved	0.014377	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	1	Check details- Delay in starting habitat in required condition? ⚠	16	0.566	Low	Standard difficulty applied	Low	1	0.07	Overhead Line Area Reinstatement	
	Total habitat area	63.80																	Total Units	63.38		
	Site Area (Excluding area of Urban trees and Green walls)	63.80																				

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A-3 Site Habitat Enhancement

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Baseline habitats

Baseline ref	Baseline habitat	Total habitat	Baseline distinctiveness	Baseline distinctiveness	Baseline condition	Baseline condition score	Baseline strategic	Baseline strategic	Baseline habitat units	Suggested action to address habitat losses
46	Grassland - Modified grassland	0.907887	Low	2	Poor	1	Low Strategic	1	1.82	Same distinctiveness or better habitat
49	Grassland - Modified grassland	2.69924319	Low	2	Poor	1	Low Strategic	1	5.40	Same distinctiveness or better habitat
63	Grassland - Modified grassland	0.33975574	Low	2	Poor	1	Low Strategic	1	0.68	Same distinctiveness or better habitat
64	Grassland - Modified grassland	0.29609241	Low	2	Poor	1	Low Strategic	1	0.59	Same distinctiveness or better habitat

Post development/ post intervention habitats

Baseline ref	Proposed Habitat (Pre-populated but can be overridden): Proposed Broad Habitat	Proposed habitat	Change in distinctiveness and condition: Distinctiveness change	Condition change	Area (hectares)	Distinctiveness	Score	Condition	Score
46	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat -	0.907887	Medium	4	Moderate	2
49	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat -	1.724479	Medium	4	Moderate	2
63	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat -	0.33975574	Medium	4	Moderate	2
64	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat -	0.29609241	Medium	4	Moderate	2
					[illegible]				

Baseline ref	Strategic significance: Strategic significance	Strategic significance	Strategic position	Temporal risk multiplier: Standard time to target	Habitat enhanced in advance/years	Delay in starting habitat	Standard or adjusted time to target condition	Final time to target	Final time to target	Difficulty risk multipliers: Standard difficulty of	Applied difficulty multiplier	Final difficulty of	Difficulty multiplier	Habitat units delivered	Comments: Assessor comments	Reviewer comments
46	Area/compensation not in local strategy/ no	Low Strategic	1	10		2	Check details- Delay in starting	12	0.652	Low	Standard difficulty applied	Low	1	5.37		
49	Area/compensation not in local strategy/ no	Low Strategic	1	10		0	Standard time to target condition	10	0.700	Low	Standard difficulty applied	Low	1	10.89		
63	Area/compensation not in local strategy/ no	Low Strategic	1	10		2	Check details- Delay in starting	12	0.652	Low	Standard difficulty applied	Low	1	2.01		
64	Area/compensation not in local strategy/ no	Low Strategic	1	10		2	Check details- Delay in starting	12	0.652	Low	Standard difficulty applied	Low	1	1.75		
														[illegible]		

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D-1 Off Site Habitat Baseline

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	Habitats and areas			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline
Baseline ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		Total habitat units
1												
2												
3												
4												
5												
6	Cropland	Cereal crops	2.42446	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	4.85
7	Grassland	Modified grassland	1.872155	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	3.74
8	Heathland and shrub	Mixed scrub	1.653877	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	6.62
9	Urban	Developed land; sealed surface	0.753023	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00
10	Woodland and forest	Other woodland; broadleaved	5.73089	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (≥)	45.85
11												
12												
13												
14												
15												
			12.43								Total Site baseline	61.06

	Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comments	
Baseline ref	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost		Assessor comments	Reviewer comments
1									
2									
3									
4									
5									
6			0.00	0.00	2.42	4.85		Off-Site Habitat Provision Area	
7		1.872155	0.00	3.74	0.00	0.00		Off-Site Habitat Provision Area	
8		0.826261	0.00	3.31	0.83	3.31		Off-Site Habitat Provision Area	
9	0.753023		0.00	0.00	0.00	0.00		Off-Site Habitat Provision Area	
10		5.73089	0.00	45.85	0.00	0.00		Off-Site Habitat Provision Area	
11									
12									
13									
14									
15									
	0.75	8.43	0.00	52.90	3.25	8.16			

Total area lost (excluding area of Urban trees and Green walls)	3.25

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D-2 Off Site Habitat Creation

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Post development/ post intervention habitats							Strategic significance			Temporal risk multiplier						Difficulty risk multipliers				Spatial risk multiplier			Comments	
Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Spatial risk category	Spatial risk multiplier	Habitat units delivered	Assessor comments	Reviewer comments
Grassland	Other neutral grassland	2.42446	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1	16.23	Off-Site Habitat Provision Area	
Heathland and shrub	Mixed scrub	0.827616	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of biodiversity loss	1	5.54	Off-Site Habitat Provision Area	
	Total Length	3.25																			Total Units	21.77		

Site Area (Excluding area of Urban trees and Green walls)	3.25

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D-3 Off Site Habitat Enhancment

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	Baseline habitats										Proposed Habitat (Pre-Populated but can be overridden)		Change in distinctiveness and condition						
Baseline ref	Baseline habitat	Total habitat area	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Suggested action to address habitat losses	Proposed Broad Habitat	Proposed Habitat	Distinctiveness change	Condition change	Area ha	Distinctiveness	Score	Condition	Score
7	Grassland - Modified grassland	1.87216	Low	2	Poor	1	Low Strategic	1	3.74431	Same distinctiveness or better	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat -	1.8722	Medium	4	Moderate	2
8	Heathland and shrub - Mixed scrub	1.65388	Medium	4	Poor	1	Low Strategic Significance	1	6.615508	Same broad habitat or a higher distinctiveness habitat required	Heathland and shrub	Mixed scrub	Medium - Medium	Poor - Moderate	0.8263	Medium	4	Moderate	2
10	Woodland and forest - Other woodland; broadleaved	5.73089	Medium	4	Moderate	2	Low Strategic Significance	1	45.84712	Same broad habitat or a higher distinctiveness habitat required	Woodland and forest	Other woodland; broadleaved	Medium - Medium	Moderate - Good	5.7309	Medium	4	Good	3
															8.43				

Post development/ post intervention habitats

	Strategic significance			Temporal multiplier						Difficulty multipliers			
Baseline ref	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat enhanced in advance/years	Delay in starting habitat enhancement/year	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Difficulty of enhancement category	Applied difficulty multiplier	Difficulty	Difficulty multiplier applied
7	Area/compensation not in local strategy/ no	Low Strategic	1	10		0	Standard time to target condition	10	0.700	Low	Standard difficulty applied	Low	1
8	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1
10	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10		0	Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1

B-1 Site Hedge Baseline

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	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value						Comments	
Baseline ref	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
1		Line of Trees	0.005459	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.01	0.005459		0.01	0.00	0.00	0.00	Modifications to Urban Features Only	
2		Native Hedgerow	0.313354	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.25	0.313354		1.25	0.00	0.00	0.00	Modifications to Urban Features Only	
3		Native Species Rich Hedgerow	0.251145	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	3.01	0.251145		3.01	0.00	0.00	0.00	Modifications to Urban Features Only	
4																				
5		Native Species Rich Hedgerow	0.007846	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.09			0.00	0.00	0.01	0.09	Permanent Loss	
6		Native Species Rich Hedgerow with trees	0.084061	High	6	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.51			0.00	0.00	0.08	1.51	Permanent Loss	
7																				
8		Native Hedgerow	0.141963	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.57	0.141963		0.57	0.00	0.00	0.00	Retained	
9		Native Hedgerow - Associated with bank or ditch	0.008264	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.07	0.008264		0.07	0.00	0.00	0.00	Retained	
10		Native Species Rich Hedgerow	0.295212	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	3.54	0.295212		3.54	0.00	0.00	0.00	Retained	
11																				
12		Native Species Rich Hedgerow	0.010475	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.13			0.00	0.00	0.01	0.13	Temporary Loss	
13								Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1										
14		Line of Trees	0.090616	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.18			0.00	0.00	0.09	0.18	Permanent Loss	
15		Native Hedgerow	0.133351	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.53			0.00	0.00	0.13	0.53	Temporary Loss	
16		Native Hedgerow - Associated with bank or ditch	0.63273	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	5.06			0.00	0.00	0.63	5.06	Temporary Loss, reinstated and enhanced	
17		Native Hedgerow with trees	0.000282	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.00			0.00	0.00	0.00	0.00	Permanent Loss	
18																				
19		Native Hedgerow with trees	0.404909	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	3.24		0.404909	0.00	3.24	0.00	0.00	Retained and Enhanced	
20																				
21																				
22		Line of Trees	0.214419	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.86	0.214419		0.86	0.00	0.00	0.00	Habitat Provision Area	
23		Native Hedgerow	0.015515	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.06	0.015515		0.06	0.00	0.00	0.00	Habitat Provision Area	
24		Native Hedgerow - Associated with bank or ditch	0.101231	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.81	0.101231		0.81	0.00	0.00	0.00	Habitat Provision Area	
25		Native Hedgerow with trees - Associated with bank or ditch	0.36468	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	4.38	0.36468		4.38	0.00	0.00	0.00	Habitat Provision Area	
26																				
27		Native Species Rich Hedgerow with trees	0.231652	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.78	0.231652		2.78	0.00	0.00	0.00	Flood Compensation Area	
28		Native Species Rich Hedgerow	0.2	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.60	0.2		1.60	0.00	0.00	0.00	Overhead Line Area	
29																				
30																				
31																				
32																				
33																				
			3.61									29.69	2.14	0.40	18.94	3.24	0.96	7.81		

B-2 Site Hedge Creation

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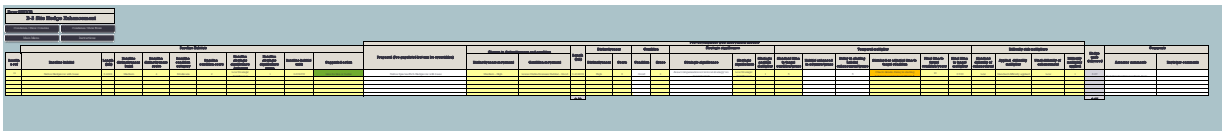
		Proposed habitats		Habitat distinctiveness		Habitat condition	
Baseline ref	New hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score
1		Native Species Rich Hedgerow	1.27904	Medium	4	Good	3
2		Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.265423	V.High	8	Good	3
3							
4							
5		Native Hedgerow	0.133351	Low	2	Moderate	2
6		Native Species Rich Hedgerow - Associated with bank or ditch	0.63273	High	6	Moderate	2
7							
8							
9							
10							
11							
			2.31				

	Strategic significance			Temporal multiplier					
Baseline ref	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier
1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	12		0	Standard time to target condition applied	12	0.652
2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	20		0	Standard time to target condition applied	20	0.490
3									
4									
5	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		5	Check details- Delay in starting habitat in required condition? ⚠	10	0.700
6	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		5	Check details- Delay in starting habitat in required condition? ⚠	10	0.700
7									
8									
9									
10									
11									

	Difficulty risk multipliers					Comments	
Baseline ref	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Hedge units delivered	Assessor comments	Reviewer comments
1	Low	Standard difficulty applied	Low	1	10.01	Habitat Provision Area	
2	Low	Standard difficulty applied	Low	1	3.12	Habitat Provision Area	
3							
4							
5	Low	Standard difficulty applied	Low	1	0.37	Temporary Loss, Reinstated	
6	Low	Standard difficulty applied	Low	1	5.32	Temporary Loss, Reinstated and Enhanced	
7							
8							
9							
10							
11							
					18.82		



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E-1 Off Site Hedge Baseline

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	Existing hedgerow habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action	Ecological baseline	Retention category biodiversity value						Comments	
Baseline ref	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
1		Native Hedgerow	0.482	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.93		0.481989	0	1.927956	0.00	0.00	Off-Site Habitat Provision Area	
2																				
3																				
4																				
5																				
6																				
			0.482									1.93	0.00	0.48	0.00	1.93	0.00	0.00		

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E-2 Off Site Hedge Creation

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		Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance			Spatial risk multiplier		Temporal multiplier						Difficulty risk multipliers				Hedge units delivered	Comments	
Baseline ref	New hedge number	Habitat type	Length KM	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Spatial risk category	Spatial risk multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty	Applied difficulty multiplier	Final difficulty of	Difficulty multiplier applied		Assessor comments	Reviewer comments
1																									
2																									
3																									
4																									
5																									
			0.00																				0.00		

E-3 Off Site Hedge Enhancement

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Baseline ref	Baseline habitats: Baseline habitat	Length (km)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Suggested action
1	Native Hedgerow	0.482	Low	2	Moderate	2	Low Strategic	1	1.927956	Same distinctiveness

Baseline ref	Proposed (Pre-Populated but can be overridden)	Change in distinctiveness and condition: Distinctiveness movement	Change in distinctiveness and condition: Condition movement	Length (km)	Distinctiveness: Distinctiveness	Distinctiveness: Score	Condition: Condition	Condition: Score	Strategic significance: Strategic significance	Strategic significance: Strategic significance	Strategic significance: Strategic position multiplier
1	Native Species Rich Hedgerow	Low - Medium	Lower Distinctiveness Habitat - Good	0.481989	Medium	4	Good	3	Area/compensation not in local strategy/ no	Low Strategic	1

Baseline ref	Temporal multiplier: Standard Time to target condition/years	Temporal multiplier: Habitat enhanced in advance/years	Temporal multiplier: Delay in starting habitat enhancement/years	Temporal multiplier: Standard or adjusted time to target condition	Temporal multiplier: Final time to target condition/years	Temporal multiplier: Final Time to target multiplier	Difficulty risk multipliers: Standard difficulty of enhancement	Difficulty risk multipliers: Applied difficulty multiplier	Difficulty risk multipliers: Final difficulty of enhancement	Difficulty risk multipliers: Difficulty multiplier applied	Spatial risk multiplier: Spatial risk category	Spatial risk multiplier	Hedge units delivered	Comments: Assessor comments	Comments: Reviewer comments
1	5		0	Standard time to target condition	5	0.837	Low	Standard difficulty applied	Low	1	Compensation inside LPA or NCA, or deemed to be sufficiently local, to site of	1	5.15		

C-1 Site River Baseline

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Existing river type			Habitat distinctiveness		Habitat condition		Strategic significance			Watercourse encroachment		Riparian encroachment		Suggested action	Ecological baseline
Baseline ref	River type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier	Extent of encroachment	Multiplier	Extent of encroachment	Multiplier		Total river units
1	Culvert	0.725	Low	2	Poor	1	Within River Basin Management Plan	High strategic significance	1.15	N/A - Culvert	1	No Encroachment	1	Restore	1.67
2	Ditches	0.27	Medium	4	Poor	1	Within River Basin Management Plan	High strategic significance	1.15	Minor	0.8	Major	0.75	Restore	0.75
3	Ditches	0.12	Medium	4	Poor	1	Within River Basin Management Plan	High strategic significance	1.15	Minor	0.8	Minor	0.95	Restore	0.42
4															
5															
6															
7												Minor	0.95		
8												Minor	0.95		
		1.12													2.83

Baseline ref	Retention category biodiversity value						Comments	
	Length retained	Length enhanced	Units retained	Units enhanced	Length Lost	Units Lost	Assessor Comments	Reviewer comments
1	0.725		1.67	0.00	0.00	0.00		
2	0.27		0.75	0.00	0.00	0.00		
3	0.0967		0.34	0.00	0.02	0.08		
4								
5								
6								
7								
8								
	1.09	0.00	2.75	0.00	0.02	0.08		

C-2 Site River Creation

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	Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance		
Baseline ref	River type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier
1	Ditches	0.030087	Medium	4	Poor	1	Delivery within River Basin Management Plan	High strategic significance	1.15
2									
3									
4									
5									
6									
		0.03							

Temporal multiplier						Difficulty multipliers			
Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of creation	Applied difficullty multiplier	Final difficulty of creation	Difficulty multiplier applied
1		1	Check details- Delay in starting habitat in required condition? ⚠	2	0.931	Low	Standard difficulty applied	Low	1

Watercourse encroachment		Riparian encroachment		River units delivered	Comments	
Extent of encroachment	Multiplier	Extent of encroachment	Multiplier		Assessor comments	Reviewer comments
Minor	0.8	Minor	0.95	0.10	Overhead Line Area Ditch Reinstatement	
				0.10		

F-1 Off Site River Baseline

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Existing river type			Habitat distinctiveness		Habitat condition		Strategic significance			Watercourse encroachment		Riparian encroachment		Suggested action	Ecological baseline
Baseline ref	River type	length (km)	Distinctiveness	score	Condition	score	Strategic significance	Strategic significance	Strategic position multiplier	Extent of encroachment	Multiplier	Extent of encroachment	Multiplier		Total river units
1	Other Rivers and Streams	0.232	High	6	Moderate	2	Within Catchment Plans	High strategic significance	1.15	Major	0.5	No Encroachment Present	1	Restore	1.60
2	Other Rivers and Streams	0.177	High	6	Fairly Poor	1.5	Within Catchment Plans	High strategic significance	1.15	Major	0.5	No Encroachment Present	1	Restore	0.61
3	Ditches	0.101	Medium	4	Poor	1	Low potential/action not identified in Plan Area	Low Strategic Significance	1	No Encroachment	1	No Encroachment Present	1	Restore	0.40
4															
5															
6															
7															
8															
		0.48													2.61

Retention category biodiversity value						Comments	
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
	0.232	0.00	1.60	0.00	0.00	Between Mill Brook Brook	
	0.177	0.00	0.61	0.00	0.00	Between Mill Brook Brook	
	0.08	0.00	0.32	0.00	0.08	Between Mill Brook Brook	
0.00	0.48	0.00	2.53	0.00	0.08		

F-2 Off Site River Creation

Condense / Show Columns | Condense / Show Rows

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	Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance			Temporal multiplier						Difficulty multipliers				Watercourse encroachment		Riparian encroachment		Spatial risk category		River units delivered	Comments	
Baseline ref	River type	Length km	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target Multiplier	Standard difficulty	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Extent of encroachment	Multiplier	Extent of encroachment	Multiplier	Offset location	Multiplier		Assessor comments	Reviewer comments
1																												
2																												
3																												
4																												
5																												
		0.00																								0.00		

F-3 Off Site River Enhancement

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

Baseline habitats

Baseline ref	Baseline habitat	Length (km)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Strategic significance	Baseline strategic significance score	Suggested action	Total units
1	Other Rivers and Streams	0.232	High	6	Moderate	2	Within Catchment Plans	High strategic significance	1.15	Restore	1.6008
2	Other Rivers and Streams	0.117	High	6	Fairly Poor	1.5	Within Catchment Plans	High strategic significance	1.15	Restore	0.605475
3	Ditches	0.101	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance	1	Restore	0.404
		0.45									

Post development/ post intervention habitats

Baseline ref	Proposed habitat (Pre-Populated but can be overridden)	Change in distinctiveness and condition: Distinctiveness movement	Change in distinctiveness and condition: Condition movement	Length (km)	Habitat distinctiveness: Distinctiveness	Habitat distinctiveness: Score	Habitat condition: Condition	Habitat condition: Score	Strategic significance: Strategic significance	Strategic significance: Strategic significance	Strategic significance: Strategic position multiplier
1	Other Rivers and Streams	High - High	Moderate - Fairly Good	0.232	High	6	Fairly Good	2.5	Delivery within Catchment Plans	High strategic significance	1.15
2	Other Rivers and Streams	High - High	Fairly Poor - Moderate	0.117	High	6	Moderate	2	Delivery within Catchment Plans	High strategic significance	1.15
3	Ditches	Medium - Medium	Poor - Moderate	0.08	Medium	4	Moderate	2	Low potential/action not identified in any plan	Low Strategic Significance	1
				0.43							

Baseline ref	Temporal multiplier: Standard Time to target condition/years	Temporal multiplier: Habitat enhanced in advance/years	Temporal multiplier: Delay in starting habitat enhancement/years	Temporal multiplier: Standard or adjusted time to target condition	Temporal multiplier: Final time to target condition/years	Temporal multiplier: Final Time to target multiplier	Difficulty multipliers: Standard difficulty of enhancement	Difficulty multipliers: Applied difficulty multiplier	Difficulty multipliers: Final difficulty of enhancement	Difficulty multipliers: Difficulty multiplier applied
1	2	1		Check details - Is there evidence habitat creation started/in place? ⚠	1	0.965	High	Standard difficulty applied	High	0.33
2	2	1		Check details - Is there evidence habitat creation started/in place? ⚠	1	0.965	Medium	Standard difficulty applied	Medium	0.67
3	4	1		Check details - Is there evidence habitat creation started/in place? ⚠	3	0.899	Medium	Standard difficulty applied	Medium	0.67

Baseline ref	Watercourse encroachment: Extent of encroachment	Watercourse encroachment: Multiplier	Riparian encroachment: Extent of encroachment	Riparian encroachment: Multiplier	Spatial risk category: Offset location	Spatial risk category: Multiplier	River units delivered	Comments: Assessor comments	Comments: Reviewer comments
1	No Encroachment	1	No Encroachment	1	Outside waterbody but within catchment	0.75	2.59	Bowers Mill Black Brook	
2	No Encroachment	1	No Encroachment	1	Outside waterbody but within catchment	0.75	1.10	Bowers Mill Black Brook	
3	No Encroachment	1	No Encroachment	1	Outside waterbody but within catchment	0.75	0.38	Bowers Mill Black Brook	
							4.08		

6.3. APPENDIX C – BOWERS MILL BLACK BROOK RESTORATION PROJECT REPORT

Biodiversity Net Gain Technical Report

Bowers Mill, Black Brook

Version Control

Version	Author	Date	Amendments	Issued to
1.0	Andy Bray	30.01.2023	Draft Report—for comment	Frances Marlow Jennifer Collins
1.1	Andy Bray	01.02.2023	Final Draft	Frances Marlow Jennifer Collins
1.2	Andy Bray	20.02.2023	Accepted Report	Frances Marlow Jennifer Collins

Summary

This Black Brook river and floodplain restoration scheme has been developed by Calder Rivers Trust in collaboration with the Landowner and is planned to be delivered in summer 2023. The scheme will:

- remove the left bank retaining wall and re-profile the bank to restore floodplain connectivity
- expand the footprint and improve the quality of existing floodplain wetland habitat
- divert and improve the field boundary ditch to feed floodplain wetlands
- remove a weir to restore sediment flow and habitat connectivity within the river

These interventions will result in an uplift of 2.96 "Other Rivers and Streams" biodiversity units and 0.4 "Ditches" biodiversity units and deliver natural flood management as a co-benefit. The scheme is the first phase of a larger, whole-site, restoration plan for habitats, biodiversity, access and recreation, and the local economy.

1.0 Introduction

1.1 Scope of report

This work was commissioned by WSP to explore the possibility of finding off-site rivers and streams and ditches habitat units on the Bowers Mill, Black Brook project site (SE 07170 20339).

1.2 Project location

SE 07172 20316

1.3 Project site

Black Brook is a tributary of the Middle Calder which emerges on Moss Moor and drains through Deanhead Reservoir and Scammonden Water, eventually joining the River Calder near Greetland. The waterbody is Heavily Modified with at least 11 weirs along its ~14 km length, remains of the mills in the valley. Black Brook has an overall WFD waterbody classification of moderate. This project is based on the ~6 ha land adjacent to Bowers Mill, sitting on Black Brook.

2.0 Methods

2.1 Desk Study

The distinctiveness of Black Brook was determined by consulting with Natural England Priority River Habitat – Rivers dataset[1]. Strategic significance was determined by consulting with the Humber River Basin Management Plan[2], Catchment Partnership pages[3], and Calder Catchment Management Plan[4].

2.2 Field Survey Methods

The baseline and projected Rivers and Streams (other) habitat units were determined using the MoRPh River Condition Assessment methodology[5]. The baseline and projected Ditch

[1] Natural England—Priority River Habitats – Rivers (2021) https://www.data.gov.uk/dataset/20019cdb-9fef-4024-81af-daf1d1b74762/priority-river-habitat-rivers

[2] Humber river basin district (RBD) River Basin Management Plan (2022) https://www.gov.uk/guidance/humber-river-basin-district-river-management-plan-updated-2022

[3] Calder Catchment Partnership Pages (2022) https://environment.data.gov.uk/catchment-planning/v/c3-plan/CatchmentPartnership/WEIF201.2

[4] Calder Catchment Management Plan 2021-2027 (2022) [redacted] w

[5] Modular River Survey River Condition Assessment for Biodiversity Metric 3.1 (2022) [redacted]

habitat units were determined using the Ditch Habitat Condition Assessment Sheet[6]. Field surveys were completed by Dr. Andy Bray 26/10/22 and 25/11/22.

3.0 Baseline Conditions

3.1 Distinctiveness

Black Brook is not included in the Natural England Priority Habitat – Rivers data set and is not within a culvert in the project site boundary, it is therefore categorised as having High Distinctiveness. Ditches are categorised as having Medium Distinctiveness.

3.2 Strategic Significance

Black Brook falls within the Calder Catchment Partnership's Calder Catchment Management Plan and therefore has High Strategic Significance. The ditch on site is not identified in any plan and is therefore categorised as having Low Strategic Significance.

3.3 River Type

Based on field observations and desk study, Black Brook is categorised as a Type D river (Table 1).

Table 1. River Type indicators

Code	Indicator	
A1	Braiding index	1
A2	Sinuosity index	1.06
A3	Anabranching index	1
A4	Level of confinement	Partly Confined
A5	Valley gradient	0.017
A6	Bedrock reaches	False
A7	Coarsest bed material	Boulder
A8	Average bed material	Gravel/Pebble

3.4 River Condition

The reach of interest on Black Brook is 350 m long and sits between a grassland pasture (L bank) and ancient semi-natural woodland (R bank). The reach can be divided into two distinct river sections, with different characteristics and river conditions (Map 1, Table 2).

Section 1 – Moderate condition, 230 m. Condition defining characteristics: artificial profile and reinforced bank (L bank), Non-Native Invasive Plant Species (NNIPS) present.

Section 2 – Fairly Poor condition, 120 m. Condition defining characteristics: artificial profile and reinforced bank (L and R banks), NNIPS present, weir, reinforced bed.

3.5 Ditch Condition

The ditch on site is 115 m long and meets 5 of the 8 condition assessment criteria, categorising the ditch as in Poor condition (Table 3)

4.0 Proposed Interventions

The proposed interventions will reconnect the river with the floodplain, restore a natural left bank profile, expand and enhance existing floodplain wetland features, remove a weir, and divert and improve the field boundary ditch to feed existing wetland area (Map 2).

4.1 Section 1

Works in section 1 include left bank reprofiling, left bank wall dismantling, riparian woodland creation, riparian backwater and wetland creation, creation of shallow floodplain scrapes.

4.2 Section 2

Works in section 2 include left bank reprofiling, left bank wall dismantling, riparian backwater creation, and weir removal.

[6] Biodiversity Metric 3.1 – Habitat Condition Assessment Sheets with Instructions (2022) ISBN 978-1-78354-955-9

Table 2. Baseline River Condition indicators. Green indicators contribute positively to river condition, red indicators contribute negatively to river condition

	Indicator	Code	Section 1 Baseline	Section 1 Post	Section 2 Baseline	Section 2 Post
	Preliminary condition score		0.850	2.113	-0.134	1.101
	Average Positive Index		2.158	2.421	1.789	1.947
	Average Negative Index		-1.308	-0.308	-1.923	-0.846
Bank top	Vegetation structure	B1	2	2	2	3
	Tree feature richness	B2	3	3	1	1
	Water-related features	B3	0	3	2	2
	NNIPS cover	B4	-1	0	-3	-2
	Managed ground cover	B5	0	0	0	0
Bank face	Riparian vegetation structure	C1	2	2	2	2
	Tree feature richness	C2	2	2	1	1
	Natural bank profile extent	C3	2	3	1	2
	Natural bank profile richness	C4	3	4	1	2
	Natural bank material richness	C5	3	3	2	2
	Bare sediment extent	C6	4	4	2	2
	Artificial bank profile extent	C7	-3	0	-4	-3
	Reinforcement extent	C8	-3	0	-4	-3
	Reinforcement material severity	C9	-2	0	-3	-2
	NNIPS cover	C10	-2	0	-2	-1
Channel-water margin	Aquatic vegetation extent	D1	2	2	2	2
	Aquatic morphotype richness	D2	1	1	1	1
	Physical feature extent	D3	2	2	1	1
	Physical feature richness	D4	1	1	2	2
	Artificial features	D5	0	0	-1	0
Channel bed	Aquatic morphotype richness	E1	1	1	2	2
	Tree features richness	E2	3	3	2	2
	Hydraulic features richness	E3	2	2	1	1
	Natural features richness	E4	3	3	3	3
	Natural features extent	E5	2	2	2	2
	Material richness	E6	3	3	4	4
	Siltation	E7	-4	-4	0	0
	Reinforcement extent	E8	0	0	-2	0
	Reinforcement severity	E9	0	0	-2	0
	Artificial features	E10	-1	0	-4	0
	NNIPS extent	E11	-1	0	0	0
	Filamentous algae extent	E12	0	0	0	0

Table 3. Ditch Condition indicators

Code	Indicator	Achieved?
1	Good water quality	Y
2	Range of emergent, submerged and floating leaved plants present	N
3	Less that 10% cover of filamentous algae and/or duckweed	Y
4	Fringe of marginal vegetation along more than 75% of ditch	Y
5	Less that 5% of ditch physically damaged	Y
6	Sufficient water levels	N
7	Less than 10% of ditch is heavily shaded	N
8	Absence of non-native plant and animal species	Y

4.3 Ditch

Works around the Ditch include extending the ditch into the existing wetland area, vegetation management to reduce shading, and aquatic/emergent/submerged/floating vegetation planting.

4.4 Habitat condition

These interventions were used to estimate the change in river condition against baseline condition (Table 2). The condition of both Section 1 and Section 2 is anticipated to be uplifted by these interventions, increasing the condition from Moderate to Fairly Good and Fairly Poor to Moderate, respectively. The ditch condition is anticipated to be uplifted from Poor to Moderate through a decrease in shaded area and increase in the range of aquatic plants.

5.0 Biodiversity Net Gain Metric

Both the baseline and post intervention habitat scenarios have been included in the associated Biodiversity Metric 3.1 Calculation[7]. The proposed interventions are estimated to deliver 2.96 “Other Rivers and Streams” habitat units, and 0.4 “Ditches” habitat units. This uplift is calculated assuming on-site enhancement, and does not consider any spatial risk for off-site use.

6.0 Intervention timeline

Work to enhance the river and ditch habitats on Black Brook will be completed in 2023. Necessary tree removal for riverbank work will take place in March/April 2023, but river bank work is to be completed between July and September—avoiding impacts the Coarse and Salmonid spawning seasons.

7.0 Biodiversity Net Gain Management and Monitoring Plan

The detailed BNG MMP for Black Brook is yet to be finalised. Post intervention monitoring and reporting will be carried out as built, after 1 year, 3 years, 5 years and then every 5 years, up to the end of the 30-year management period.

The project site will be monitored using fixed-point photography, River Condition Assessments, and Habitat Condition Assessment of the ditch. Annual site visits will highlight deviation from restoration trajectory, and enable management measures to be deployed to ensure planned habitat uplift is achieved.

8.0 Proposed River Habitat Unit value formula

Currently, there is no guidance or accepted funding formula for off-site river habitat units. In West Yorkshire, off-site terrestrial habitat units have a value of £20,000—this value covers land management change and 30 years of management. In instances where developers will defer to the LPA to deliver habitat units, Calderdale MBC will require developers to pay an additional £5,000/unit, of which £2,000 (10%) will cover BNG project facilitation, £2,000 (10%) to cover the monitoring and reporting for the 30-year management period, and £1000 for LPA services.

This approach of separating habitat uplift and management costs from facilitation and monitoring costs is what we would recommend for river habitat units. The value of a river habitat unit could therefore be defined as:

$$£\ \mathrm{RHU} = \frac{\mathrm{Cap}}{n} + \mathrm{Mgmt}_{30}$$

where, the value a river habitat unit (£ RHU) is the capital costs of delivering the river condition uplift (Cap; including any feasibility, surveying, and design work) divided by the number of units (n), plus a

[7] 230130_Bowers Mill_Biodiversity Metric 3.1 document attachment

base rate for the 30-year habitat management ($Mgmt_{30}$) of a river unit. $Mgmt_{30}$ should be linked to the local terrestrial habitat value, and we propose that this is at 50% of the value of a terrestrial habitat unit—therefore £10,000 in West Yorkshire. As with terrestrial habitats, the scale of facilitation and monitoring costs will be determined to the size of the whole project, and so should each be an additional 10% of each river habitat unit (20% in total).

Therefore, the total cost of delivering off-site river habitat units could be calculated by:

$$£\ \text{Total} = n\ £\text{RHU} + \left(\frac{n}{5}£\text{RHU}\right)$$

For this project at Black Brook, the cost of a river habitat unit is

$$£\text{RHU} = \frac{£55000}{3.36} + £10000 = £26{,}369$$

and the total project cost of purchasing off-site river habitat units would be

$$£\ \text{Total} = (3.36 \times £26{,}369) + \left(\frac{3.36}{5}\ \text{x}\ 26{,}369\right) = £106{,}320$$

with £88,600 for the River Habitat Unit uplift, £8,860 for facilitation of the river habitat unit uplift, and £8,860 for monitoring and reporting over the 30-year management plan period.

124.4m

NORTH

Wet area of basin retained as backwater/riparian wetland feature

Drier part of existing basin filled with spoil

Bund constructed to divert stream into existing wetland area

Infill ditch with spoil from bank reprofile

Remove bank to convert excavated area into backwater

Boulders re-located to provide foot access

Break out and remove existing retaining wall

For detail of weir removal see drawing CCRT2101_05

Break out and remove part of existing weir

Weir

Reprofile river bank by removing existing boulders

Bank graded at 1 in 4 or less to level of wetland

Relocate & site-won boulders to protect under-cut area of bank

2m riparian wetland created

2.4m Gate

Trim existing pipe to surface and block with spoil

Shallow scrapes excavated in grassland. Exact position to be agreed on site. Areas of nettle/ doc targeted to reduce impact on high diversity grassland

Existing retaining wall removed and bank reprofiled

Existing dead tree retained

Proposed stock fence 1.2m high

Stubbing Wood

Proposed areas of riparian woodland regeneration Areas of current scrub/bramble targeted to avoid impact on high quality wet grassland

Riparian wetland created in reprofiled bank

CS

Existing retaining wall removed and bank reprofiled. possible land drain behind to be decommissioned if present

Remove existing barbed wire fence and posts

Existing trees removed to accommodate bank reprofile

Existing retaining wall removed and bank reprofiled

Ground lowered to create riparian wetland/backwater area. Base level approx. 99.90m AOD Typical water level 100.10m AOD

Existing retaining wall removed and bank reprofiled

Trees removed to open wetland to light

1 in 5 slope

Ground lowered to create riparian wetland shelf

20 0 20 40 60 80 100

Metres

Wetland Engineering

Design Stage : CONCEPT DESIGN ☐ DEVELOPED DESIGN ☒ CONSTRUCTION DRAWINGS ☐	
Client : CALDER RIVERS TRUST	Project : BLACK BROOK RESTORATION
Location: BOWERS MILL BARKISLAND HALIFAX, HX4 0AD	Detail : GENERAL ARRANGEMENT INTERVENTIONS ONLY
Date: 07 OCT 2022 Scale: 1:500@A1 Prepared by: BG Checked by: GS	Project Number: CCRT 2101 Drawing Number: CCRT 2101_02 Revision Number: ii
Wetland Engineereing 9 Stoodley Glen Todmorden West Yorkshire	Notes : 1. This drawing to be read in conjunction with all Engineer's drawings and the specification. 2. The contractor is responsible for all dimensions and for the correct setting out of the work on site. Only figured dimensions are to be used. Any discrepancies are to be reported to the Engineer before proceeding. 3. All materials and workmanship to comply with the current British Standards and Codes of Practice.