Cambridge Waste Water Treatment Plant Relocation Project
Anglian Water Services Limited

Appendix 8.13: Biodiversity Net Gain (BNG) Report

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Summary

Anglian Water Services Limited (the 'Applicant') is proposing to build a modern, low carbon waste water treatment for Greater Cambridge on a new site area north of the A14 between Fen Ditton and Horningsea.

This Biodiversity Net Gain (BNG) assessment report has been prepared for the development following the framework provided in the Chartered Institute of Ecology and Environmental Management (CIEEM) Biodiversity Net Gain Report & Audit Templates document (CIEEM, 2021). BNG will involve both a numerical increase in biodiversity unit value following development, compliance with the metric's trading rules and implementation of a 30-year management plan.

The aim is for this document to provide a 'Biodiversity Net Gain Design Stage Report', i.e., for it to be a report aimed at decision-makers, at the design consent stage of a project, in this case to form part of a Development Consent Order (DCO) application, with the decision makers being the Planning Inspectorate and Secretary of State. BNG will be secured through Draft DCO (App Doc Ref 2.1) Requirement 25.

The BNG assessment on this project has been undertaken in line with the BNG: Good Practice Principles for Development (CIEEM, CIRIA, IEMA , 2016), a set of ten guiding principles for delivering BNG in the UK. Section 4 of this BNG Design Stage Report provides statements on how each of these guiding principles has been applied to the project.

The boundary for the BNG assessment is the Scheme Order Limits (see Figure 1.1Figure 1.1, in this document). The BNG metric calculation uses baseline habitat data from Phase 1 habitat surveys, National Vegetation Classification (NVC) surveys, Modular River Survey (MoRPh) surveys and ditch condition surveys completed by Mott MacDonald in 2020 and 2021. Post-development habitat types and distinctiveness scores were based on the Landscape Masterplan produced for the Proposed Development (Appendix B) as well as Works Plans (App Doc Ref 4.3) produced showing the temporary works areas for the Proposed Development.

To calculate the percentage change in 'habitat units' from the development, the pre-development (baseline) and post-development (proposed) value of the habitats within the Proposed Development were entered into the Natural England Biodiversity Metric 3.0 calculation tool (Natural England, 2022). Although Biodiversity Metric 3.1 was published on 21 April 2022, the Natural England webpage (Natural England, 2022) for Biodiversity Metric 3.1 states that users of Biodiversity Metric 3.0 should continue to use the 3.0 metric for the duration of the project, this tool was used for full feasibility calculations for the project completed in January 2022. The conversion tool in the Biodiversity Metric 3.0 was used to inform translation of the baseline Phase 1 habitat survey and National Vegetation Classification (NVC) habitat data into the habitat types used in the metric which are based on UK Habitat Classification (UKHab).

The pre-development value of the site has been calculated using Biodiversity Metric 3.0 as:

- 492.58 habitat biodiversity units,

- 67.872.64 hedgerow biodiversity units and

- 12.13 river biodiversity units.

The post-development habitats (excluding ditch and reedbed habitats proposed in the Outline River and Reedbed Units Net Gain Strategy (Appendix C)) have been calculated as having a predicted value of:

- 700.72 habitat biodiversity units,

- 86.950.52 hedgerow biodiversity units and

- 12.56 river biodiversity units.

When compared to the baseline, this equates to a predicted percentage change of:

- +42.25% in habitat biodiversity units,

- +28.1355% in hedgerow biodiversity units and

- +3.49% in river biodiversity units.

High distinctiveness baseline (pre-development) habitats proposed to be lost during construction must be replaced with habitats that are of the same specific type, and medium value habitats by habitats of the same broad habitat type. Currently, the calculation completed for this assessment shows 'trading down', i.e., uncompensated habitat loss, of two high distinctiveness habitats ('Reedbeds' and 'Other rivers and streams') and can only be used to demonstrate net gain once this is resolved.

However, the Applicant is committed to achieving at least a 20% net gain in all unit types including river units, and to avoid trading down habitat value, proposed measures by which this will be achieved are presented in an Outline River and Reedbed Units Net Gain Strategy (Appendix C). This will involve creating additional ditch habitat (to include reedbeds) within the Scheme Order Limit and funding river unit gain outside of the Scheme Order Limits. This approach has been taken to factor in emerging opportunities that are likely to arise for purchasing river units by funding off-site habitat restoration.

The post-development habitats including ditch and reedbed habitats outlined in Appendix C (but excluding the high distinctiveness river units to be delivered off-site) have been calculated as having a predicted value of:

- 700.80 habitat biodiversity units,

- 86.9580.52 hedgerow biodiversity units and

- 14.57 river biodiversity units.

When compared to the baseline, this equates to a predicted percentage change of:

- +42.27% in habitat biodiversity units,

- +28.~~55~~13% in hedgerow biodiversity units and

- +20.05% in river biodiversity units.

BNG as set out in the Biodiversity Metric 3.0 calculation will be secured through Requirement 25 of the Draft DCO (App Doc Ref 2.1) for the proposed waste water treatment plant (WWTP) which states:

25.—(1) No phase of the authorised development is to be commenced until an updated biodiversity net gain report has been submitted to and approved by the relevant planning authority.

(2) The updated biodiversity net gain report submitted for approval must include—

(a) how the measures contained within it deliver and secure twenty percent biodiversity net gain for the whole of the authorised development excluding any biodiversity net gain to be provided as river units;

(b) details of measures to deliver and secure twenty percent biodiversity net gain comprising river units within or outside of the Order limits;

(c) details of the habitat management and monitoring of the biodiversity net gain for the whole of the authorised development; and

(d) an updated biodiversity metric calculation or an explanation of why a biodiversity metric calculation is not necessary.

(3) The updated biodiversity net gain report may be revised from time to time in accordance with requirement 6.

(4) The construction and operation of the authorised development must be carried out in accordance with the approved updated biodiversity net gain report.

(5) For the purposes of this requirement, biodiversity metric calculation means a calculation in accordance with the metric in Appendix D of the biodiversity net gain report.

The management period for habitats retained and created for BNG will be 30 years as detailed in Section 7 of this report.

1 Introduction

1.1 Anglian Water Services Limited

1.1.1 Anglian Water Services Limited (the 'Applicant') is the largest regulated water and water recycling company in England and Wales by geographic area, supplying water and water recycling services to almost seven million people in the East of England and Hartlepool.

1.1.2 The Applicant is committed to bringing environmental and social prosperity to the region they serve, through their commitment to Love Every Drop. As a purpose-led business, The Applicant seeks to contribute to the environmental and social wellbeing of the communities within which they operate. As one of the largest energy users in the East of England, they are also committed to reaching net zero carbon emissions by 2030.

1.2 Background

1.2.1 The Applicant is proposing to build a modern, low carbon waste water treatment for Greater Cambridge on a new site area north of the A14 between Fen Ditton and Horningsea within the Cambridge drainage catchment area, to replace the plant on Cowley Road, hereafter referred to as the Existing Cambridge Waste Water Treatment Plant (WWTP). The area of land within the Scheme Order Limits is provided in Figure 1.1Figure 1.1.

1.2.2 The relocation will enable South Cambridgeshire District Council and Cambridge City Council's long held ambition to develop a new low-carbon city district on Cambridge's last major brownfield site, known as North East Cambridge. The site is an important component of the First Proposals (preferred options) for the new Greater Cambridge Local Plan (GCP, 2022) that were subject to public consultation in 2021. The North East Cambridge Area Action Plan (GCP, 2022) has recently been agreed by the Councils in its Proposed Submission form and will be subject to public consultation prior to submission, once the Development Consent Order is determined. The relocation of the existing waste water treatment facility will enable this new district to come forward and deliver 8,350 homes, 15,000 new jobs and a wide range of community, cultural and open space facilities in North East Cambridge. Further details can be found in the Statement of Requirement (App Doc Reference 7.2) published in September 2019.

1.2.3 The relocation of the WWTP will allow The Applicant to continue providing vital waste water services to customers across Cambridge and Greater Cambridge. The new plant will continue storing and treating storm flows and treating sludge to produce renewable energy. It will be designed to deal with a growing population. It offers the opportunity for a joined-up solution for treating waste water from Cambridge and Greater Cambridge, including Waterbeach. The proposal is for both waste water from the Existing Waterbeach Waste Water Treatment Plant and

future flows from Waterbeach New Town to be treated at the Proposed Cambridge Waste Water Treatment Plant.

1.2.4   The Proposed Development will be the first waste water project to seek a Development Consent Order that is not specifically named in the National Policy Statement (NPS). 'The Applicant' sought and obtained a direction from the Secretary of State under section 35 of the Planning Act 2008 ("the 2008 Act"), which confirms that the project will be treated as a Nationally Significant Infrastructure Project ("NSIP") when the application is submitted.

Figure 1.1 Scheme Order Limits

1.3 The Proposed Development

1.3.1   This section provides a high-level summary of the Proposed Development. The term Proposed Development refers to the Cambridge Waste Water Treatment Plant (WWTP) Relocation project in its entirety and all works associated with the development.

1.3.2   A detailed description of the Proposed Development can be found in Chapter 2 of the Environmental Statement (ES) (App Doc Reference 5.2.2).

1.3.3   The purpose of the Proposed WWTP is to treat all waste water and wet sludge from the Cambridge catchment just as the Existing Cambridge WWTP currently does, plus that from the growth indicated and being planned within the catchment in the Local Plan to 2041, with ability to expand beyond to deal with further growth.

1.3.4   As part of its statutory function, the Applicant operates the Existing Cambridge WWTP. The Existing Cambridge WWTP receives waste water from the Cambridge catchment either directly from the connected sewerage network or tankered to the plant from homes and businesses that are not connected. This waste water is then treated and the treated effluent discharged through an outfall to the nearby River Cam. The Existing Cambridge WWTP is an integrated WWTP, as would be the Proposed Development. Integrated WWTP incorporate a sludge treatment function, in the form of a Sludge Treatment Centre (STC), which treats the sludge derived from the waste water from the catchment, and the "wet sludge" produced by other satellite plants which do not have integrated STC.

1.3.5   The Waterbeach New Town development lies to the north of Cambridge. When built out Waterbeach new town will comprise some 11,000 new homes along with associated business, retail, community and leisure uses. Waste water from Waterbeach will ultimately be treated by the Proposed Cambridge WWTP once operational. However, the rate of development at Waterbeach New Town may require a new pipeline (rising main) to be built from Waterbeach to the Existing Cambridge WWTP to allow treatment of waste water in advance of the Proposed WWTP becoming operational. In that case, either a later connection would be made to the Proposed WWTP from a point on the pipeline route, or flows diverted from the Existing Cambridge WWTP via the transfer tunnel.

1.3.6   In summary the Proposed Development will comprise:

- an integrated waste water and sludge treatment plant;

- a shaft to intercept waste water at the Existing Cambridge WWTP on Cowley Road and a tunnel/ pipeline to transfer it to the new site and terminal pumping station;

- a gravity pipeline arrangement taking treated waste water effluent to a discharge point on the River Cam;

- a pipeline transferring waste water from Waterbeach to the Proposed Development;

- connection of the upgraded Fen Ditton rising main to the transfer tunnel;

- ancillary on-site buildings, including a Gateway Building with incorporated Discovery Centre, substation building, workshop, vehicle parking including electrical vehicle charging points, fencing and lighting;

- renewable energy generation via anaerobic digestion which is part of the sludge treatment process that produces gas that may feed directly into the local gas network heating homes;

- renewable energy generation via solar photovoltaic and battery energy storage system;

- other associated development such as site access, utilities, connection to the site drainage system, landscaping and off-site highway network alteration measures to reduce potential traffic impacts;

- a new vehicle access including for Heavy Goods Vehicles (HGV's) bringing sludge onto the site for treatment; and

- environmental mitigation and enhancements including habitats for wildlife;

- landscaping and increased recreational access and connectivity.

1.4 Biodiversity Net Gain overview

1.4.1   The Applicant has provided a Biodiversity Net Gain (BNG) assessment for the Proposed Development as part of the Development Consent Order (DCO) submission, which is set out in this report.

1.4.2   BNG is an approach for a development to achieve a measurable net gain in biodiversity. It follows the 'mitigation hierarchy' process of first avoiding and minimising biodiversity loss and providing positive habitat intervention, resulting in a net improvement to biodiversity. BNG means that the biodiversity value of a site brought forward for development must exceed the pre-development value of the site by a minimum percentage. The post-development value can include not just the value of the site itself, but registered off-site biodiversity gain and (when available from government) purchased biodiversity credits.

1.4.3   The net gain is measured using the Biodiversity Metric published by Natural England (Panks et al, 2021) which measures the net gains in 'biodiversity units'.

1.5 Document purpose

1.5.1   This report presents the BNG assessment of the Proposed Development, which included a biodiversity metric calculation using the Biodiversity Metric 3.0 User Guide (Panks et al, 2021) and the Biodiversity Metric 3.0 Calculation Tool (Panks et al, 2021). The updated Biodiversity Metric 3.1 was not used as the Natural England webpage (Natural England, 2022) for Biodiversity Metric 3.1 states that users of Biodiversity Metric 3.0 should continue to use the 3.0 metric for the duration of the

project. This tool was used for full feasibility calculations for the project completed in January 2022.

1.5.2   BNG will involve both a numerical increase in biodiversity unit value following development, compliance with the metric's trading rules and implementation of a 30-year management plan.

1.5.3   This report has been prepared following the framework provided in the Chartered Institute of Ecology and Environmental Management (CIEEM) BNG Report & Audit Templates document (CIEEM, 2021), with the aim for this document to provide a 'Biodiversity Net Gain Design Stage Report', i.e., for it to be a report aimed at decision-makers, at the design consent stage of a project (in this case to form part of a DCO application), with the decision makers being the Planning Inspectorate and Secretary of State. BNG will be secured through Draft DCO (App Doc Ref 2.1) Requirement 25. This BNG design stage report includes the:

- approach, methods used and assumptions for the BNG assessment (Section 2);
- baseline ecological context of the Proposed Development (Section 3);
- good practice principles for BNG that have been applied (Section 4);
- results of the BNG assessment for the Proposed Development 'as designed' and an overview of the BNG calculations (Section 5);
- mechanisms the project will use to deliver BNG (Section 6); and
- management and monitoring prescriptions (Section 7).

1.5.4   This document (and its associated figures and appendices) refers to the following application documents:

- The ES Chapter 8: Biodiversity (App Doc Ref 5.2.8) and associated appendices.
- The Landscape, Ecological and Recreational Management Plan which includes the landscape masterplan (Appendix 8.14, App Doc Ref 5.4.8.14).
- The Construction Code of Practice Part A and B (Appendix 2.1 and 2.2, App Doc Ref 5.4.2.1 and 5.4.2.2).
- The Outline Outfall Management and Monitoring Plan (App Doc Ref 5.4.8.24).

1.6 Biodiversity Net Gain Legislation, Policy and Guidance

1.6.1   This section provides a summary of the legislation, policy and guidance relevant to BNG.

Legislation

1.6.2   The Environment Act 2021 (UK Parliament, 2021) was granted Royal Assent on 9 November 2021 and contains provisions which will mandate achieving BNG for developments in England seeking planning permission (expected late 2023) and for

Nationally Significant Infrastructure Projects (expected 2025). These provisions will legally require developers to ensure that development sites are improved for biodiversity, or to ensure that off-site areas are improved as compensation, or a combination of both. These improvements must result in a 10% increase in habitat value for wildlife compared with the pre-development baseline. Mandatory BNG will be measured by the biodiversity metric published by the Secretary of State. This is expected to be a revision of the current Biodiversity Metric (V3.1) (Natural England, 2021) to version 4.0. Mandatory BNG is defined in numerical terms as a minimum 10% increase in each of the three types of habitat within the biodiversity metric: area-based habitat units; linear units; and river units.

1.6.3   BNG can be achieved through habitat creation or enhancement to existing habitats. All biodiversity enhancements will be required to be maintained for a minimum of 30 years.

Planning policy

1.6.4   The Government's 25 Year Environment Plan (DEFRA, 2021) describes an ambition to leave the environment in a better state than that which it inherited for the next generation. This ambition is supported by the National Planning Policy Framework (NPPF) (Ministry Housing, Community & Local Government, 2021), which makes general provisions for the delivery of BNG. The NPPF states that "planning policies and decisions should…identify and pursue opportunities for securing measurable net gains for biodiversity" although no numerical definition of "net gains for biodiversity" is provided.

1.6.5   Local planning documents relevant to BNG include the South Cambridgeshire District Council (SCDC) Doubling Nature Strategy (SCDC, 2021) which sets an aspirational (non-mandatory) goal of 20% BNG for developments within the district. BNG is also outlined in the Greater Cambridge Biodiversity Supplementary Planning Document (Greater Cambridge Shared Planning, 2022), this document does not set 20% BNG as a fixed target. However, it is noted although a mandatory requirement for 10% net gain in biodiversity value is within the Environment Act (applies in England only by amending the Town & Country Planning Act (TCPA) and to Nationally Significant Infrastructure Projects (NSIPs) consented under the Planning Act 2008 with a lead in period for each), a value of 20% is likely to be needed in order to meet the Natural Cambridgeshire target of doubling the amount of land managed for nature from 8% to 16% of the county's area. It also advises that local plans should instruct a higher level of BNG than mandated by national legislation.

1.6.6   The policy paper for sustainable growth in the Oxford-Cambridge Arc (Ministry of Housing, Community & Local Government, 2021) (a strategic area which includes five counties including Cambridgeshire) sets out a goal for developments to achieve lasting improvements to biodiversity and to achieve BNG but does not set out a specific BNG target for developments in the arc area.

1.6.7   The Scheme Order Limits for the Proposed Development lies within or closely adjacent to land identified as a 'Biodiversity and Geodiversity Broad Opportunity Area' in South Cambridgeshire District Council and Cambridge City Council's (CCC)

Greater Cambridges Green Infrastructure Opportunity Mapping document (SCDC & CCC, 2020). Areas within the Scheme Order Limits, for example around the River Cam, also lie within a 'Water Environment Broad Opportunity Area' identified in the Opportunity Mapping document. This document identifies areas with the potential to support multifunctional green infrastructure for a range of purposes including delivering BNG. The Cambridge Nature Network similarly identifies opportunity areas for biodiversity within 10km of the centre of Cambridge (Wildlife Trust for Bedfordshire, Cambridgeshire & Northamptonshire, 2021), most of the Scheme Order Limits lie within the Wicken Fen Vision South Priority Area or the River Cam Corridor Priority Area. These priority areas are targeted for habitat creation and management, with BNG identified as a potential way to enable this.

Guidance

1.6.8 The following publications have been used to inform the BNG assessment and this report:

- Biodiversity Metric 3.0 User Guide (Panks et al, 2021) and Technical Supplement (Panks et al, 2021) (including the Condition Assessment Sheets for each habitat type).

- The Good Practice Principles for Development, A Practical Guide for the assessment and delivery of BNG (CIEEM, CIRIA, IEMA , 2016). The guide contains ten principles that were published to provide a framework for developers to design and deliver BNG based on good practice.

- BS 8683:2021, the British Standard for Biodiversity Net Gain (British Standards Institute, 2021).

- CIEEM Biodiversity Net Gain Report & Audit Templates document (CIEEM, 2021).

2 Methods

2.1.1 The pre-development (baseline) and post-development (proposed) value of the habitats within the Scheme Order Limits has been calculated using Natural England's Biodiversity Metric 3.0 calculator tool (Natural England, 2021). The methodology for determining habitat distinctiveness and condition values follows the guidelines set out by the User Guide (Panks et al, 2021) and Technical Supplement for Biodiversity Metric 3.0 (Panks et al, 2021). Although Biodiversity Metric 3.1 was published on 21 April 2022 (and Biodiversity Metric 4.0, April 2023), the Natural England webpage (Natural England, 2022) for Biodiversity Metric 4.0 states that users of previous versions of the Biodiversity Metric should continue to use the same metric for the duration of the project. Biodiversity Metric 3.0 will therefore continue to be used for the project duration.

2.1 Data sources

2.1.1 The following data sources have been used to define the boundary for the BNG calculation and determine the relevant attributes for BNG (e.g., size, habitat type and condition) for the pre- and post-development habitats.

Boundary

2.1.2 The boundary used for the BNG assessment is the DCO Scheme Order Limits shown in Figure 1.1. The Scheme Order Limits contain an area of 208.89 ha.

Pre-development (baseline) habitats

2.1.3 In order to generate the site baseline habitat data (e.g., habitat type, condition) the following survey data were used:

- Phase 1 habitat surveys completed in 2020 and 2021 covering the Scheme Order Limits (outlined in ES Chapter 8: Biodiversity, Document Ref 5.2.8).

- Phase 2 national vegetation classification (NVC) surveys of specific habitats, including semi-natural woodland, floodplain grazing marsh and other grassland habitats around the River Cam completed in 2021 (Appendix 8.10, App Doc Ref 5.4.8.10).

- Modular river survey (MoRPh) of the river habitats completed 2021 (Aquatic Technical Appendix (Appendices 8.1, App Doc Ref 5.4.8.1).

- Ditch condition assessments completed in 2020 and 2021 (Aquatic Technical Appendices 8.1, App Doc Ref 5.4.8.1).

2.1.4 A map of baseline habitat types is displayed in Figure A.1, Appendix A.

2.1.5 Full details of the baseline ecology surveys undertaken are provided in the following baseline survey reports, which are technical appendices of ES Chapter 8: Biodiversity:

- Aquatic Technical Appendices (App Doc Ref 5.4.8.1).

- Appendix 8.7: Bats Baseline Technical Appendix (App Doc Ref 5.4.8.7).

- Appendix 8.8: Confidential Badger Baseline Technical Appendix (App Doc Ref 5.4.8.8).

- Appendix 8.4: Ornithology Technical Baseline Appendix (App Doc Ref 5.4.8.4).

- Appendix 8.11: Great Crested Newts Baseline Technical Appendix (App Doc Ref 5.4.8.11).

- Appendix 8.2: Hedgerow Baseline Technical Appendix (App Doc Ref 5.4.8.2).

- Appendix 8.6: Terrestrial Invertebrates Baseline Technical Appendix (App Doc Ref 5.4.8.6).

- Appendix 8.10 : National Vegetation Classification Baseline Technical Appendix (App Doc Ref 5.4.8.10).

- Appendix 8.9: Otter Baseline Technical Appendix (App Doc Ref 5.4.8.9).

- Appendix 8.3 : Water vole Baseline Technical Appendix (App Doc Ref 5.4.8.3).

Post-development habitats

2.1.6   Post-development habitat types, distinctiveness scores and condition scores have been based on the landscape masterplan design (Appendix B). The extent of newly created ditches is based on the length that will be created for mitigation under the water vole licence. The extents of new ditches to be created, including the ditch required for water vole mitigation, are shown in Appendix C.

2.1.7   Temporary habitat loss will occur during construction (for example because of land temporarily required for haul routes, access roads, compounds, spoil heaps, shafts as well as open cut areas for pipeline installation), the extent of these areas in the calculations is based on a Works Plans (App Doc Ref 4.3) and Land Information Plan (App Doc Ref 4.4). These habitats are planned to be reinstated post works, and the target habitat type, distinctiveness and condition scores of the recreated habitats will match those of habitats currently present. The condition of post-development habitats in the LERMP area has been assigned as 'moderate' which is considered most likely given the proposed management, it is possible that these could achieve 'good' condition but as this is highly uncertain a precautionary approach has been taken. Where there is any risk that moderate condition will not be achieved, created habitats have been assigned a target of poor condition so as not to overstate the potential gains.

2.2 Competency statement

2.2.1   The metric calculations were undertaken by an experienced BNG practitioner with experience completing BNG calculations for several large development projects (using Biodiversity Metric 2.0, 3.0, 3.1 and 4.0), defined as a competent person

under British Standard BS 8683:2021, the technical standard for designing and implementing BNG.

2.2.2 The qualifications and experience of the BNG assessors are set out in the competency statement (Table 2-1Table 2-1 below).

Table 2-1: Competency statement

Name	Years Experience	Role	Qualifications	Experience summary
JT	3	Ecologist/ BNG Specialist	ACIEEM, MSc, BA (Hons)	BNG lead on several projects (residential, water and Ministry of Defence). Experience in undertaking calculations using Biodiversity Metric 2.0, 3.0, 3.1 and 4.0.
OG	7	Principal Botanist/ BNG Specialist	MCIEEM, MSc, BSc	BNG lead on several large-scale developments in different sectors (water, highways, mineral extraction, residential) undertaking calculations using Biodiversity Metric 2.0, 3.0, 3.1.
PH	10	Senior Ecologist/ BNG Specialist	MCIEEM, BSc	BNG lead on several large-scale developments (flood alleviation schemes, mixed-used developments, utilities and infrastructure projects), undertaking calculations using Biodiversity Metric 2.0, 3.0, 3.1, 4.0 BNG Co-Trainer for CIEEM.
TC	15	Senior Associate Ecologist	BSc (Hons), MSc, CEcol, MCIEEM	Chartered ecologist. Ecology lead on large scale infrastructure projects including experience as author of environmental statements, detailed design ecology lead, and construction phase ecology lead. Experienced in a range of metrics and fed into Natural England's 2022 stakeholder engagement workshops for the preparation of a Habitat Management and Monitoring Plan Template (HMMPT) for BNG. Led training courses for CIEEM on habitat design to support BNG proposals.

2.3 Limitations and assumptions

2.3.1   The following limitations and assumptions apply to this BNG assessment:

- Post-development target habitat condition scores are indicative and are dependent on the appropriate management and maintenance of the post-development habitats in accordance with the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14). Effective implementation of this LERMP will ensure the created habitats achieve (or exceed) their target condition and retained habitats maintain their condition for the duration of the BNG requirement. The target condition scores are based on a reasonable worst-case scenario where the LERMP is correctly implemented but site conditions do not prove conducive to the habitats achieving good condition.

- The BNG metric accounts for the fact there are an inherent risk to all habitat creation and that some habitats are more difficult to create than others. Deviations from the standard risk multipliers for habitat creation used in Biodiversity Metric 3.0 have been avoided.

- Baseline habitat surveys were undertaken in 2020 and 2021, this data is considered still to be valid as protected species completed throughout the site in 2021 and 2022 have not identified any habitat changes in this time.

- A precautionary approach has been taken to assigning distinctiveness and condition for baseline habitats where condition was not assessed as part of the Phase 1 Habitat survey and where no NVC surveys were undertaken. In these cases, the baseline condition was precautionarily assessed as good. Because of the precautionary approach taken, the value (distinctiveness and condition) of some pre-development habitats may actually be lower than currently assessed. This mostly related to small areas of scrub, and woodland and some hedgerow lengths where assigning precautionary habitat condition scores had minimal impact on overall net gain.

- According to UKHab, a ditch is described as an artificial standing-water linear feature less that 5m wide that is at least 20 times longer than its width and likely to contain water for at least four months of the year. Therefore, ditches that are dry (for at least nine months of the year) and adjacent to a hedgerow are covered under the hedgerow biodiversity units (e.g. a linear feature). Dry ditches that are not adjacent to a hedgerow have not been included in the metric calculations, instead the adjacent habitat has been mapped up to the central line of the ditch.

- The creation of the earth bank for the proposed WWTP will increase the surface area of the land within the landscape masterplan. The BNG assessment has not factored this in as the metric calculation tool does not currently cover 3D modelling; if the increased surface area was included this would increase the BNG percentage for area based habitats.

- The roof of the gateway building for the proposed WWTP will include solar panels and a green roof. The green roof is not factored into the metric calculations as its exact extent is not known. However, this is unlikely to significantly alter the BNG percentage.

- The temporal multiplier for ditches in the Site River Creation tab of the metric calculation tool has been set as zero. It is assumed that ditches within the land required for construction will be reinstated the same year as the works are temporary and the ditch (proposed in area Work No. 39 as shown on Works Plan Sheet 2 of the Work Plans (App Doc Ref 4.3)) created for water vole mitigation will be created in advance of construction in the River Cam outfall area (Work No. 32, as shown on Works Plan Sheet 2 of the Work Plans (App Doc Ref 4.3)). The ditch created for water vole mitigation could have its temporal multiplier for habitat created in advance/years set as one as shown in the timetable of proposed works in the water vole Natural England Ghost Licence Method Statement (App Doc Ref 5.4.8.22). However, taking a precautionary approach, this has been set as year zero in the metric calculation.

- To indicatively show habitat loss of linear habitats where the length of the proposed loss is known but there is no detailed design of the exact location of the habitat loss, the total length of lost habitat has been removed from one end of the linear habitat for mapping and calculation purposes.

Land temporarily required

2.3.2   It is assumed, unless otherwise stated, that land temporarily required for the construction of the Proposed Development will be reinstated once construction is complete. The following durations for temporary loss have been assumed in this assessment (Table 2-2Table 2-2), however, for the metric calculation a precautionary two-year delay for the planned time between habitat clearance and creation has been applied to all habitats except for ditch creation under the temporal multiplier. Some habitats will be reinstated or created within two years of clearance, however a reasonable worst-case has been applied so as not to inflate the potential unit gains. A precautionary approach has been taken when inputting the post-development hedgerow lengths to be temporarily lost and reinstated into the metric calculations. Where linear hedgerow habitats within the Scheme Order Limits are proposed to be partially removed under the design, the whole hedgerow length within the site has been marked as lost and subsequently created after a two-year delay within the metric calculation.

Table 2-2: Maximum design scenario – land temporarily required

Component of Proposed Development	Maximum design scenario
Waterbeach pipeline	Land required for the construction of the pipeline will be required for up to 12 months

	Land required for the Waterbeach compounds will be required for up to 12 months
	The entire length will be open cut construction with the exceptions of crossings for the River Cam, the railway, and the A14
	The construction width will be up to 30m, the entire width is assumed to be temporarily lost
	Crossings of ditches and hedgerows will be by open cut and limited to 6m width and reinstated once construction has been completed
	There will be up to 16 above ground air valve structures the footprint of which will be minimal and is not considered in the assessment. Each air valve chamber footprint is a maximum of 600mm x 900mm clear opening (which equates to 0.54m^2). Due to the small footprint area on what is classified as 'cereal crops' in the Metric (with one likely to be in modified grassland), this footprint generates zero biodiversity units (and shows as zero hectares) in the Biodiversity Metric 3.0 calculation tool. The air valves will also be located below ground with an accessible manhole cover at ground level and be used during construction and occasionally during operation. Further information on air valves is provided in ES Chapter 2: Project Description (App Doc Ref 5.2.2).
Transfer tunnel	Land required for the construction of the transfer will be required for up to 24 months
	The footprint of the shaft 3, 4, and 5 sites will be up to 3.47ha.
Treated effluent and storm pipelines	Land required for the construction of the pipeline will be required for up to 12 months
	The entire length will be by open cut construction
	The construction width will be up to 50m, the entire width is assumed to be temporarily lost
	Crossings of ditches and hedgerows will, unless oftherwise stated will be by open cut and limited to 14m width and reinstated once construction has been completed
	The crossing of the ditch parallel to the River Cam will require a temporary loss of a 25m section of the ditch during the construction of the outfall
	Works to the ditch parallel to the River Cam will be subject to a water vole Conservation Licence from Natural England and will require the creation of new habitat in advance of the proposed works. A draft of the licence is included in the Application, Water Vole Natural England Ghost Licence Method Statement (Appendix 8.22 App Doc Ref 5.4.8.22).

Land permanently required

2.3.3   The following permanent loss is predicted as per the current design information, and has been included in the BNG assessment (Table 2-3~~Table 2-3~~).

Table 2-3: Maximum design scenario – land permanently required

Component of Proposed Development	Maximum design scenario

Landscape masterplan	The landscape masterplan will broadly comprise of:
	• grassland
	• woodland
	• scrub/thicket
	• hard infrastructure
	• new and retained hedgerow
	• trees and tree lines
	Implementation will be in accordance with the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14)
	Landscape management and monitoring will be for 30 years in accordance with the Draft DCO (App Doc Ref 2.1) Requirement 11 to implement the LERMP
Proposed WWTP and permanent access road	22ha of land required for the Proposed WWTP will be permanently lost (converted to hard standing)
	Up to 3ha of land required for the permanent access will be converted to hard standing.
	The creation of the earth bank will increase the surface area of the land within the landscape masterplan. The BNG assessment has not factored this in.
	The roof of the gateway building may include solar panels and a green roof. The green roof is not factored into the calculations as its exact extent is not known.
Outfall and riverbank protection works	Land required for the construction outfall is up to 0.5km^2 (permanent land take).
	The length of the river bed requiring bed protection to prevent scour is approximately 40m in total length (with an area of up to 150m^2)
	The length of the river bank requiring river bank protection works (sheet piling) is 70m in total as a worst case
	The creation of new ditch and reedbed habitat in area Work No. 39 as shown on Works Plan Sheet 2 of the Work Plans (App Doc Ref 4.3)) in advance of the proposed works to the ditch and River Cam will be monitored in accordance with the conditions of the water vole Conservation Licence, this is expected to be up to five years. Thereafter, it will be included within monitoring activities required in relation to the 30 year BNG commitment under the Outline Outfall Management and Monitoring Plan (App Doc Ref 5.4.8.24).
	Although the river bank design intends to re-establish riparian vegetation (via the French drain linked to the River Cam with wetland planting (shown in Design Plans – Outfall (App Doc Ref 4.13), the river bank is assumed to be lost for the entirety of the bank section subject to protection works.

2.4 Assessment steps

Baseline (pre-development)

Calculation of baseline habitat biodiversity units

2.4.1 The following steps were taken for the calculation of the baseline habitat biodiversity units:

- The conversion tool in the Biodiversity Metric 3.0 was used to inform translation of the baseline Phase 1 habitat survey and National Vegetation Classification (NVC) habitat data into the habitat types used in the metric which are based on UK Habitat Classification (UKHab), this was undertaken with reference to guidance in the User Guide and Technical Supplement. Table 2-4Table 2-4 below outlines how habitats were converted between the two classification systems.

Table 2-4: Conversion between habitat classifications

Habitat Type (Phase 1)	Habitat Type (Biodiversity Metric 3.0)
Area Habitats	
A1.1.1 - Broadleaved woodland - semi-natural	Lowland mixed deciduous woodland
A1.1.2 - Broadleaved woodland - plantation	Other woodland; broadleaved
A1.2.2 - Coniferous woodland – plantation	Other coniferous woodland
A1.3.2 - Mixed woodland – plantation	Other woodland; mixed
A2.1 - Scrub - dense/continuous	Mixed scrub
A2.2 - Scrub – scattered	Mixed scrub
B2.2 - Neutral grassland - semi-improved	Other neutral grassland
B4 - Improved grassland	Modified grassland
B5 - Marsh/marshy grassland	Floodplain Wetland Mosaic (CFGM)/Other neutral grassland – dependent on HPI criteria
B6 - Poor semi-improved grassland	Other neutral grassland
C3.1 - Other tall herb and fern – ruderal	Ruderal/Ephemeral
F2.2 - Marginal and inundation - inundation vegetation	Reedbeds
G1 - Standing water	Ponds (Non- Priority Habitat)
J1.1 - Cultivated/disturbed land – arable	Cereal crops
J1.2 - Cultivated/disturbed land - amenity grassland	Modified grassland
J1.3 - Cultivated/disturbed land - ephemeral/short perennial	Ruderal/Ephemeral
J1.4 - Introduced shrub	Introduced shrub
J3.6 – Buildings	Developed land; sealed surface

J4 - Bare ground	Vacant/derelict land/bareground
J5 – Hardstanding	Developed land; sealed surface
Hedgerow Habitats	
A3.1 - Broadleaved parkland/scattered trees	Line of Trees/Line of Trees (Ecologically Valuable) - dependent on presence of ancient/veteran trees
A3.2 - Coniferous parkland/scattered trees	Line of Trees
J2.1.1 - Intact hedge - native species-rich	Native Species Rich Hedgerow
J2.1.2 - Intact hedge - species-poor	Native Hedgerow/ Native Hedgerow - Associated with bank or ditch - dependent on presence of bank/ditch
J2.2.2 - Defunct hedge - species-poor	Native Hedgerow/ Native Hedgerow - Associated with bank or ditch - dependent on presence of bank/ditch
J2.3.1 - Hedge with trees - native species-rich	Native Species Rich Hedgerow with trees - Associated with bank or ditch
J2.3.2 - Hedge with trees - species-poor	Native Hedgerow with trees
River Habitats	
G1 - Standing water	Ditches
G2 - Running water	Ditches/Other Rivers and Streams (dependent on whether drainage feature or not)

- The extent of area-based and linear habitats was defined (represented by polygons and lines in GIS, respectively). The metric includes three broad categories of habitats and biodiversity units for which scores are calculated differently:

    – area habitats (such as grasslands, woodlands and ponds);

    – linear hedgerows and lines of trees; and

    – linear rivers and ditches.

- Distinctiveness and condition scores were assigned to habitats based on the results of the Phase 1 and NVC habitat surveys and guidance in the Biodiversity Metric 3.0 User Guide and Technical Supplement (including the Condition Assessment Sheets (Panks et al, 2021) for each habitat type).

    – Distinctiveness: Each habitat type is pre-assigned a distinctiveness band which is a measure of habitat quality, relating to the distinguishing features of a habitat type such as rarity, conservation status and species assemblage. Habitat distinctiveness was preassigned in Biodiversity Metric 3.0 based on habitat type.

    – Condition: Each habitat area was assigned a condition score based on the number of assessment criteria (including essential criteria) that

are passed/failed within the Biodiversity Metric 3.0 Condition Assessment Sheets. These provide a structured condition assessment process for each broad habitat type within the biodiversity metric. This is assessed with a range of criteria relating to the overall "biological working order of a habitat type, judged against the perceived ecological optimum state" (Panks et al, 2021). The habitat condition assessment applies to variation in quality within each habitat type, rather than between habitat types. As detailed in Section 2.3 Limitations and Assumptions, a precautionary approach has been taken to assigning condition for baseline habitats where condition was not assessed as part of the Phase 1 Habitat survey and where no NVC surveys were undertaken. In these cases, the baseline condition was precautionarily assessed as good.

– Strategic significance: all baseline habitats (i.e. all area habitats, hedgerows, ditches, rivers) were assessed as having high strategic significance due to occurring in or having habitat connections to a 'Biodiversity and Geodiversity Broad Opportunity Area' in South Cambridgeshire District Council and Cambridge City Council's Green Infrastructure Opportunity mapping document (SCDC & CCC, 2020). This is in line with the User Guide which states that strategic significance should be assigned as high when the habitat location is identified in local plans, strategies, or policies. All greenspace within Cambridge is defined as strategically important within this document which is why all habitats of more than 'very low' distinctiveness have been assessed as strategically significant.

- River habitats are assigned either high or low strategic significance in Biodiversity Metric 3.0 based on the following:

  – High significance: delivery of river restoration actions within a Local Plan, River Basin Management Plan, Catchment Plans, Catchment Planning System, or Priority Habitats for Restoration.

  – Low significance low potential; action not identified in any plan

- The river habitats present in the Scheme Order Limits were assigned as high significance as they fall within a 'Biodiversity and Geodiversity Broad Opportunity Area' in South Cambridgeshire District Council and Cambridge City Council's Green Infrastructure Opportunity mapping document.

Biodiversity Unit Modifiers

2.4.2 Biodiversity Metric 3.0 applies additional unit modifiers to river habitats (pre and post-development) to account for levels of riparian zone and in-watercourse encroachment existing before and then by a development, reducing biodiversity units based on the level of encroachment.

2.4.3   In the Biodiversity Metric 3.0, the riparian zone is defined as a 10m zone from the top of a riverbank. In accordance with Biodiversity Metric 3.0, a riparian zone is the interface between land and a watercourse.

2.4.4   The riparian zone encroachment unit modifier accounts for the level of reduction in quality or quantity of riparian habitat, and the use of available habitat that forms a specific ecological function for riparian or aquatic species. The level of encroachment is identified on a scale of 'no encroachment/minor/moderate/major' based on criteria set out in the Biodiversity Metric 3.0 User Guide. The riparian zone is defined as a 10m zone from the top of the riverbank, this was determined using a 10m buffer in ArcMap. The bands reflect how far the development has encroached toward the river channel (distance) or how much of the 10m riparian zone (by % area) is covered by the development footprint. Pre-development riparian encroachment was based on the baseline habitat mapping and post development riparian encroachment was based on the post-development landscape masterplan. To account for an increase in riparian encroachment, the affected length of the associated watercourse has been marked as 'enhanced' and the encroachment level adjusted accordingly (from moderate to major encroachment). This results in a decrease in watercourse units that is considered more representative of the change than marking the watercourse as lost and created.

2.4.5   The watercourse encroachment unit modifier accounts for interventions that adversely affect a watercourse in terms of hydrological or geomorphological processes, which result in localised changes in habitat, species and the use of migratory pathways. The level of encroachment is identified on a scale of 'no encroachment/minor/major' based on criteria set out in the Biodiversity Metric 3.0 User Guide (Panks et al, 2021). These bands reflect how far the development has encroached into the river channel (% width) or along the bank (% length). The percentage length is measured as a percentage of the total length of the watercourse within the on-site boundary. Pre-development watercourse encroachment was based on the baseline habitat mapping and post development watercourse encroachment was based on the post-development landscape masterplan.

Use of GIS in calculation

2.4.6   Esri ArcGIS Pro was used to prepare the baseline survey data for entry into the Biodiversity Metric 3.0 Calculation Tool (Natural England, 2022). For each individual habitat parcel identified within the Scheme Order Limits, the attributes identified included the specific habitat type and its area (ha), or length (km) for linear habitats, the outcome of the habitat condition assessments and river unit modifiers, and comments such as which part of the Proposed Development the habitat parcel related to and an attribute for whether the habitat would be lost, temporarily impacted or retained post development. Habitats were mapped onsite using Esri ArcGIS Collector and edited by a GIS consultant to ensure there were no overlapping polygons. The River Cam and some ditches were mapped as both polygons and lines. Where linear watercourses (covered under the watercourse biodiversity units) are also mapped as polygons, the associated area has been assigned 'Urban - Developed

land; sealed surface' to account for the area and avoid gaps in the mapping whilst not generating additional area habitat units. Other linear features (ditches, hedges) have been mapped purely as lines; adjacent polygons have been mapped up to the line.

2.4.7 GIS output was checked against baseline data collection before the data was added into the calculation tool for area-based, linear and river habitats. Each habitat type and condition combination was added as a separate row in the 3.0 Metric calculation tool.

2.4.8 The calculation tool produced a baseline biodiversity unit value for each habitat type and condition combination as well as for Scheme Order Limits as a whole.

Calculation of the post-development habitat biodiversity units

2.4.9 Quantification of post-development habitat biodiversity units was undertaken using habitat data derived from the post-development landscape masterplan and on extents of temporary habitat loss as part of the proposed works as shown in the works plans (App Doc Ref 4.3). Post development habitats were assigned metric habitat types based on their planting mix and proposed management. A precautionary two-year delay was included in the metric to account for the planned time between habitat clearance and creation, some habitats will be reinstated or created within two years of clearance, however a reasonable worst-case has been applied so as not to inflate the potential unit gains.

2.4.10 Post-development target habitat condition has also been informed by the LERMP produced for the development which outlines long-term maintenance measures for habitats on the site. Precautionary post-development habitat condition scores have been assigned based on likely outcomes of management as set out in the LERMP (generally with a target of 'Moderate' condition for newly created habitats, and for reinstated habitats to be restored to their prior condition, which is considered feasible as none of the affected habitats has a high difficulty of creation). However, where there is any risk that moderate condition will not be achieved, created habitats have been assigned a target of poor condition so as not to over state the potential gains. Some reinstated habitats will take a significant time to mature however this is factored into the time to creation and difficulty of creation multipliers that are built into the metric and the overall unit gain score reflects this.

2.4.11 All post-development habitats were assessed as having high strategic significance due to occurring in a 'Biodiversity and Geodiversity Broad Opportunity Area' in South Cambridgeshire District Council and Cambridge City Council's Green Infrastructure Opportunity mapping document (SCDC & CCC, 2020). This follows the approach taken for the baseline habitats and aligns with the User Guide which states that strategic significance should be assigned as high when the habitat location is identified in local plans, strategies, or policies. All greenspace within Cambridge is defined as strategically important within the opportunity mapping document which is why all habitats have been assessed as strategically significant.

2.4.12   When developing the landscape plan and assigning target BNG habitat types to the habitats shown in the landscape masterplan, the feasibility of creating different habitats was based on the semi-natural habitats that are currently present within the Scheme Order Limits. For example, 'other neutral grassland' has been selected as a target habitat type for meadow grassland rather than 'lowland calcareous grassland' as the latter is a less realistic target habitat. The Proposed Development will not result in the loss of any lowland calcareous grassland, so it is not a requirement to create this habitat type as compensation. It is a more realistic aim to create 'other neutral grassland' as this is how the semi-natural grassland already present in the area of land required for the Proposed Development is classified (including along the disused railway line), despite some plant species indicative of calcareous conditions (calcicoles) being present.

2.4.13   The post-development GIS layer was formatted similarly to the pre-development habitat layer and also included an attribute for each habitat polygon and line which labelled them as being:

- retained;

- created;

- permanent loss (change in habitat type);or

- reinstated after temporary loss.

2.4.14   The post-development linear features have been mapped in the same way as the baseline linear features, with rivers mapped as both polygons and lines, while hedges and ditches have been mapped purely as lines, adjacent polygon features have been mapped as extending to these lines.

2.4.15   Data from the post-development GIS layer were inputted into the metric calculator. At this stage, the calculation tool produced a post-development biodiversity unit value for each habitat type and condition combination possible as well as for the Scheme Order Limits as a whole.

2.4.16   Once the calculation had been completed, the outputs were reviewed to understand the losses and gains for each habitat type and understand whether the development complies with the Biodiversity Metric 3.0 trading rules (no trading down in habitat value).

2.4.17   The User Guide for Biodiversity Metric 3.0 states as a rule (Rule 3) that schemes must avoid trading down of habitat value, i.e., habitat replacement that is not "like for like" or "like for better" in terms of distinctiveness, condition, and total units. If this is not achieved then the metric will flag an error and the percentage gain shown will not be considered valid due to breaking this rule.

3   Baseline Context

3.1.1   This section provides an overview of the baseline of the area of land required for the Proposed Development.

3.2 Important ecological features

3.2.1   The majority of land included within the landscape masterplan has been assessed as being of low ecological value. However, there are three non-statutory designated sites for nature conservation within the Scheme Order Limits, including:

- Milton Road Hedgerows City Wildlife Site (CityWS).

- Low Fen Drove Way Grasslands and Hedges County Wildlife Site (CWS).

- River Cam CWS.

3.2.2   The design of the landscape masterplan has sought to protect these features and in the case of the Low Fen Drove Way Grasslands and Hedges CWS to create similar habitats in close proximity so there is ecological connectivity between existing a newly created habitats and increased buffers between the CWS and intensive agricultural land.

3.2.3   Other habitats of ecological value include:

- High distinctiveness Habitat of Principal Importance (HPI) marginal reedbed habitats around the River Cam.

- High distinctiveness HPI floodplain grazing marsh.

- High distinctiveness HPI lowland deciduous woodland.

- Ditches.

- Hedgerows.

3.2.4   The scheme has sought to protect these features including avoiding direct impacts on floodplain grazing marsh and lowland deciduous woodland habitats, in the former case by using Horizontal Directional Drilling (HDD) for pipeline installation to avoid the need to dig trenches in the grazing marsh.

3.2.5   Most of the baseline area is arable land with only scattered higher value habitats. Extensive areas of hard standing are also present, constituting roads and paths including but not limited to sections of the A14, sections of Horningsea Road, sections of small roads and areas within the existing Cambridge WWTP.

3.2.6   The baseline habitat map (based on Phase 1 habitat descriptions) is provided in Figure A.1, Appendix A.

4   BNG Good Practice Principles

4.1.1   This delivery of BNG for the Proposed Development has been undertaken in line with the BNG Good Practice Principles for Development (CIEEM, CIRIA, IEMA , 2016), a set of ten guiding principles for delivering BNG in the UK.

4.1.2   Table 4-1Table 4-1 lists each of the good practice principles and provides a statement on how each has been applied as part of the BNG assessment for the Proposed Development.

4.1.3   Table 4-2Table 4-2 provides a record of BNG solutions agreed through Biodiversity Technical Working Group (TWG).

Table 4-1: The BNG good practice principles for development and their application on the Proposed Development

Principle	Description	Application on the project
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 Proposed Development will result in limited loss of high distinctiveness habitats, especially considering the relatively large area covered by the Scheme Order Limits. The losses of high distinctiveness habitat that will occur will be from the construction of the new outfall to the River Cam. - The new outfall on the River Cam avoids impacts on the river habitats as much as possible (it is sited in a location where there is existing encroachment from hard structures and the extent of hard structure has been minimised as much as possible). Alternative locations would have similar or greater impacts on habitats. - The most significant potential impacts on high distinctiveness habitats resulting from the Proposed Development will be avoided by HDD under the high distinctiveness HPI Floodplain Grazing Marsh. - During construction there will be a requirement for the Waterbeach pipeline to cross the River Cam in two locations. To avoid direct impact on the River Cam in these locations, the works will be undertaken by directional drilling and require temporary launch and recovery sites either side of the river. The closest pits for the launch and recovery of equipment are approximately 60m from the River Cam. - Avoidance of impacts on high distinctiveness habitats has been considered in consultation with the CWWTRP Biodiversity Technical Working Group (TWG), representing major environmental stakeholders in the Cambridge area.

Principle	Description	Application on the project
Avoid losing biodiversity that cannot be offset elsewhere	Avoid impacts on irreplaceable biodiversity – these impacts cannot be offset to achieve No Net Loss or Net Gain.	The Proposed Development will result in no loss of irreplaceable habitats, e.g., those categorised as 'very high' distinctiveness in Biodiversity Metric 3.0 or defined as irreplaceable habitats in the NPPF.
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.	The Biodiversity TWG have been involved throughout the BNG assessment process and have helped to shape the Proposed Development's BNG strategy (see Table 4-2 for examples).
Address risk	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.	• The difficulty of creating different habitat types and the time lag between initial habitat creation and habitats reaching target condition has been accounted for by the post-development habitat multipliers in the Biodiversity Metric 3.0 calculator and is reflected in the final BNG scores. In accordance with the CIEEM BNG Report & Audit Templates document (CIEEM, 2021) no deviations have been made from the calculator methodology. Furthermore, a precautionary assumption has been factored into the metric calculations to account for a worst case time period between habitat clearance and new habitat creation (based on the longest duration from the proposed schedule of works), and as such multipliers have been applied to account for this temporal risk. • A precautionary approach has been taken to assigning the distinctiveness and condition of created habitats in the calculations. There is generally a target for newly created habitats to be in 'Moderate' condition and for reinstated habitats to be restored to their prior condition. Where there is

Principle	Description	Application on the project
		any risk that moderate condition may not be achieved, created habitats have been assigned a target of poor condition so as not to overstate the potential gains. Targeted habitat types are realistic and representative of natural grassland types in the local area, e.g., 'other neutral grassland' has been targeted for created meadow grassland rather than 'lowland calcareous grassland' as this is more realistic.
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.	The development will achieve a measurable net gain of over 20% in area and hedgerow biodiversity units as measured by the Biodiversity Metric 3.0 calculator (as demonstrated in Section 4 of this report). The development will also commit to achieving a 20% gain in river biodiversity units as measured by the Biodiversity Metric 3.0 calculator (see Appendix D). Created habitats such as woodland and grassland will provide ecosystem services including carbon sequestration and recreational benefits. The development has taken a multifunctional approach to deliver landscape enhancement, visual screening and recreational opportunities alongside BNG. Further details are provided in the LERMP (App Doc Ref 5.8.12.14). The development contributes to nature conservation priorities through grassland creation in the Wicken Fen Vision area.
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	• The habitat creation as part of the Proposed Development has been targeted to avoid a trading down in habitat value (a replacement of higher with lower value habitats). When the Outline River and Reedbed Units Net Gain Strategy proposed in Appendix C has been implemented, all created habitats will have the same or higher distinctiveness and condition than those lost and will be equivalent in type.

Principle	Description	Application on the project
	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 up areas for biodiversity	• Except for river units, habitat creation will be achieved within the Scheme Order Limits where possible, for all types of BNG unit. Some existing high distinctiveness river units will need to be compensated for off-site. Due to the highly constrained nature of the River Cam, there are limited opportunities for onsite river unit gain. • The development contributes to local nature conservation policies such as grassland creation in the Wicken Fen Vision area and exceeds the requirements of national BNG policy by targeting a 20% rather than a 10% gain. • Species of Principal Importance (SPI) are also defined as local priority species by the Greater Cambridge Biodiversity Supplementary Planning Document (Greater Cambridge Shared Planning, 2022). Several of these species will benefit from habitat creation as part of the Scheme including bats and water voles. Impacts on species are assessed in the ES Chapter 8: Biodiversity and associated appendices. • The newly created habitats will improve habitat connectivity (the creation of 'stepping stones') between protected sites and in the Cambridge Nature Network Opportunity Areas (as detailed in the LERMP).
Be additional	Achieve nature conservation outcomes that demonstrably exceed existing obligations (i.e., do not deliver something that would occur anyway).	The Proposed Development will achieve a measurable net gain of over 20% in area and hedgerow biodiversity units as measured by the Biodiversity Metric 3.0 calculator (as demonstrated in Section 4 of this report). The development will also commit to achieving a 20% gain in river biodiversity units as measured by the Biodiversity Metric 3.0 calculator (see Appendix D). These exceed the 10% gains mandated by the Environment Act 2021.

Principle	Description	Application on the project
		The development has followed the recommendations of the Defra Consultation on Biodiversity Net Gain Regulations and Implementation (Defra, 2022) in requiring at least 10% of the habitat unit, hedgerow unit or river unit gain to be derived from sources other than protected species mitigation that would have occurred regardless of a net gain requirement (i.e., to be additional).
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 • 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	The Biodiversity TWG has been involved throughout the BNG process and solutions agreed during this process are outlined in Table 4-2 below. Management of habitats within the proposed WWTP has been secured for the next 30 years through Schedule 2 Requirement 11 of the Draft DCO (App Doc Ref 2.1) which includes a series of requirements which obligate The Applicant to implement the Landscape Masterplan and the Landscape Ecology and Recreational Management Plan (LERMP) (Appendix 8.14, App Doc Ref 5.4.8.14). The proposed created habitats have been designed to be high diversity and, therefore, more resilient to climate change and other external factors. The potential risks of other land uses (e.g., recreational disturbance) and mitigation to counter these risks is outlined in the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14).
Optimise sustainability	Prioritise Biodiversity Net Gain and, where possible, optimise the wider environmental benefits for a sustainable society and economy	The development has taken a multifunctional approach to deliver landscape enhancement, visual screening, recreational opportunities along with BNG, as outlined in the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14).

Principle	Description	Application on the project
Be transparent	Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.	The Biodiversity TWG has been involved throughout the BNG process. They were presented interim results during the feasibility assessment and have inputted into the BNG process during the design stage (see Table 4-2).

Table 4-2: BNG solutions agreed through Biodiversity TWG

Feedback from during TWG meeting	Stakeholder	Date	Solutions implemented
The habitat created for BNG should be locally appropriate and provide a strategic link within the wider landscape.	Cambridgeshire County Council	7/10/2020	The created habitat is appropriate to local conditions and ensures ecological connectivity with neighbouring areas (described in more detail in the LERMP).
The target for created grassland should be calcareous loam grassland rather than strongly calcareous grassland.	Wildlife Trust	11/3/2021	This assumption is built into the assumptions of the BNG calculation.
The project should target a 20% rather than a 10% Biodiversity Net Gain.	GCP	11/3/2021	The project will achieve a >20% gain in all three habitat unit types.
For transparency the contents of the Biodiversity Metric 3.0 tool should be made available.	Cambridgeshire County Council	2/2/2022	Provided in this report (Appendix D).

5 BNG Metric

5.1 Value of baseline habitats

5.1.1 The baseline habitat values for the area of land within the Scheme Order Limits have been calculated using Biodiversity Metric 3.0 as having a baseline habitat value of:

- 492.58 habitat biodiversity units,

- ~~62.64~~67.87 hedgerow biodiversity units and

- 12.13 river biodiversity units.

5.1.2 Summaries of the pre-development habitats including their area, distinctiveness, condition, strategic significance, action to address habitat losses, and their biodiversity unit value are provided in tables in the following appendices:

- Appendix E: Summary Pre-development Baseline Habitat Units~~Appendix E: Summary Pre-development Baseline Habitat Units~~.

- Appendix F: Summary Pre-development Baseline Hedgerow Units.

- Appendix G: Summary Pre-development Baseline River Units.

5.1.3 The tables in the appendices have been directly copied from the Biodiversity Metric 3.0 calculator tool.

5.1.4 A map of the pre-development baseline habitats is provided in Figure A.1, Appendix A. The majority of the area within the Scheme Order Limits is currently arable land, other habitats include a range of grassland types, some grazed and others unmanaged as well as plantation and semi-natural woodlands, scrub, hedges, ditches and sections of the River Cam.

5.1.5 Figure A.3, Appendix A shows the location of area habitats within the Scheme Order Limits recorded as high or medium distinctiveness. The high distinctiveness area habitats are: lowland mixed deciduous woodland, floodplain grazing marsh and reedbeds. The River Cam is a high distinctiveness river habitat and the 'native species rich hedgerows with trees - associated with bank or ditch' on disused railway are 'very high' distinctiveness hedgerow habitats.

5.1.6 If high distinctiveness habitats are removed during construction, they must be replaced with habitats of the same specific type, worth at least the same number of biodiversity units or retained habitats of the same specific type must be enhanced to generate at least the same number of biodiversity units. There will a loss in units from two high distinctiveness habitats: the River Cam ('other rivers and streams') and reedbeds. The methods by which this loss will be compensated to avoid trading down is outlined in Appendix C.

5.1.7 Medium distinctiveness habitats removed during construction must be compensated with either the:

- Creation of habitats of the same general type (e.g., woodland, grassland) and distinctiveness, worth at least the same number of biodiversity units.

- Creation of any habitat of higher distinctiveness, worth at least the same number of biodiversity units.

- Enhancement of retained habitats of the same general type (or a habitat of higher distinctiveness) to generate at least the same number of biodiversity units.

5.2 Value of post-development habitats

5.2.1   The post-development habitats have been calculated as having a value of:

- 700.72 habitat units,

- 86.95~~80.52~~ hedgerow units; and

- 12.56 river units.

5.2.2   When compared to the baseline this equates to a percentage change of:

- 42.25% net gain in habitat units;

- 28.13~~55~~% net gain in hedgerow units; and

- 3.49% net gain in river units.

5.2.3   Summaries of the post-development habitats including their area, distinctiveness, condition, strategic significance, temporal multiplier, difficulty of creation, and their biodiversity unit value are provided in tables in the following appendices:

- Appendix H: Summary Post-development Habitat Units.

- Appendix I: Summary Post-development Hedgerow Units.

- Appendix J: Summary Post-development River Units.

5.2.4   The tables in the appendices have been directly copied from the Biodiversity Metric 3.0 calculator tool.

5.2.5   A map of proposed post-development habitats is shown in Figure A.2, Appendix A and map of retained habitats is shown in Figure A.4, Appendix A. The retained habitats outside of the landscape masterplan area (but within the Scheme Order Limits which cover a wider area) will not be managed to produce an enhancement in BNG terms (i.e., an increase in condition score). Most of the retained habitats within the landscape masterplan area are hedges already in moderate condition, and it is not considered feasible to enhance these further.

5.3 Habitat trading

5.3.1   For high distinctiveness baseline (existing) habitat units proposed to be lost during construction these must be replaced with habitats that are of the same exact type

(e.g., priority habitat ponds, reedbeds) and medium value habitats by habitats of the same general type (e.g. grassland, woodland, scrub) or habitats of a higher distinctiveness. In these cases, to meet the trading rules the number of units generated by the created habitat should equal or exceed the value of the baseline habitat.

5.3.2 In Biodiversity Metric 3.0 there is no trading error generated in the metric by trading down hedgerow or river distinctiveness and condition. However, trading down in these instances would still violate Rule 3 of the metric as defined in the User Guide, which states that losses of habitat must be compensated for on a 'like for like' or 'like for better' basis.

5.3.3 The location of habitats assessed as having a high and medium distinctiveness within the Scheme Order Limits is shown in Figure A.3, Appendix A. Based on the current design the development will result in the trading down due to a small net unit loss of these habitat types, these are:

- Wetland – Reedbeds.

- Rivers - Other Rivers and Streams.

5.3.4 The loss of river units and reedbed habitat units will occur at the proposed new outfall location on the River Cam as a result of increased riparian encroachment.

5.3.5 A summary of these habitats and the extent of units loss caused by trading down is provided in Table 5-1Table 5-1. These habitat trading issues will need to be resolved for the development to achieve an overall biodiversity net gain.

Table 5-1: Summary habitat loss resulting in trading down

Habitat Type	Distinctiveness	Uncompensated unit Loss	Required Habitat Compensation
Wetland – Reedbeds	High	0.17 Habitat units	Wetland – Reedbeds (approximately 0.0245ha)
Other Rivers and Streams	High	0.04 River units	Other Rivers and Streams (must be the same watercourse (i.e. the River Cam))

5.3.6 Measures to avoid trading down and achieve an increased net gain in river units and reedbed habitat units are outlined in the Outline River and Reedbed Units Gain Strategy (Appendix C). The Scheme will be committed to implementing this strategy and will therefore avoid any trading down in habitat value.

5.3.7 Measures to avoid or reduce impacts on habitats in line with the mitigation hierarchy have already been designed into the scheme, e.g., avoiding the Milton Road Hedgerows CityWS, and the Low Fen Drove Way Grasslands and Hedges CWS. The purpose of this has been both to prevent direct impacts on habitats of importance and to also avoid impacts on protected species such as badgers, bats, reptiles, and birds. Proposed access roads and pipelines within the extent of the

landscape masterplan have also been rerouted to avoid semi-natural woodland (a 'high distinctiveness' HPI).

6 Project Implementation

6.1 Securing biodiversity net gain within the DCO

6.1.1   BNG as set out in the Biodiversity Metric 3.0 calculation will be secured and delivered through Requirement 25 of the Draft DCO (App Doc Ref 2.1), which states:

> *25.—(1) No phase of the authorised development is to be commenced until an updated biodiversity net gain report has been submitted to and approved by the relevant planning authority.*
>
> *(2) The updated biodiversity net gain report submitted for approval must include—*
>
> *(a) how the measures contained within it deliver and secure twenty percent biodiversity net gain for the whole of the authorised development excluding any biodiversity net gain to be provided as river units;*
>
> *(b) details of measures to deliver and secure twenty percent biodiversity net gain comprising river units within or outside of the Order limits;*
>
> *(c) details of the habitat management and monitoring of the biodiversity net gain for the whole of the authorised development; and*
>
> *(d) an updated biodiversity metric calculation or an explanation of why a biodiversity metric calculation is not necessary.*
>
> *(3) The updated biodiversity net gain report may be revised from time to time in accordance with requirement 6.*
>
> *(4) The construction and operation of the authorised development must be carried out in accordance with the approved updated biodiversity net gain report.*
>
> *(5) For the purposes of this requirement, biodiversity metric calculation means a calculation in accordance with the metric in Appendix D of the biodiversity net gain report.*

6.1.2   The draft DCO also includes a number of requirements which obligate the Applicant to implement the design and fulfil management and monitoring commitments. Those also relevant to habitat creation and supporting BNG are described below.

Landscape masterplan/ LERMP

6.1.3   The landscape design for the Proposed Development will be implemented in line with the Code of Construction Practice (CoCP): Part A General Requirements, Code of Construction Practice: Part B Site Specific Measures (Appendix 2.1 & 2.2, App Doc Ref 5.4.2.1 & 5.4.2.2 and the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14).

6.1.4   The LERMP and landscape masterplan (shown in Figure 3.1 within the Landscape, Ecological and Recreational Management Plan (App Doc Ref 5.4.8.14) provide a range of post-development habitats within the LERMP area. This will include mostly newly created habitats but an existing ditch and hedgerow will also be incorporated

into this area. The LERMP is secured through Requirement 11 (landscape, ecological and recreational management plan) of the draft DCO (App Doc Ref 2.1), which states that no phase of the authorised development is to commence until a detailed LERMP has been submitted to and approved by the relevant planning authority.

6.1.5   The LERMP and landscape masterplan will deliver multiple functions (delivering landscape mitigation and screening, formalising existing access to the land, supporting surface water drainage, replacing lost habitats (hedgerow), creating new higher value habitats, and providing benefits to protected animal and plant species).

6.1.6   The post-development habitats within the landscape masterplan will be managed to achieve the target habitat type and condition set out in the Biodiversity Metric 3.0 calculation completed for the Proposed Development. This will be achieved by a BNG management and monitoring plan implemented for a minimum of 30 years. Section 3 of the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) emphasises the need to apply ecological principles so that the long-term habitat creation and enhancement included within the BNG assessment remains realistic and deliverable based on local conditions (geology, hydrology, nutrient levels, water availability) and the complexity of future management requirements. It also outlines the application of adaptative management principles.

6.1.7   Management will be guided by appropriate expert ecological and landscape management advice throughout the 30-year management period. Good management practice does not, by itself, constitute restoration or enhancement, though reinstating certain management practices may contribute to achieving it, for example by improving condition.

Compensatory habitat – water vole ditch and created ditches in Works No. 39

6.1.8   Compensatory habitat indicated in Works No. 39 (as shown on Works Plan Sheet 2 (App Doc Ref 4.3) will also provide a BNG function. Works No. 39 falls under the Outfall Requirement 10 of the draft DCO (App Doc Ref 2.1), which states that no phase of the authorised development comprising works within the area of Work No. 32 is to commence until a detailed construction outfall management and monitoring plan relating to the construction of works within that area has been submitted to and approved by the relevant planning authority and will include details of ditch habitat creation, monitoring and maintenance measures.

6.1.9   Up to 84m of water vole habitat (wet ditch) will be created in relation to the construction of the outfall and direct impacts to ditch habitat and river habitat (River Cam).

6.1.10   This is outlined in Appendix C which sets out the strategy for river and reedbed unit gain incorporating water vole habitat creation.

Licenses and permits

6.1.11 Works to construct the treated effluent discharge outfall at the River Cam will be under a Natural England conservation licence in respect of water vole habitat at the River Cam and in the parallel ditch (see Appendix C).

6.1.12 The conservation licence permits intentional damage or destruction of water vole burrows, and/or disturbance to water voles occupying burrows, by use of the mitigation method known as 'displacement', prior to carrying out lawful development works.

6.1.13 For the purposes of the licence, 'displacement' means cutting vegetation back to bare earth, followed, where appropriate, by a destructive search of the burrows. The cutting of vegetation to bare earth must take place and be completed during the period 15 February to 15 April. Water draw-down/removal may be used in parallel with vegetation cutting, where appropriate.

6.1.14 This licence may only be relied upon where mitigation works include creation or enhancement of alternative compensatory habitat, such that there will be a demonstrable net conservation gain for water voles.

Mitigation measures during construction and temporary works

6.1.15 Requirement 8 (code of construction practice) of the draft DCO (App Doc Ref 2.1) states that each phase must be undertaken in accordance with the code of construction practice in so far as it relates to the works proposed in the relevant phase. The CoCP Part A and B (Appendix 2.1 & 2.2, App Doc Ref 5.4.2.1 & 5.4.2.2) and associated management plans specify the range of measures to avoid and minimise impacts that may occur in construction. The CoCP Part B contains a series of location specific measures relating to the safeguarding of habitats and wildlife. The CoCPs provide information on avoidance and protection of retained habitats, reinstatement planting and replacement of planting should it die, become damaged or diseased within five years after completion of construction.

6.1.16 The CoCP requires that the Principal Contractor(s) appointed by The Applicant produce a Construction Environmental Management Plan (CEMP) before works associated with each part of the Proposed Development commence. This will contain the detailed commitments derived from the measures set out in the CoCP and approved as part of the requirements of the DCO. Implementation of these plans is intended to avoid and minimise loss of habitat and or diminishing the quality of retained habitats within the Scheme Order Limits.

6.1.17 It is requirement that the CoCP and associated plans (including monitoring) are implemented during construction.

6.1.18 Section 7.2 (Ecology and Nature Conservation) and 5.14 (Watercourses/drainage channels) of the CoCP Part A, contains a series of control measures relating to the safeguarding of habitats and wildlife. Sections relevant to avoiding the loss of habitat or reinstating habitats are:

- Section 5.14 (Other Watercourses/Drainage Channels) requires temporarily affected shallow ditches to be reinstated promptly once pipeline crossings have been completed. Deeper/larger ditches will be crossed using trenchless crossing techniques with negligible impact to water levels or flows in the ditch.

- Section 7.2 (Reinstatement of habitats, trees and hedgerows) Reinstatement planting will be undertaken in the first available planting season following construction. Species mixes will match or improve on the existing habitat. Any reinstatement of habitats carried out as part of the Proposed Development will be monitored for five years from completion of the construction phase. Any which dies or becomes seriously damaged or diseased within five years after completion of construction will be replaced in the first available planting season with stock of the same species and size as that originally planted unless otherwise agreed with the Local Planning Authority.

6.1.19 Section 3 (Site Specific Measures) of the CoCP Part B, contains site specific measures relevant to avoiding the loss of habitat, reinstating, and management of habitats such as:

- Reinstatement and planting of ditches, invasive non-native species management, translocation of plant material from the ditches and reedbed on the River Cam to the new ditches created in the area within the Work. No 39, of the Treated effluent and storm pipelines and outfall to the River Cam.

- Reinstatement of hedgerows and trees on a like for like basis on the Waterbeach pipeline.

6.1.20 The CoCP Part B contains a series of location specific measures relating to the safeguarding of habitats and wildlife. Annex 1 of the CoCP Part B details the approach to avoiding habitat loss and reinstating habitats. It includes limits to the crossing widths through the retained hedge and ditch within the LERMP area to 2 (Nos) 8m section in construction, reducing to 3m each once the LERMP and landscape masterplan are implemented.

Net gain strategy – river and reedbed units

6.1.21 Compensatory habitat indicated in Works No. 39 (as shown on Works Plan Sheet 2 (App Doc Ref 4.3) will also provide a BNG function. This is outlined in Appendix C which sets out the strategy for river and reedbed unit gain. This will involve the creation of additional extents of ditch habitat within the Scheme Order Limits and the creation or enhancement of river habitat through funding off-site habitat creation/ restoration initiatives (preferably on the River Cam or within the Cam Lower Operational Catchment). This will either be from a supplier of BNG units or the habitat creation will be funded directly to generate the units. This will be secured through Requirement 25 of the Draft DCO (App Doc Ref 2.1).

6.1.22 Generating high distinctiveness river units within the Scheme Order Limits is not viable due to the constrained nature of the River Cam in this area.

7 Monitoring and Management

7.1.1 Biodiversity Metric 3.0 requires the consideration of long-term delivery of the measures to achieve net gain.

7.1.2 BNG will be secured and delivered through Requirement 25 of the Draft DCO (App Doc Ref 2.1), which states under 25(1), (2), and (2c) that no phase of the authorised development is to be commenced until an updated biodiversity net gain report has been submitted to and approved by the relevant planning authority. The updated biodiversity net gain report submitted for approval must include details of the habitat management and monitoring of the biodiversity net gain for the whole of the authorised development. The updated BNG Report will include details of the habitat management and monitoring of the BNG for the whole of the authorised development. It will include additional detail including planned management activities and the link to the habitat and condition targets and a 30-year monitoring schedule. It will signpost out to linked documents that also cover habitat management and monitoring across the authorised development.

7.1.3 The LERMP (Appendix 8.14, App Doc Ref 5.4.8.14) forms the main mechanism for delivering net gain, the LERMP focuses on the delivery of long-term management and monitoring of created or enhanced habitats within the landscape masterplan/proposed WWTP. This includes detailed management and maintenance information for years 1-5 (including frequency and timing of measures) with a commitment to review maintenance and management regimes every five years. This will be secured through Schedule 2 Requirement 11 of the Draft DCO (App Doc Ref 2.1) for the proposed WWTP which requires the Applicant to implement the 30-year Landscape Masterplan and the LERMP (Appendix 8.14, App Doc Ref 5.4.8.14).

7.1.4 For off-site river units the mechanism for delivery is not yet confirmed, but the approach has been outlined in Appendix C of this report. Off-site river units will likely be covered by a habitat management and monitoring plan produced by the off-site provider, this will also be detailed in the updated BNG report prior to the commencement of any phase of the authorised development. For habitat created as part of the water vole compensation, the Natural England conservation licence will place an ongoing obligation on The Applicant to monitor the habitat for a period of five years and to ensure that the habitat is suitable for its intended purpose. However, for BNG purposes this will need to be managed for a minimum of 30 years. This will be ensured in the same way as the river units from the River Cam as outlined above.

7.1.5 The Outfall Management and Monitoring Plans (OMMPs) will also provide a monitoring programme for habitats (ditches and reedbed) listed in the Outline River and Reedbeds Units Net Gain Strategy (Appendix C). The OMMPs are detailed in the Outline Outfall Management and Monitoring Plan (App Doc Ref 5.4.8.24).

7.1.6   Table 7-1Table 7-1 summarises the various elements of the Proposed Development and how The Applicant intends to secure and monitor features contributing to BNG over the operational lifetime of 30 years.

Table 7-1: Summary of future monitoring mechanisms to implement and monitor created and reinstated habitats as part of the Proposed Development

Aspect of Proposed Development	Habitat types	Monitoring	Duration of monitoring	Approving mechanism	Secured by
Habitat creation as part of the Landscape Masterplan	Various (see LERMP (Appendix 8.14, App Doc Ref 5.4.8.14, Figure 3.9 and Figure 3.10)	As set out within Section 4 of the LERMP (Indicative Creation, Management, and Maintenance Plan) (Appendix 8.14, App Doc Ref 5.4.8.14)	30 years	A detailed landscape ecological and recreational management plan ('detailed LERMP') has to be submitted to and approved by the relevant planning authority prior to the start of works	Schedule 2 Requirement 11 of the Draft DCO (App Doc Ref 2.1) Schedule 2 Requirement 25 of the Draft DCO (App Doc Ref 2.1)
Land temporarily required for construction of Waterbeach pipeline, transfer tunnel, treated effluent pipelines	Dominated by cereal crops. Reinstated hedgerows, trees, ditch. Various other habitats, e.g. other neutral grassland, modified grassland	CoCP Part A (Appendix 2.1, App Doc Ref 5.4.2.1) Section 7.2 requirements CoCP Part B (Appendix 2.2, App Doc Ref 5.4.2.2) Section 3.1, 3.3, 3.4 and 3.5 requirements	5 years	A construction environmental management plan for the phase is to be submitted to and approved by the relevant planning authority	Schedule 2 Requirement 8 of the Draft DCO (App Doc Ref 2.1) Schedule 2 Requirement 25 of the Draft DCO (App Doc Ref 2.1)

Aspect of Proposed Development	Habitat types	Monitoring	Duration of monitoring	Approving mechanism	Secured by
Land required for the outfall and river bank protection works	River Ditch Reedbed Grassland Bramble scrub	Section 7 of the outline Outfall Management and Monitoring Plan (App Doc Ref 5.4.8.24) Updated BNG report	30 years	No phase of the authorised development is to be commenced until an updated biodiversity net gain report has been submitted to and approved by the relevant planning authority. A detailed construction outfall management and monitoring plan to be submitted to and approved by the relevant planning authority prior to the start of works. A detailed operation outfall management and monitoring plan to be submitted to and approved by the relevant planning authority prior to the start of operation.	Schedule 2 Requirement 10 of the Draft DCO (App Doc Ref 2.1) Schedule 2 Requirement 25 of the Draft DCO (App Doc Ref 2.1)
Ditch creation for water vole habitat mitigation	Wet ditch	Conservation Licence specifications (Water Vole Natural England Ghost Licence	30 years for BNG (5 years for	A construction environmental management plan for the	Schedule 2 Requirement 10 of the Draft

Aspect of Proposed Development	Habitat types	Monitoring	Duration of monitoring	Approving mechanism	Secured by
		Method Statement, Appendix 8.22, App Doc Ref 5.4.8.22) and as set out within section 7 of the outline Outfall Management and Monitoring Plan (App Doc Ref 5.4.8.24)	licence condition)	phase is to be submitted to and approved by the relevant planning authority A conservation licence must be in place prior to the start of works.	DCO (App Doc Ref 2.1)
Measures specified in the Outline River and Reedbed Units Net Gain Strategy (Appendix C)	Off-site river units	Updated BNG report	Expected to be 30 years for created habitat	No phase of the authorised development is to be commenced until an updated biodiversity net gain report has been submitted to and approved by the relevant planning authority.	Schedule 2 Requirement 25 of the Draft DCO (App Doc Ref 2.1)
Measures specified in the Outline River and Reedbed Units Net Gain Strategy (Appendix C)	Ditches Reedbed Other neutral grassland surrounding the ditches.	Section 7 of the outline Outfall Management and Monitoring Plan (App Doc Ref 5.4.8.24) Updated BNG report	Expected to be 30 years for created habitat	No phase of the authorised development is to be commenced until an updated biodiversity net gain report has been submitted to and approved by the relevant planning authority. A detailed construction outfall management and	Schedule 2 Requirement 10 of the Draft DCO (App Doc Ref 2.1) Schedule 2 Requirement 25 of the Draft DCO (App Doc Ref 2.1)

Aspect of Proposed Development	Habitat types	Monitoring	Duration of monitoring	Approving mechanism	Secured by
				monitoring plan to be submitted to and approved by the relevant planning authority prior to the start of works.	
				A detailed operation outfall management and monitoring plan to be submitted to and approved by the relevant planning authority prior to the start of operation.	

7.2 BNG Audit reporting

7.2.1 BNG will be secured and delivered through Requirement 25 of the Draft DCO (App Doc Ref 2.1), which states under 25(1), (2), and (2c) that no phase of the authorised development is to be commenced until an updated biodiversity net gain report has been submitted to and approved by the relevant planning authority. The updated biodiversity net gain report submitted for approval must include details of the habitat management and monitoring of the biodiversity net gain for the whole of the authorised development. The updated BNG Report will include details of the habitat management and monitoring of the BNG for the whole of the authorised development. It will include additional detail including planned management activities and the link to the habitat and condition targets and a 30 year monitoring schedule. It will signpost out to linked documents that also cover habitat management and monitoring across the authorised development.

8 Glossary

8.1.1 The following terms are used in relation to BNG, these are based on the terminology and descriptions used in the User Guide and Technical Supplement for Biodiversity Metric 3.0.

Term	Definition
Baseline value	This refers to the pre-development biodiversity value which is the biodiversity value when development permission is granted (on application or on appeal). In this case this would be at the point where the Development Consent Order (DCO) is granted.
Condition	The BNG metric calculations require that all land parcels undergo a condition assessment. This prescribed process is carried out by assessing a number of criteria, as defined in the habitat condition assessment sheets in the Technical Supplement for Biodiversity Metric 3.0. The criteria are habitat-specific, and are assessed as being either Good, Moderate, or Poor.
Distinctiveness	In the Biodiversity Metric 3.0 habitats are assigned to distinctiveness bands based on the following criteria: Total remaining amount of this habitat type in England (rarity) Proportion of habitat protected in Site of Special Scientific Interest (SSSI) (where less of this habitat type is protected in SSSI's, it is considered of higher distinctiveness) UK Priority Habitat Status (Priority Habitats are generally classed as High or Very High distinctiveness) European Red List Categories. Each habitat type is classified in the metric as being of Low, Medium, High or Very High distinctiveness.
Post-development value	The post-development biodiversity value of the onsite habitat is the projected value of the onsite habitat at the time the development is completed. This value can only be accepted if The Applicant can demonstrate that the gain will be maintained for at least 30 years after creation. This is through one of three options: a planning condition, a planning obligation, or a conservation covenant.
Trading rules	The metric includes rules in relation to replacement of existing habitat with a new habitat. These are termed trading rules whereby the replacement of lost habitat should be on a "like for like" or "like for better" basis in terms of distinctiveness, condition, and total units. The plan should include new or restored habitats that aim to achieve a higher distinctiveness and/or condition than the habitat to be lost.

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Appendices

Appendix A: BNG Figures

A.1 Figure A.1 Baseline Habitats

Legend

Scheme Order Limits

Broad Habitat Type
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native species rich hedgerow
- Hedge Ornamental Non Native
- Ditch
- Other river and stream
- Fence
- Ditches - watercourse footprint
- Developed land; sealed surface
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Mixed scrub
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other woodland; broadleaved
- Other rivers and streams - watercourse footprint
- Other woodland; mixed
- Ponds (Non- priority habitat)
- Ruderal/Ephemeral
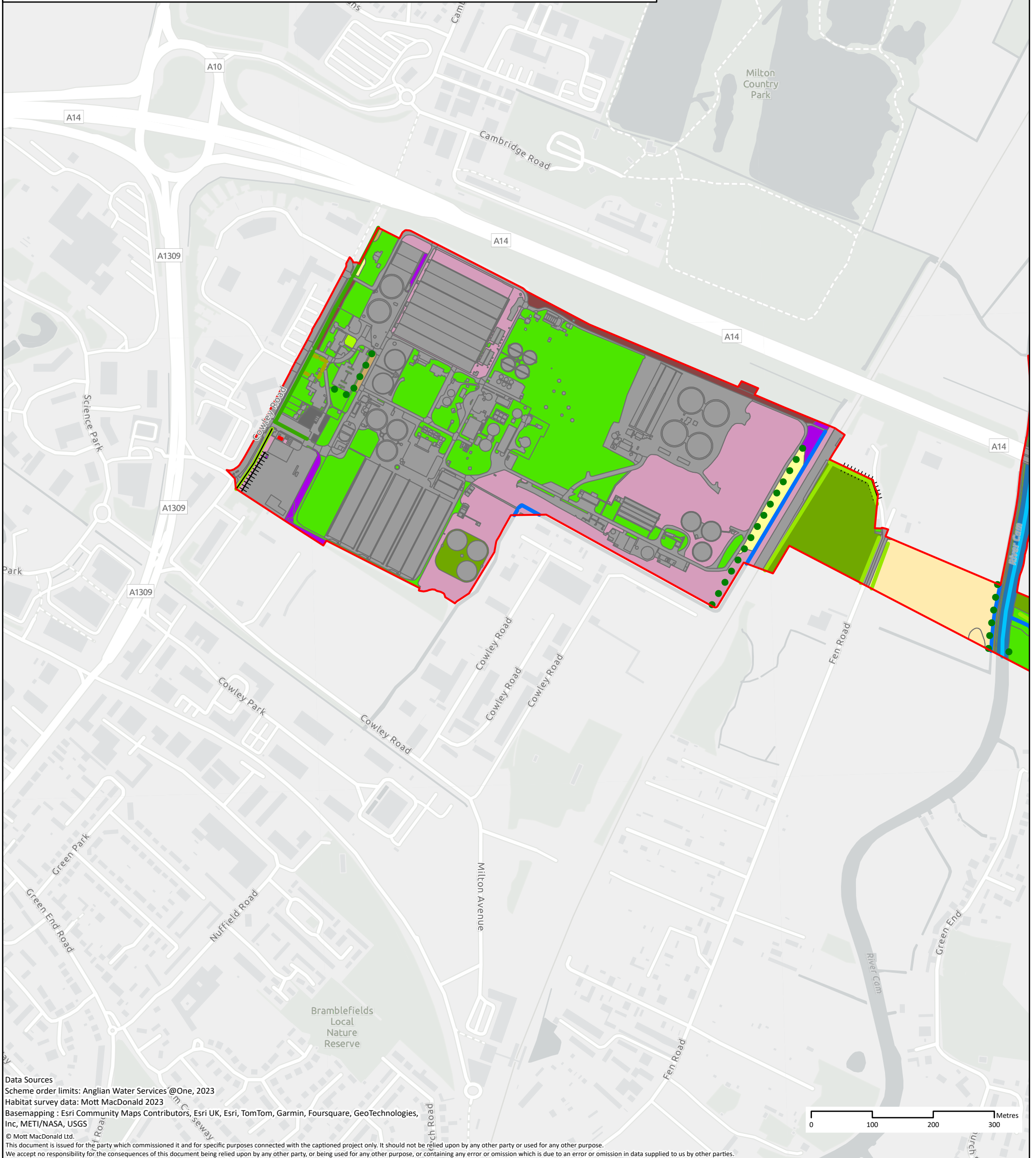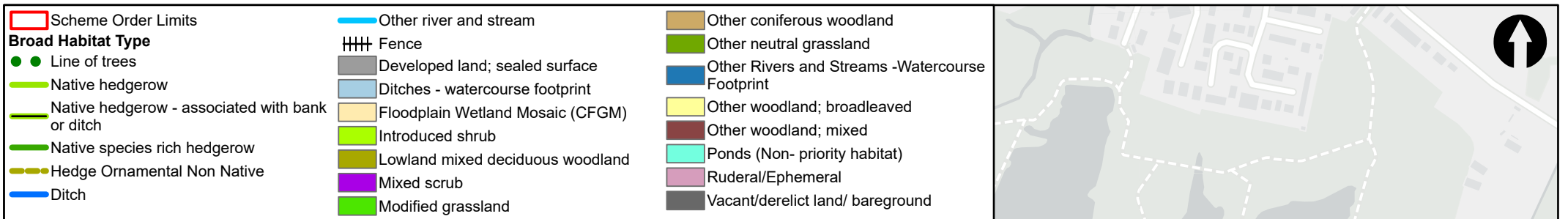- Vacant/derelict land/ bareground

Data Sources
Scheme order limits: Anglian Water Services @One, 2023
Habitat survey data: Mott MacDonald 2023
Basemapping :Contains OS data © Crown Copyright and database right 2023
Contains data from OS Zoomstack

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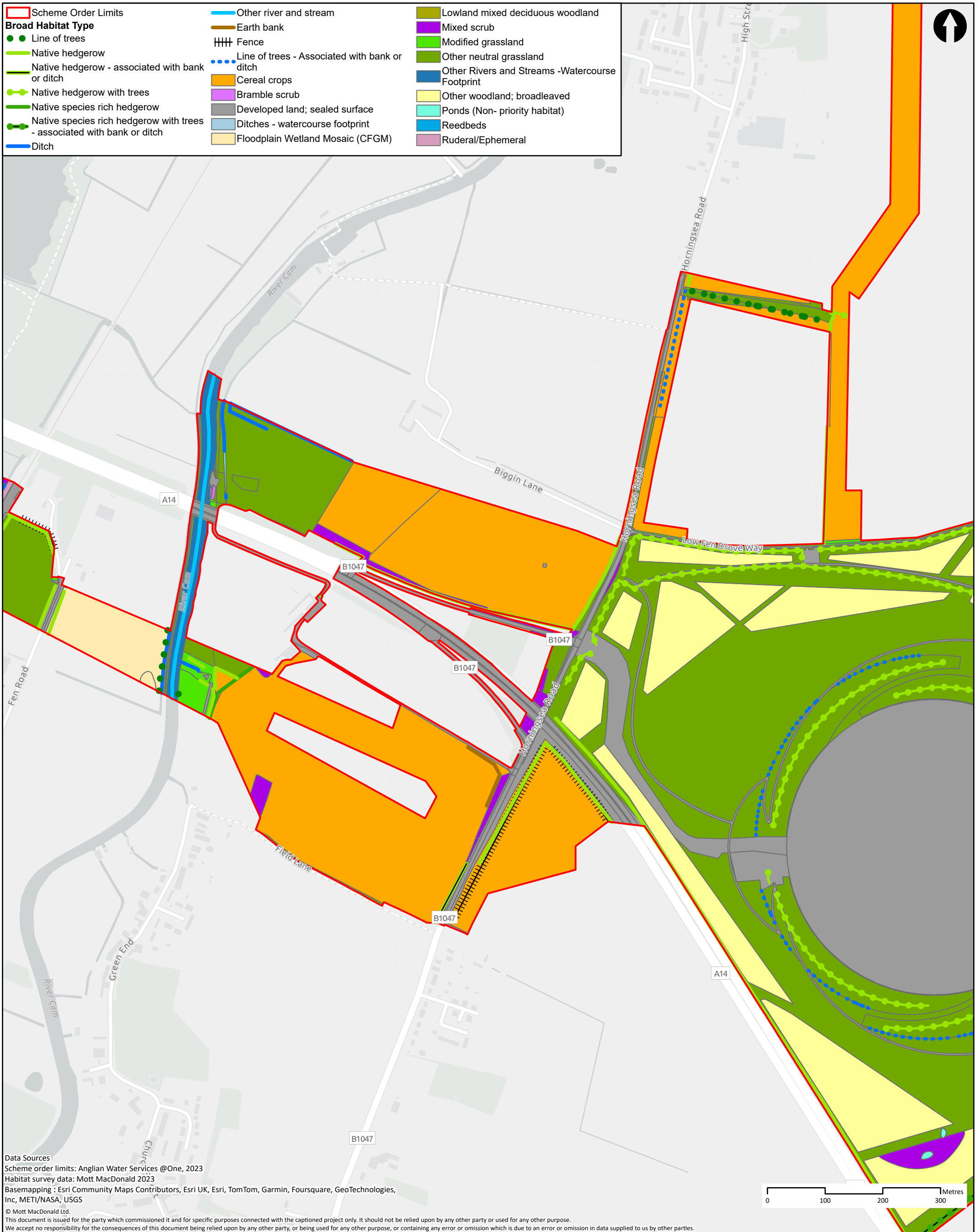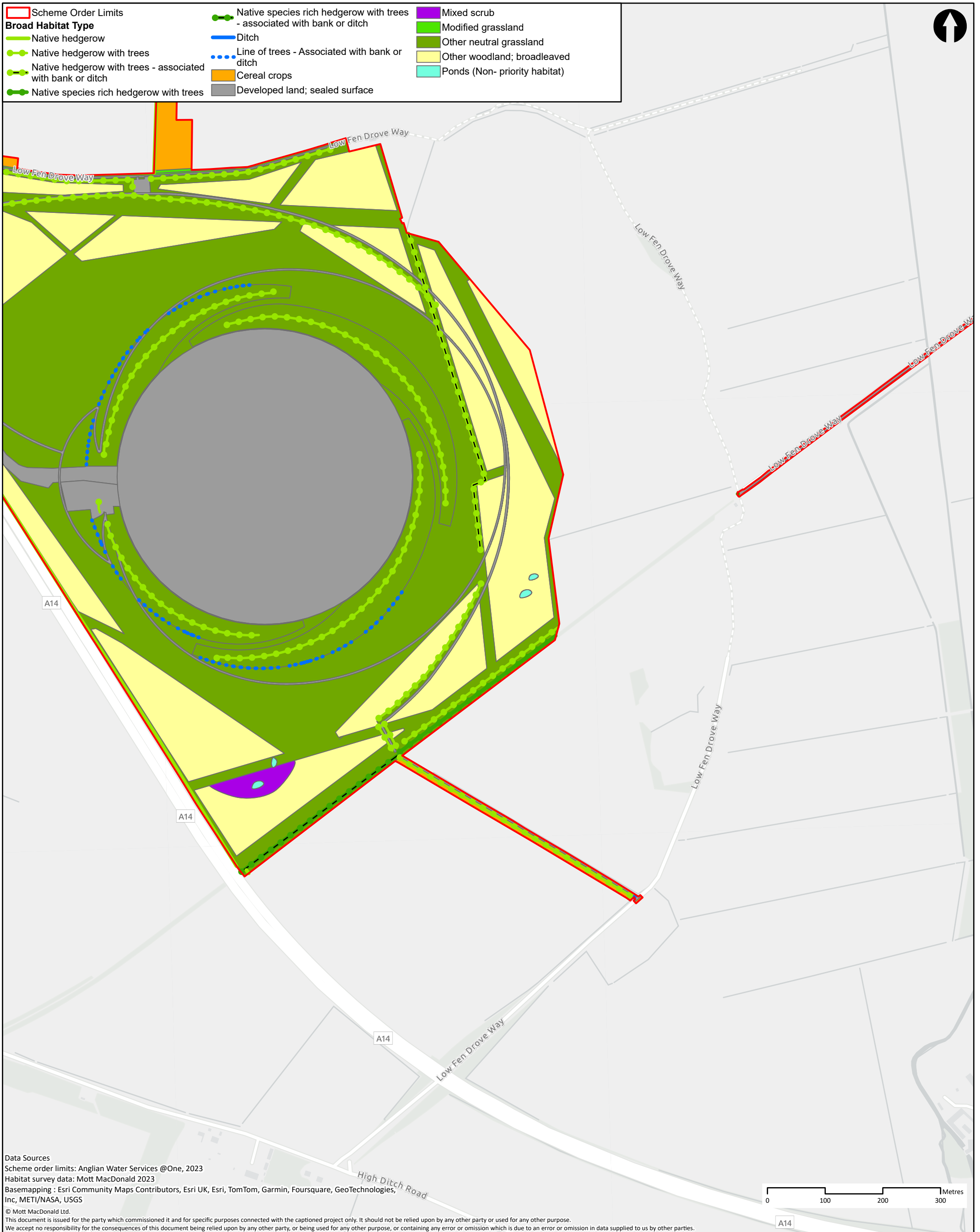
Metres
0   100   200   300

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P4	28/03/24	MP	Scheme Update	PH	TC

Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Baseline Metric Habitats
Sheet 1 of 7

Drawing Number
Figure A.1

Drawn	MP
Checked	PH
Approved	TC

Scale at A3
1:6,000

Security	Status	Rev
STD	PRE	P4

Scheme Order Limits

Broad Habitat Type
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Native species rich hedgerow
- Native species rich hedgerow with trees - associated with bank or ditch
- Ditch
- Other river and stream
- Earth bank
- Fence
- Cereal crops
- Ditches - watercourse footprint
- Developed land; sealed surface
- Floodplain Wetland Mosaic (CFGM)
- Lowland mixed deciduous woodland
- Mixed scrub
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Other rivers and streams - watercourse footprint
- Reedbeds
- Ruderal/Ephemeral
- Bramble scrub

Allotments

The Lock House

Biggin Abbey Cottages

A14

Thorn Bridge Farm

Horningsea Road

B1047

Play Space

Playing Field

Cemetery

Allotments

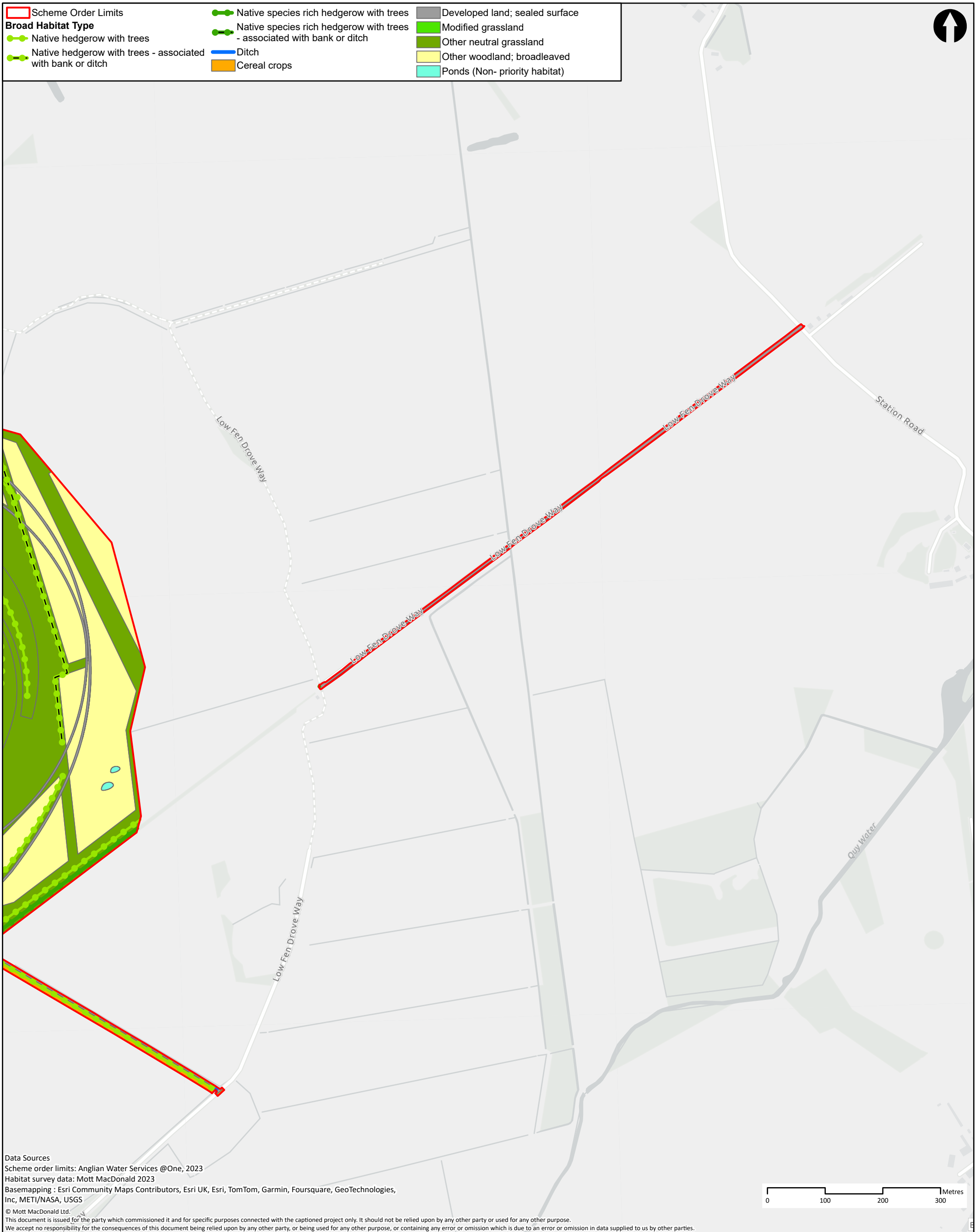Church Of St Mary The Virgin

0	100	200	300

Metres

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Title	Drawn	MP
Cambridge Waste Water Treatment Plant Relocation Project Biodiversity Net Gain Baseline Metric Habitats Sheet 2 of 7	Checked	PH
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Rev	Date	Drawn	Description	Ch'k'd	App'd
P3	29/11/23	MP	Scheme Update	PH	TC
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Drawing Number	Security	Status	Rev
Figure A.1	STD	PRE	P4

Legend — Broad Habitat Type

- Scheme Order Limits
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees - associated with bank or ditch
- Native species rich hedgerow with trees
- Native species rich hedgerow with trees - associated with bank or ditch
- Ditch
- Cereal crops
- Developed land; sealed surface
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Ruderal/Ephemeral

Black Ditch

Chapman's P

High Ditch Rd

A14

A14

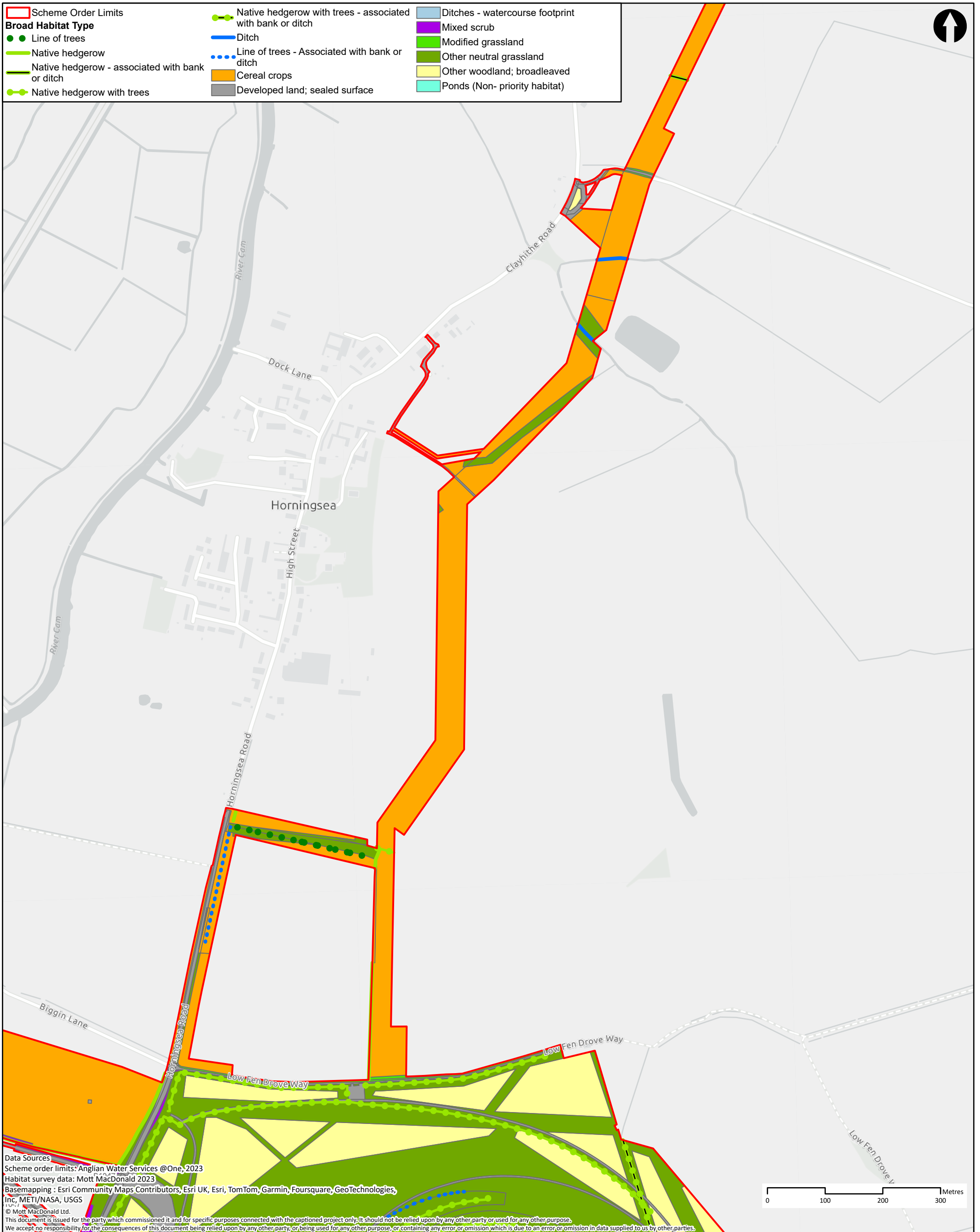High Ditch Rd

Hardwick House

Quy

0 100 200 300 Metres

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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Baseline Metric Habitats
Sheet 3 of 7

Drawing Number
Figure A.1

Drawn	MP
Checked	PH
Approved	TC

Scale at A3
1:6,000

Security	Status	Rev
STD	PRE	P4

Legend

Scheme Order Limits

Broad Habitat Type

- Native hedgerow with trees - associated with bank or ditch
- Native species rich hedgerow with trees
- Ditch
- Cereal crops
- Developed land; sealed surface
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved

Allicky Farm

Three Cornered Plantation

in Pin Plantation

Station House

Black Ditch

Quy Ha

Dean Plantation

Chapman's Plantation

Metres
0   100   200   300

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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Baseline Metric Habitats
Sheet 4 of 7

Drawn	MP
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Rev	Date	Drawn	Description	Ch'k'd	App'd
P3	29/11/23	MP	Scheme Update	PH	TC
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Drawing Number

Figure A.1

Security	Status	Rev
STD	PRE	P4

Legend

- Scheme Order Limits

Broad Habitat Type
- ● ● Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Native hedgerow with trees - associated with bank or ditch
- Ditch
- Cereal crops
- Ditches - watercourse footprint
- Developed land; sealed surface
- Mixed scrub
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Ruderal/Ephemeral

Milton Fen

St Peter's Church

Horningsea

High St

Clayhill

Allotments

Biggin Pin Plantation

Metres
0   100   200   300

		22 Station Road	Client				Title	Cambridge Waste Water Treatment Plant Relocation Project Biodiversity Net Gain Baseline Metric Habitats Sheet 5 of 7	Drawn	MP
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									Approved	TC
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			Rev	Date	Drawn	Description	Ch'k'd	App'd	Drawing Number		Security	Status	Rev
			P3	29/11/23	MP	Scheme Update	PH	TC	Figure A.1		STD	PRE	P4
			P4	28/03/24	MP	Scheme Update	PH	TC					

Legend — Broad Habitat Type

- Scheme Order Limits
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Ditch
- Other river and stream
- Cereal crops
- Ditches - watercourse footprint
- Developed land; sealed surface
- Introduced shrub
- Lowland mixed deciduous woodland
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Other rivers and streams - watercourse footprint
- Reedbeds
- Vacant/derelict land/ bareground

Allotments

Northfields Farm Cottages

Play Space

Clayhithe Rd

Cow Hollow Wood

Clayhithe Rd

Clayhithe

River Cam

Clayhithe Rd

Mulberry House Farm

Eye Hall Farm

Metres
0   100   200   300

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Title

Cambridge Waste Water Treatment Plant
Relocation Project
Biodiversity Net Gain
Baseline Metric Habitats
Sheet 6 of 7

Drawn	MP
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Approved	TC

Scale at A3

1:6,000

Drawing Number

Figure A.1

Security	Status	Rev
STD	PRE	P4

Legend

Scheme Order Limits
Broad Habitat Type
- Line of trees
- Native hedgerow
- Native hedgerow with trees
- Ditch
- Other river and stream
- Cereal crops
- Ditches - watercourse footprint
- Developed land; sealed surface
- Modified grassland
- Other neutral grassland
- Other rivers and streams - watercourse footprint
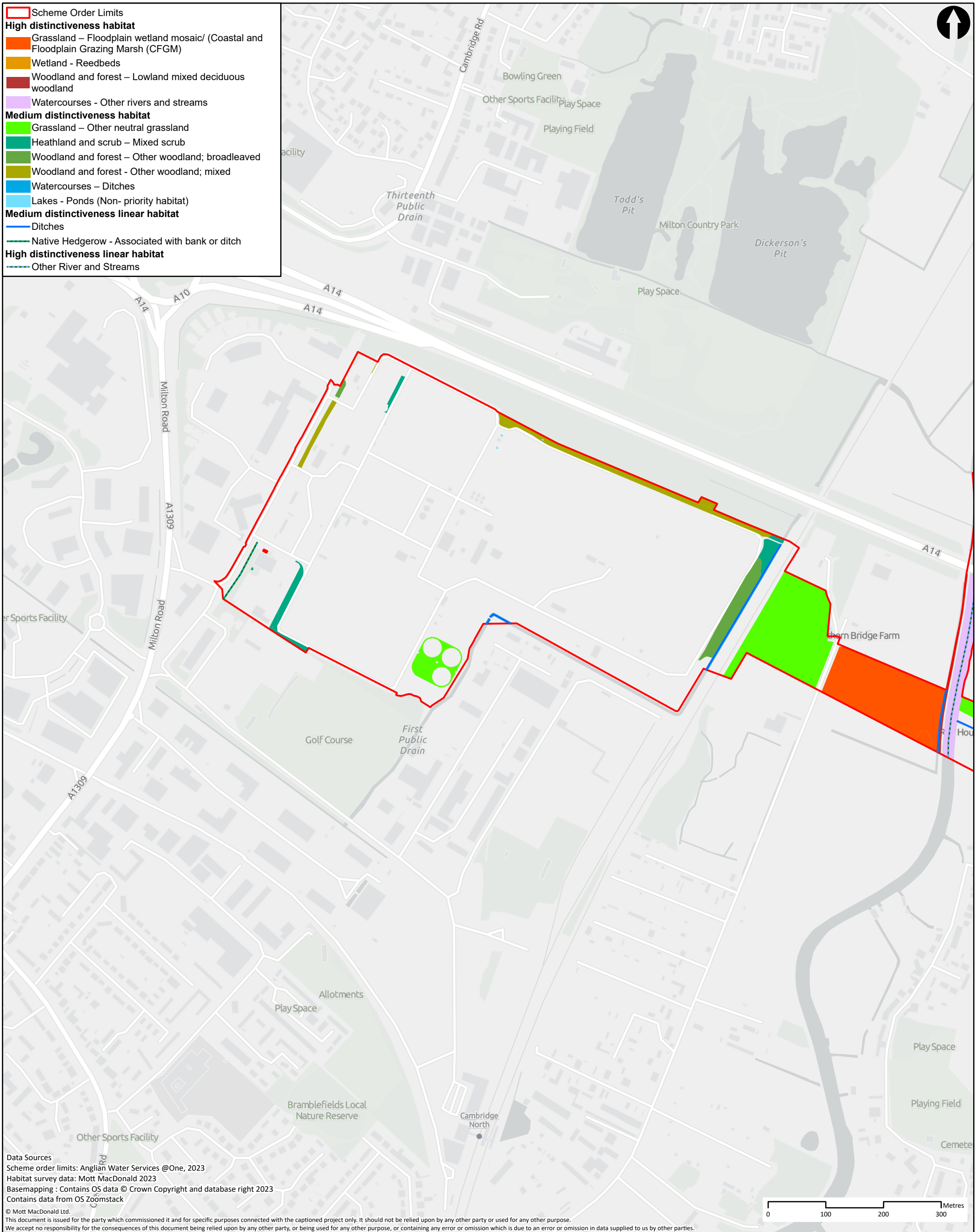- Reedbeds
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

Data Sources
Scheme order limits: Anglian Water Services @One, 2023
Habitat survey data: Mott MacDonald 2023
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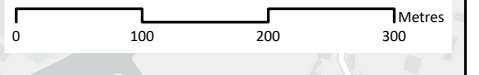
MOTT MACDONALD	22 Station Road Cambridge CB1 2JD United Kingdom T +44 (0)20 8774 2000 F +44 (0)20 8681 5706 W mottmac.com	Client **love every drop anglianwater**	Title **Cambridge Waste Water Treatment Plant Relocation Project Biodiversity Net Gain Baseline Metric Habitats Sheet 7 of 7**	Drawn MP	
				Checked PH	
				Approved TC	
				Scale at A3 1:6,000	

Rev	Date	Drawn	Description	Ch'k'd	App'd
P3	29/11/23	MP	Scheme Update	PH	TC
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Drawing Number	Security	Status	Rev
Figure A.1	STD	PRE	P4

A.2   Figure A.2 Proposed Habitats

Legend

Broad Habitat Type

- Scheme Order Limits
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native species rich hedgerow
- Hedge Ornamental Non Native
- Ditch
- Other river and stream
- Fence
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Mixed scrub
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Other woodland; mixed
- Ponds (Non- priority habitat)
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

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Title

Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Proposed Metric Habitats
Sheet 1 of 7

Drawing Number

Figure A.2

Drawn	MP
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Approved	TC

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Security	Status	Rev
STD	PRE	P4

Scheme Order Limits

Broad Habitat Type

- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Native species rich hedgerow
- Native species rich hedgerow with trees - associated with bank or ditch
- Ditch
- Other river and stream
- Earth bank
- Fence
- Line of trees - Associated with bank or ditch
- Cereal crops
- Bramble scrub
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Lowland mixed deciduous woodland
- Mixed scrub
- Modified grassland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Ponds (Non- priority habitat)
- Reedbeds
- Ruderal/Ephemeral

Map labels: River Cam, A14, B1047, Biggin Lane, Horningsea Road, Low Fen Drove Way, Fen Road, Field Lane, Green End, Church, High Str

Scale bar: 0 100 200 300 Metres

Title					Drawn	MP
Cambridge Waste Water Treatment Plant Relocation Project					Checked	PB
Biodiversity Net Gain					Approved	TC
Proposed Metric Habitats					Scale at A3	
Sheet 2 of 7					1:6,000	

Rev	Date	Drawn	Description	Ch'k'd	App'd
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Drawing Number	Security	Status	Rev
Figure A.2	STD	PRE	P4

Legend — Broad Habitat Type

- Scheme Order Limits
- Native hedgerow
- Native hedgerow with trees
- Native hedgerow with trees - associated with bank or ditch
- Native species rich hedgerow with trees
- Native species rich hedgerow with trees - associated with bank or ditch
- Ditch
- Line of trees - Associated with bank or ditch
- Cereal crops
- Developed land; sealed surface
- Mixed scrub
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Ponds (Non- priority habitat)

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Biodiversity Net Gain
Proposed Metric Habitats
Sheet 3 of 7

Drawing Number: Figure A.2

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P3	30/11/23	MP	Scheme Update	PH	TC
P4	27/03/24	MP	Scheme Update	PH	TC

Legend

Scheme Order Limits

Broad Habitat Type
- Native hedgerow with trees
- Native hedgerow with trees - associated with bank or ditch
- Native species rich hedgerow with trees
- Native species rich hedgerow with trees - associated with bank or ditch
- Ditch
- Cereal crops
- Developed land; sealed surface
- Modified grassland
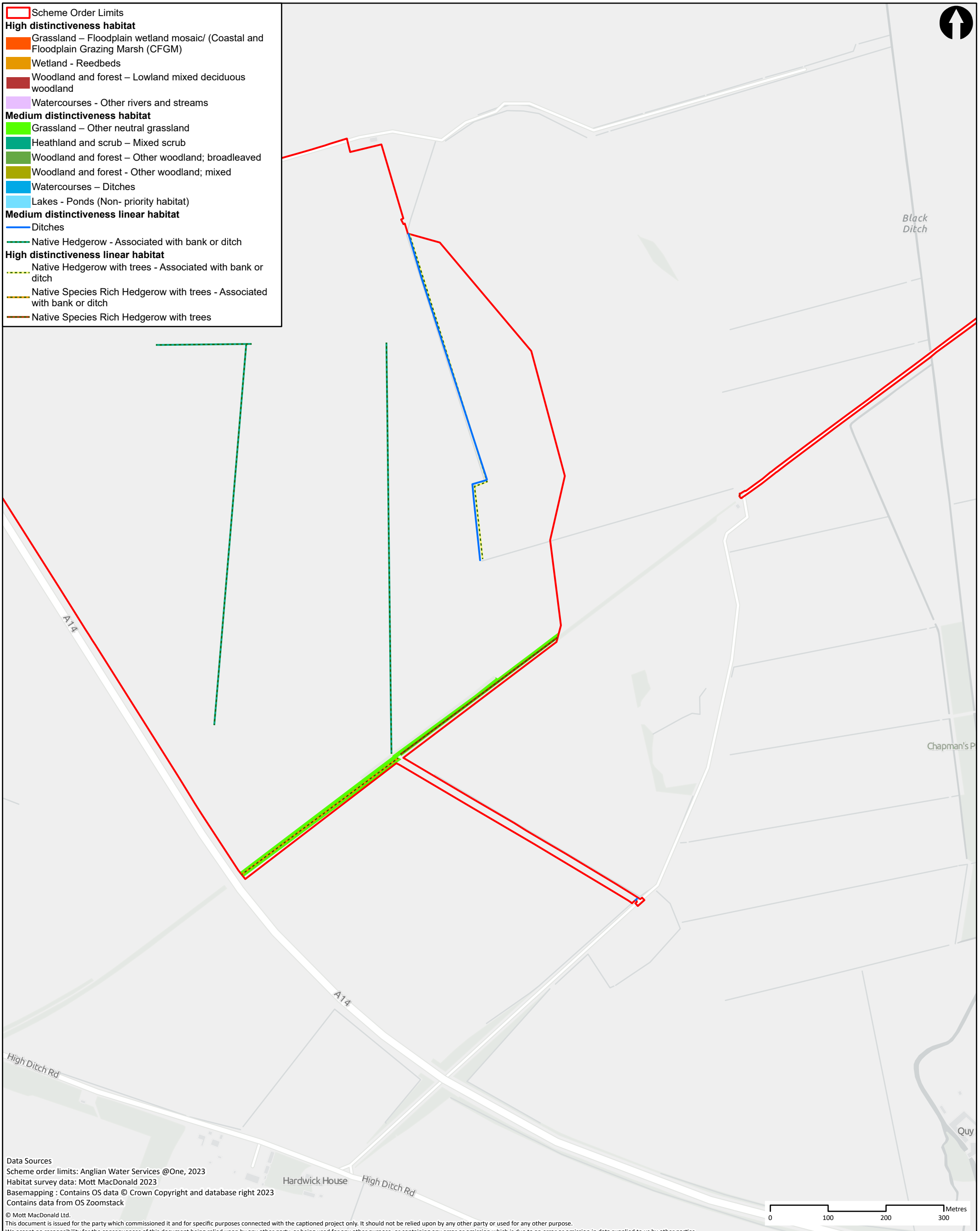- Other neutral grassland
- Other woodland; broadleaved
- Ponds (Non- priority habitat)

Data Sources
Scheme order limits: Anglian Water Services @One, 2023
Habitat survey data: Mott MacDonald 2023
Basemapping : Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS
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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Proposed Metric Habitats
Sheet 4 of 7

Drawing Number
Figure A.2

Drawn	MP
Checked	PB
Approved	TC

Scale at A3
1:6,000

Security	Status	Rev
STD	PRE	P4

Legend — Broad Habitat Type

- Scheme Order Limits
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Native hedgerow with trees - associated with bank or ditch
- Ditch
- Line of trees - Associated with bank or ditch
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Mixed scrub
- Modified grassland
- Other neutral grassland
- Other woodland; broadleaved
- Ponds (Non- priority habitat)

Data Sources
Scheme order limits: Anglian Water Services @One, 2023
Habitat survey data: Mott MacDonald 2023
Basemapping : Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies,
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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Proposed Metric Habitats
Sheet 5 of 7

Drawing Number
Figure A.2

Drawn	MP
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1:6,000

Security	Status	Rev
STD	PRE	P4

Legend — Broad Habitat Type

- Scheme Order Limits
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Ditch
- Other river and stream
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Introduced shrub
- Lowland mixed deciduous woodland
- Modified grassland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Ponds (Non- priority habitat)
- Reedbeds
- Vacant/derelict land/ bareground

Clayhithe

Metres
0 100 200 300

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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Proposed Metric Habitats
Sheet 6 of 7

Drawn	MP
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Approved	TC

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Drawing Number
Figure A.2

Security	Status	Rev
STD	PRE	P4

Figure A.2 — Cambridge Waste Water Treatment Plant Relocation Project — Biodiversity Net Gain — Proposed Metric Habitats — Sheet 7 of 7

Legend

Scheme Order Limits

Broad Habitat Type
- ● ● Line of trees
- Native hedgerow
- Native hedgerow with trees
- Ditch
- Other river and stream
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Modified grassland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Ponds (Non- priority habitat)
- Reedbeds
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

0 100 200 300 Metres

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Title
Cambridge Waste Water Treatment Plant
Relocation Project
Biodiversity Net Gain
Proposed Metric Habitats
Sheet 7 of 7

Drawing Number
Figure A.2

Drawn	MP
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Approved	TC

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1:6,000

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STD	PRE	P4

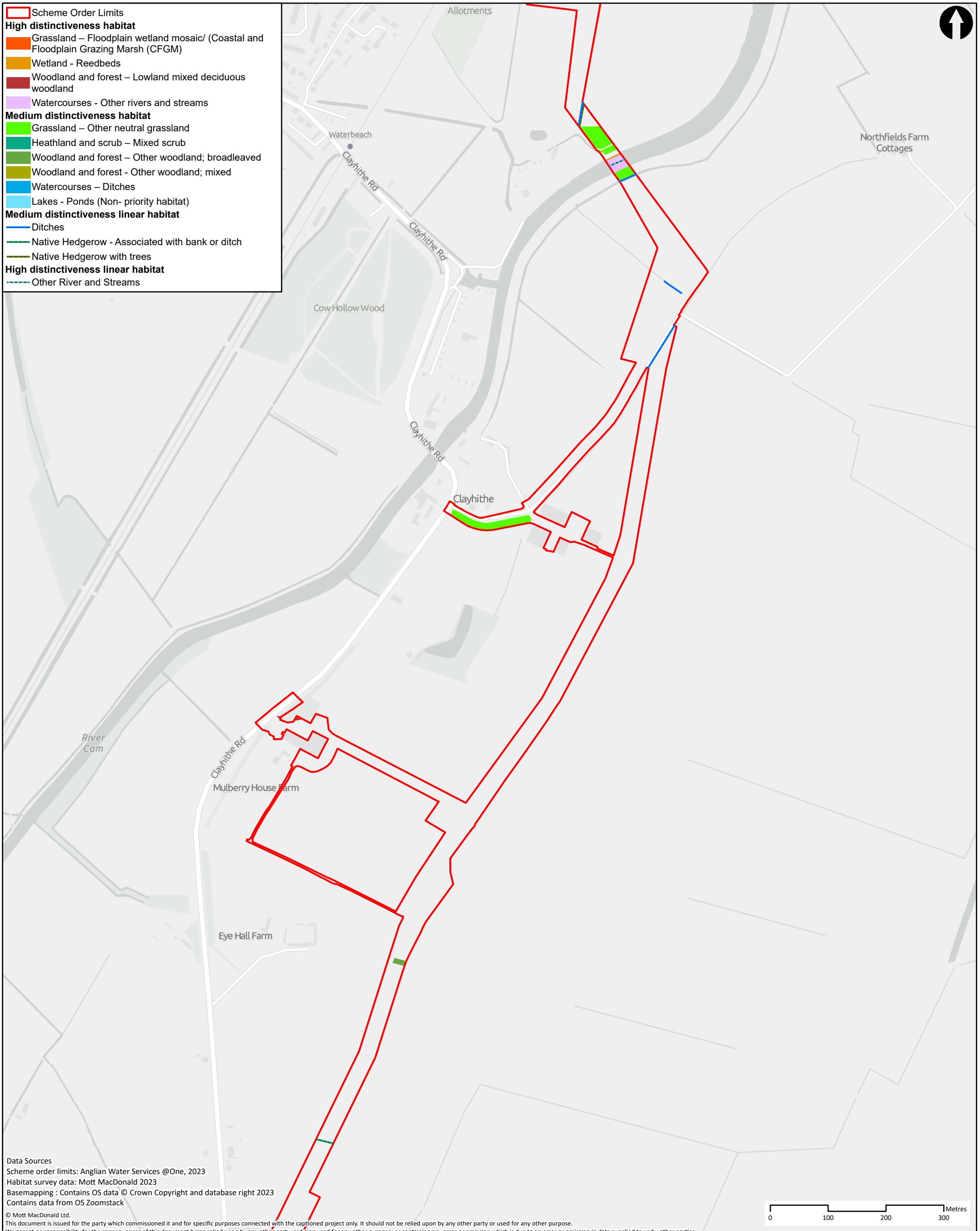## A.3   Figure A.3 Map of the High and Medium Distinctiveness Baseline Habitats

Legend

Scheme Order Limits

High distinctiveness habitat

- Grassland – Floodplain wetland mosaic/ (Coastal and Floodplain Grazing Marsh (CFGM)
- Wetland - Reedbeds
- Woodland and forest – Lowland mixed deciduous woodland
- Watercourses - Other rivers and streams

Medium distinctiveness habitat

- Grassland – Other neutral grassland
- Heathland and scrub – Mixed scrub
- Woodland and forest – Other woodland; broadleaved
- Woodland and forest - Other woodland; mixed
- Watercourses – Ditches
- Lakes - Ponds (Non- priority habitat)

Medium distinctiveness linear habitat

- Ditches
- Native Hedgerow - Associated with bank or ditch

High distinctiveness linear habitat

- Other River and Streams

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	Drawn	MP
Title	Checked	PH
Cambridge Waste Water Treatment Plant Relocation Project Biodiversity Net Gain High and medium distinctiveness habitats: Sheet 1 of 7	Approved	TC
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Drawing Number	Security	Status	Rev
Figure A.3	STD	PRE	P4

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Figure A.3 — Cambridge Waste Water Treatment Plant Relocation Project. Biodiversity Net Gain. High and medium distinctiveness habitats: Sheet 2 of 7

Scheme Order Limits

High distinctiveness habitat
- Grassland – Floodplain wetland mosaic/ (Coastal and Floodplain Grazing Marsh (CFGM)
- Wetland - Reedbeds
- Woodland and forest – Lowland mixed deciduous woodland
- Watercourses - Other rivers and streams

Medium distinctiveness habitat
- Grassland – Other neutral grassland
- Heathland and scrub – Mixed scrub
- Woodland and forest – Other woodland; broadleaved
- Woodland and forest - Other woodland; mixed
- Watercourses – Ditches
- Lakes - Ponds (Non- priority habitat)

Medium distinctiveness linear habitat
- Ditches
- Native Hedgerow - Associated with bank or ditch
- Native Hedgerow with trees

High distinctiveness linear habitat
- Other River and Streams
- Native Species Rich Hedgerow with trees - Associated with bank or ditch
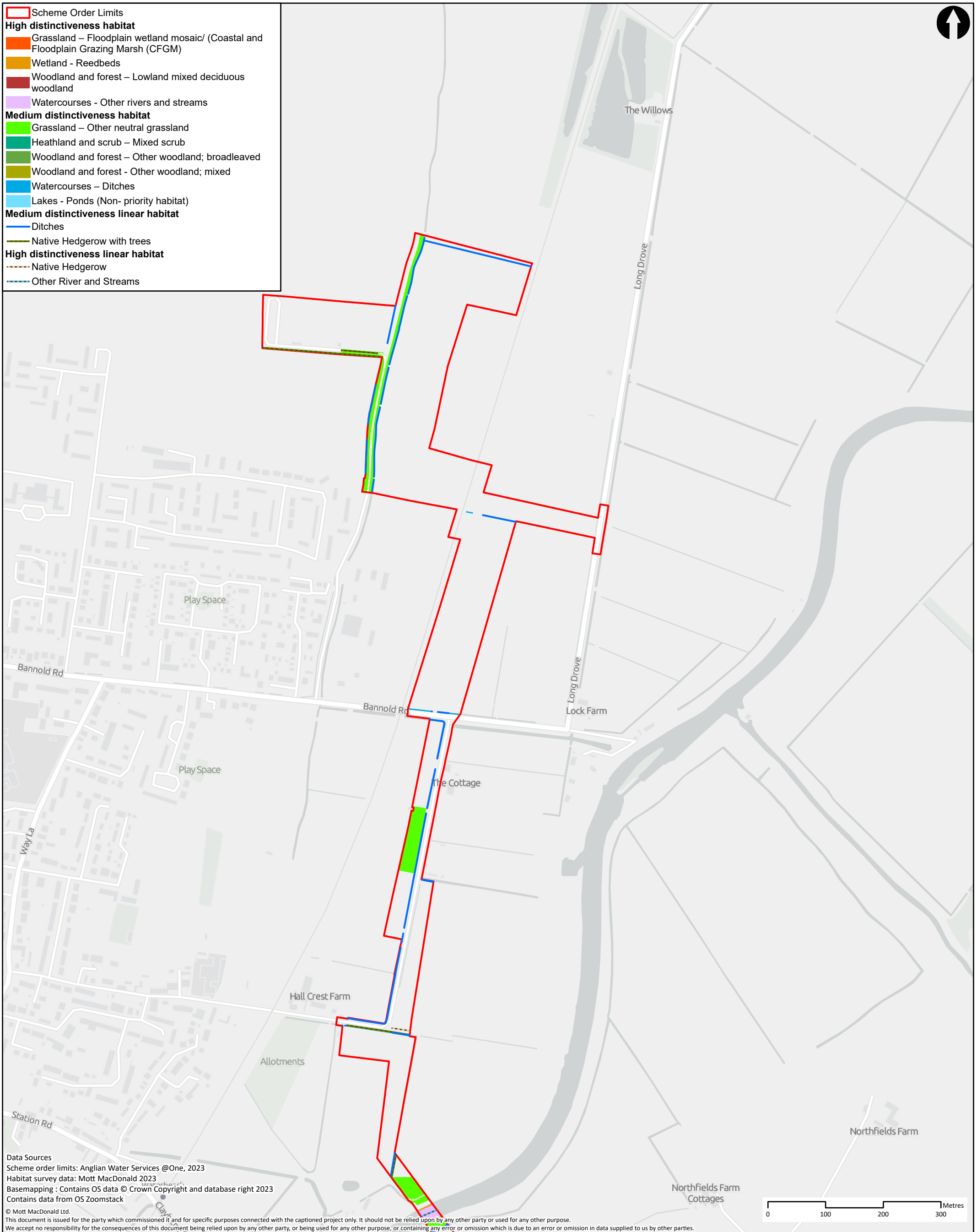- Native Species Rich Hedgerow

Data Sources
Scheme order limits: Anglian Water Services @One, 2023
Habitat survey data: Mott MacDonald 2023
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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
High and medium distinctiveness habitats: Sheet 2 of 7

Drawing Number
Figure A.3

Drawn	MP
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Scale at A3
1:6,000

Security	Status	Rev
STD	PRE	P4

Legend:

Scheme Order Limits

High distinctiveness habitat
- Grassland – Floodplain wetland mosaic/ (Coastal and Floodplain Grazing Marsh (CFGM)
- Wetland - Reedbeds
- Woodland and forest – Lowland mixed deciduous woodland
- Watercourses - Other rivers and streams

Medium distinctiveness habitat
- Grassland – Other neutral grassland
- Heathland and scrub – Mixed scrub
- Woodland and forest – Other woodland; broadleaved
- Woodland and forest - Other woodland; mixed
- Watercourses – Ditches
- Lakes - Ponds (Non- priority habitat)

Medium distinctiveness linear habitat
- Ditches
- Native Hedgerow - Associated with bank or ditch

High distinctiveness linear habitat
- Native Hedgerow with trees - Associated with bank or ditch
- Native Species Rich Hedgerow with trees - Associated with bank or ditch
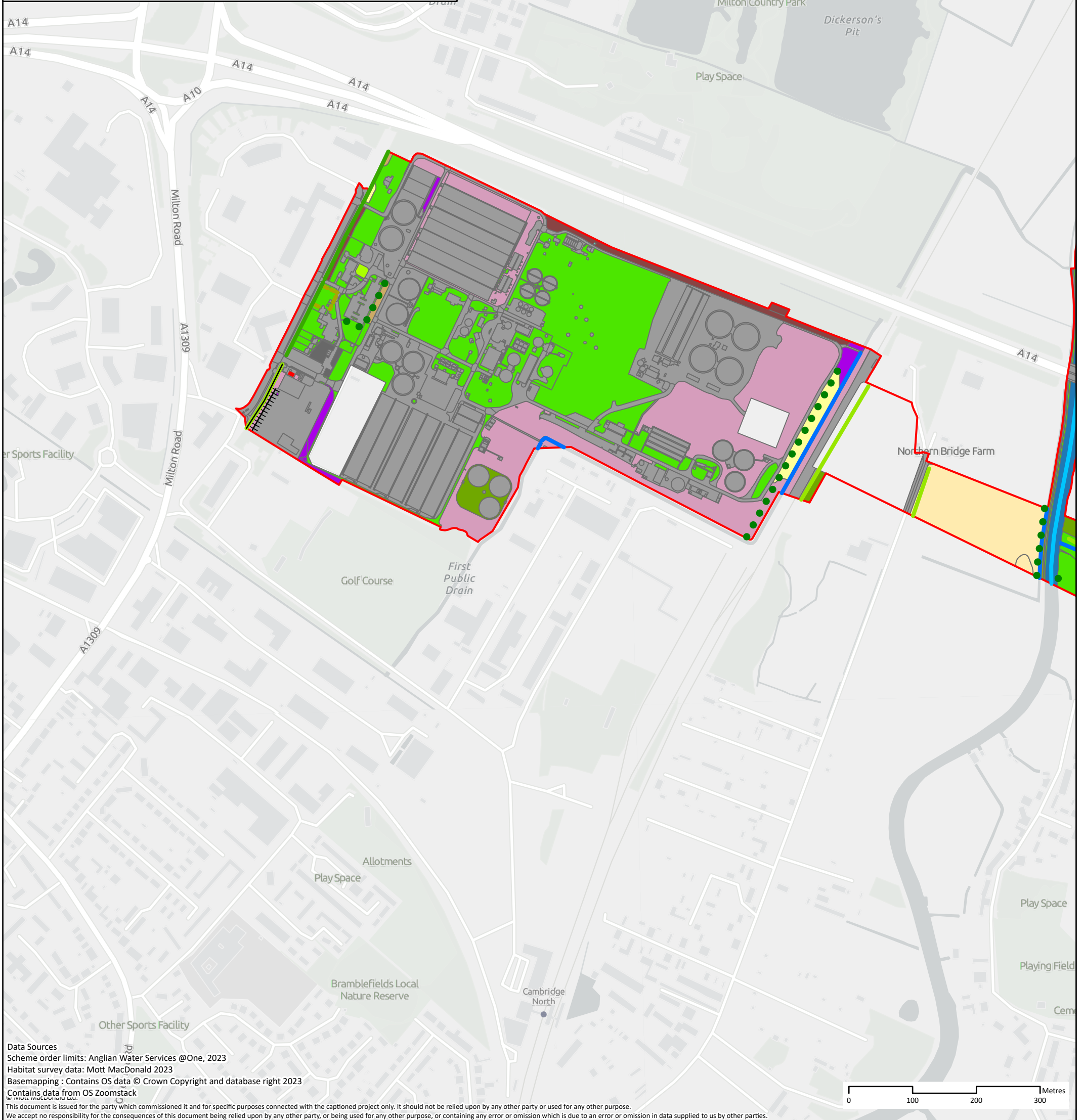- Native Species Rich Hedgerow with trees

Data Sources
Scheme order limits: Anglian Water Services @One, 2023
Habitat survey data: Mott MacDonald 2023
Basemapping : Contains OS data © Crown Copyright and database right 2023
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					Checked	PH
					Approved	TC
					Scale at A3 1:6,000	

Rev	Date	Drawn	Description	Ch'k'd	App'd
P3	29/11/23	MP	Scheme Update	PH	TC
P3	28/03/24	MP	Scheme Update	PH	TC

Drawing Number	Security	Status	Rev
Figure A.3	STD	PRE	P4

Legend

Scheme Order Limits

High distinctiveness habitat
- Grassland – Floodplain wetland mosaic/ (Coastal and Floodplain Grazing Marsh (CFGM)
- Wetland - Reedbeds
- Woodland and forest – Lowland mixed deciduous woodland
- Watercourses - Other rivers and streams

Medium distinctiveness habitat
- Grassland – Other neutral grassland
- Heathland and scrub – Mixed scrub
- Woodland and forest – Other woodland; broadleaved
- Woodland and forest - Other woodland; mixed
- Watercourses – Ditches
- Lakes - Ponds (Non- priority habitat)

Medium distinctiveness linear habitat
- Ditches

High distinctiveness linear habitat
- Native Hedgerow with trees - Associated with bank or ditch
- Native Species Rich Hedgerow with trees

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							Approved	TC
							Scale at A3 1:6,000	
Rev	Date	Drawn	Description	Ch'k'd	App'd	Drawing Number	Security STD	Status PRE	Rev P4
P3	29/11/23	MP	Scheme Update	PH	TC	Figure A.3			
P3	28/03/24	MP	Scheme Update	PH	TC				

Legend

Scheme Order Limits

High distinctiveness habitat
- Grassland – Floodplain wetland mosaic/ (Coastal and Floodplain Grazing Marsh (CFGM)
- Wetland - Reedbeds
- Woodland and forest – Lowland mixed deciduous woodland
- Watercourses - Other rivers and streams

Medium distinctiveness habitat
- Grassland – Other neutral grassland
- Heathland and scrub – Mixed scrub
- Woodland and forest – Other woodland; broadleaved
- Woodland and forest - Other woodland; mixed
- Watercourses – Ditches
- Lakes - Ponds (Non- priority habitat)

Medium distinctiveness linear habitat
- Ditches
- Native Hedgerow - Associated with bank or ditch
- Native Hedgerow with trees

High distinctiveness linear habitat
- Native Hedgerow with trees - Associated with bank or ditch

St Peter's Church
Horningsea
High St
Allotments
Horningsea Rd
Biggin Pin Plantation
Clayhithe

0   100   200   300   Metres

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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
High and medium distinctiveness habitats: Sheet 5 of 7

Drawn	MP
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Approved	TC

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Drawing Number
Figure A.3

Security	Status	Rev
STD	PRE	P4

Scheme Order Limits

High distinctiveness habitat
- Grassland – Floodplain wetland mosaic/ (Coastal and Floodplain Grazing Marsh (CFGM)
- Wetland - Reedbeds
- Woodland and forest – Lowland mixed deciduous woodland
- Watercourses - Other rivers and streams

Medium distinctiveness habitat
- Grassland – Other neutral grassland
- Heathland and scrub – Mixed scrub
- Woodland and forest – Other woodland; broadleaved
- Woodland and forest - Other woodland; mixed
- Watercourses – Ditches
- Lakes - Ponds (Non- priority habitat)

Medium distinctiveness linear habitat
- Ditches
- Native Hedgerow - Associated with bank or ditch
- Native Hedgerow with trees

High distinctiveness linear habitat
- Other River and Streams

Allotments

Waterbeach

Clayhithe Rd

Clayhithe Rd

Cow Hollow Wood

Clayhithe Rd

Clayhithe

River Cam

Clayhithe Rd

Mulberry House Farm

Eye Hall Farm

Northfields Farm Cottages

0 100 200 300 Metres

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Title: Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
High and medium distinctiveness habitats: Sheet 6 of 7

Drawn	MP
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Drawing Number

Figure A.3

Security	Status	Rev
STD	PRE	P4

Legend

Scheme Order Limits

High distinctiveness habitat
- Grassland – Floodplain wetland mosaic/ (Coastal and Floodplain Grazing Marsh (CFGM)
- Wetland - Reedbeds
- Woodland and forest – Lowland mixed deciduous woodland
- Watercourses - Other rivers and streams

Medium distinctiveness habitat
- Grassland – Other neutral grassland
- Heathland and scrub – Mixed scrub
- Woodland and forest – Other woodland; broadleaved
- Woodland and forest - Other woodland; mixed
- Watercourses – Ditches
- Lakes - Ponds (Non- priority habitat)

Medium distinctiveness linear habitat
- Ditches
- Native Hedgerow with trees

High distinctiveness linear habitat
- Native Hedgerow
- Other River and Streams

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Biodiversity Net Gain		Approved	TC
High and medium distinctiveness habitats: Sheet 7 of 7		Scale at A3 1:6,000	

Drawing Number	Security	Status	Rev
Figure A.3	STD	PRE	P4

A.4 Figure A.4 Map of Retained Habitats

Legend

Scheme Order Limits

Broad Habitat Type
- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native species rich hedgerow
- Hedge Ornamental Non Native
- Ditch
- Other river and stream
- Fence
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Line of trees/line of trees (Ecologically Valuable)
- Mixed scrub
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Other woodland; mixed
- Ponds (Non- priority habitat)
- Reedbeds
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

							Drawn	MP
							Checked	PH
							Approved	TC

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Title
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Biodiversity Net Gain
Retained habitat
Sheet 1 of 7

Scale at A3
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P4	27/03/24	MP	Scheme Update	PH	TC

Drawing Number

Figure A.4

Security	Status	Rev
STD	PRE	P4

Scheme Order Limits

Broad Habitat Type

- Line of trees
- Native hedgerow
- Native species rich hedgerow
- Native species rich hedgerow with trees - associated with bank or ditch
- Ditch
- Other river and stream
- Earth bank
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Line of trees/line of trees (Ecologically Valuable)
- Mixed scrub
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Other woodland; mixed
- Ponds (Non- priority habitat)
- Reedbeds
- Ruderal/Ephemeral
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Title: Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Retained habitat
Sheet 2 of 7

Drawn	MP
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Scale at A3
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Drawing Number: Figure A.4

Security	Status	Rev
STD	PRE	P4

Legend — Broad Habitat Type

- Scheme Order Limits
- Native hedgerow
- Native hedgerow with trees - associated with bank or ditch
- Native species rich hedgerow with trees
- Native species rich hedgerow with trees - associated with bank or ditch
- Ditch
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Line of trees/line of trees (Ecologically Valuable)
- Mixed scrub
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Other woodland; mixed
- Ponds (Non- priority habitat)
- Reedbeds
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

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Biodiversity Net Gain
Retained habitat
Sheet 3 of 7

Scale at A3
1:6,000

Drawing Number
Figure A.4

Drawn	MP
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Approved	TC

Security	Status	Rev
STD	PRE	P4

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P4	27/03/24	MP	Scheme Update	PH	TC

Allicky Farm

Three Cornered Plantation

Station House

Black Ditch

Quy Ha

Dean Plantation

Chapman's Plantation

Data Sources
Scheme order limits: Anglian Water Services @One, 2023
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		Metres
0	100	200	300

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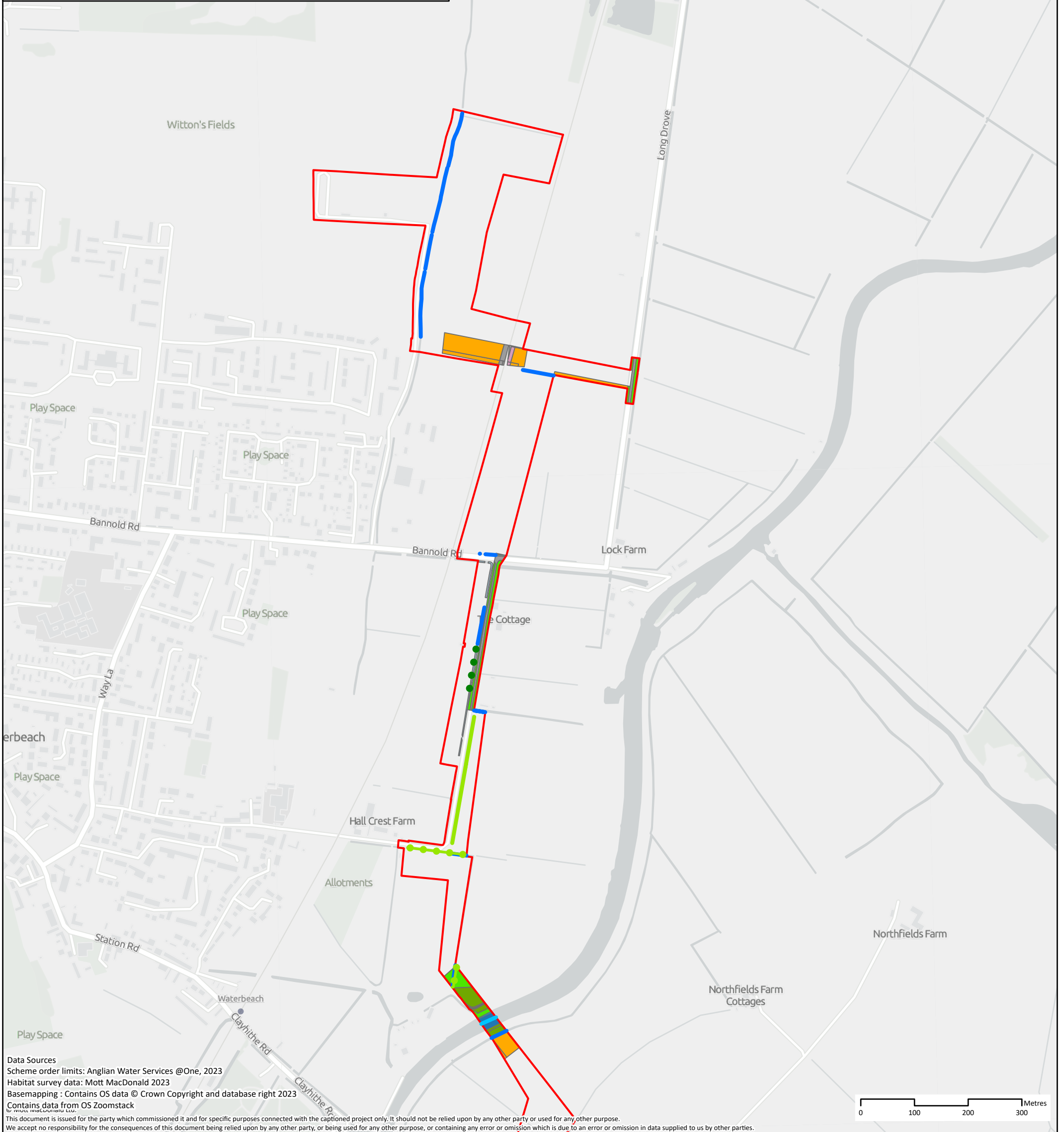T +44 (0)20 8774 2000
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Title
Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Retained habitat
Sheet 4 of 7

Drawn	MP
Checked	PH
Approved	TC

Scale at A3
1:6,000

Drawing Number
Figure A.4

Security	Status	Rev
STD	PRE	P4

Legend

Broad Habitat Type

- Scheme Order Limits
- Line of trees
- Native hedgerow
- Native hedgerow with trees - associated with bank or ditch
- Ditch
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Line of trees/line of trees (Ecologically Valuable)
- Mixed scrub
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Other woodland; mixed
- Ponds (Non- priority habitat)
- Reedbeds
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

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Title

Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Retained habitat
Sheet 5 of 7

Drawn	MP
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Approved	TC

Scale at A3

1:6,000

Drawing Number

Figure A.4

Security	Status	Rev
STD	PRE	P4

Scheme Order Limits

Broad Habitat Type
- Line of trees
- Native hedgerow
- Native hedgerow with trees
- Ditch
- Other river and stream
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Line of trees/line of trees (Ecologically Valuable)
- Mixed scrub
- Modified grassland
- Other coniferous woodland
- Other neutral grassland
- Other Rivers and Streams -Watercourse Footprint
- Other woodland; broadleaved
- Other woodland; mixed
- Ponds (Non- priority habitat)
- Reedbeds
- Ruderal/Ephemeral
- Vacant/derelict land/ bareground

Hall Crest Farm

Allotments

Northfields Farm Cottages

Northfi

Waterbeach

Clayhithe Rd

Clayhithe Rd

Cow Hollow Wood

Clayhithe Rd

Clayhithe

River Cam

Mulberry House Farm

Eye Hall Farm

Play Space

Play Space

		Metres
0	100	200	300

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Title
Cambridge Waste Water Treatment Plant
Relocation Project
Biodiversity Net Gain
Retained habitat
Sheet 6 of 7

Drawing Number
Figure A.4

Drawn	MP
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Approved	TC

Scale at A3
1:7,000

Security	Status	Rev
STD	PRE	P4

Legend:

Scheme Order Limits

Broad Habitat Type

- Line of trees
- Native hedgerow
- Native hedgerow with trees
- Ditch
- Other river and stream
- Cereal crops
- Developed land; sealed surface
- Ditches - watercourse footprint
- Floodplain Wetland Mosaic (CFGM)
- Introduced shrub
- Lowland mixed deciduous woodland
- Line of trees/line of trees (Ecologically Valuable)
- Mixed scrub
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Title

Cambridge Waste Water Treatment Plant Relocation Project
Biodiversity Net Gain
Retained habitat
Sheet 7 of 7

Drawing Number

Figure A.4

Drawn	MP
Checked	PH
Approved	TC

Scale at A3

1:7,000

Security	Status	Rev
STD	PRE	P4

Appendix B: Landscape Masterplan

Figure 3.1 Landscape Masterplan

Callouts (left side)

- Tree planting set between existing trees and native transplants added to existing strip of young transplants to screen views from Horningsea
- Native tree planting set between existing trees to filter views from Horningsea, on edge of existing ditch
- New hedgerow and hedgerow tree planting to Low Fen Drove Way
- Existing car park retained, post and rail fence added between car park and pedestrian footpath
- Easements for outfall and Waterbeach routes
- Cycle route
- Proposed open glades and rides in woodland
- Trees to earthwork bank top to contribute to long term screening and visual mitigation
- Proposed vechicular route
- Proposed car park and cycle parking enclosure
- Sculpted circular earthwork bank 5m ht. with species rich grassland slopes
- Drainage 'scrapes' to base of earthwork bank perimeter with clustered tree planting
- Proposed southern landscape buffer of woodland blocks
- Seasonal pond

Callouts (right side)

- Retained arable field
- Ventilation 'slices'
- Photovoltaic (PV) Solar Panels
- Gentle undulations with peaks and troughs to increase habitat variation
- Propoposed new bridlway
- Native hedgerow and trees atop earthwork bank to form 3m depth thicket, to be allowed to grow to 5-6m height over time
- Calcareous Loam/Neutral Meadow Grassland
- Grassland buffer between woodland and County Wildlife Site

LEGEND

- Existing intermittent tree groups and hedgerow trees
- Existing retained hedgerow vegetation
- Proposed areas of woodland
- Proposed trees and tree groups
- Proposed native hedgerow and hedgerow tree
- Proposed 'thicket' of earthwork bank vegetation comprising trees (semi-mature, heavy standard, standard and transplants) and hedgerow transplants.
- Undulating Ridge and furrow
- Proposed areas of Calcareous Loam Meadow Grassland (Refer to drawing 775_01(MP)004 Proposed habitat areas, for all grassland types.
- Proposed new pedestrian paths
- Proposed native whip planting to supplement existing young whip planting; infill and replace any existing that have failed
- Photovoltaic (PV) Solar Panels
- Existing line of pylons
- Low Fen Drove Way Grasslands and Hedges County Wildlife Site (20m buffer shown dashed)
- Drainage 'scrapes' to base of earth bank perimeter
- Easements for outfall and Waterbeach routes
- Existing PROW: Byway open to all traffic
- Proposed PROW: new bridleway (refer to Inset)
- Scheme order limits

LOCATION PLAN

WWTP, CAMBRIDGE

Client:	Anglian Water
Drawing:	Landscape Masterplan
Project No:	775_01
Drawing No:	775_01(MP)003
Scale:	Scale: 1:7500@A3	Rev: I15
Date:	April 2021	Drawn: JB
Checked:		PM Checked:

INSET Proposed Bridleway - Plan
Scale 1:25000@A3 /1:12500@A1

Landscape Masterplan - Plan
Scale 1:7500 @ A3 / 1: 3750 @ A1

0 100 200 300 400 500 m

Appendix C: Outline River and Reedbed Units Net Gain Strategy

1 Background

1.1.1 The Applicant is committed to achieving at least a 20% BNG in river units and this strategy sets out how to achieve this and also how to avoid trading down of the 'Reedbeds' and 'Other rivers and streams' habitats.

1.1.2 This strategy presents the opportunity to create new habitats as part of the Proposed Development and also factors in emerging opportunities that are likely to arise for purchasing river units by funding off-site habitat restoration/enhancement and or creation.

1.1.3 CWWTPRP will adopt a staged approach to the approval of DCO requirements enabling requirements to be approved prior to the commencement of the relevant stage of works. Overall, for BNG this approach will be governed by Requirement 25 of the Draft DCO (App Doc Ref 2.1) which requires the production of an updated BNG report to be submitted and approved by the relevant planning authority prior to the commencement of any phase of the authorised development. Requirement 25 states:

> *(2) The updated biodiversity net gain report submitted for approval must include:*
>
> *(a) how the measures contained within it deliver and secure twenty percent biodiversity net gain for the whole of the authorised development excluding any biodiversity net gain to be provided as river units;*
>
> *(b) details of measures to deliver and secure twenty percent biodiversity net gain comprising river units within or outside of the Order limits; and*
>
> *(c) details of the habitat management and monitoring of the biodiversity net gain for the whole of the authorised development.*

1.1.4 Furthermore, a detailed construction and operational OMMP will need to be submitted and approved by the relevant planning authority prior to works commencing within the area of the proposed River Cam outfall (Works No. 32 as shown on Works Plan Sheet 2 of the Work Plans (App Doc Ref 4.3) [AS-150]) as detailed in Requirement 10 of Draft DCO (App Doc Ref 2.1). This includes reference that the detailed construction and operational OMMP must include details of ditch habitat creation, monitoring and maintenance measures as well.

1.1.5 The OMMPs will provide details of habitat creation, monitoring and maintenance measures for habitats (ditches and reedbed). The OMMPs are detailed in the Outline Outfall Management and Monitoring Plan (App Doc Ref 5.4.8.24).

2 BNG River and Reedbed Units Required

2.1.1 Although it is currently predicted that the Proposed Development will achieve more than 20% gain in all non-river habitat types (excluding the trading down reedbed proposals below), the river unit gain will be 3.49%. The loss of river units and reedbed habitat units will occur at the proposed outfall location on the River Cam as a result of increased riparian encroachment.

2.1.2 To achieve a 20% BNG on river units, this could be delivered by the following:

- A minimum of 0.04 high distinctiveness river units to be delivered off-site on the River Cam (or a river/watercourse in Cambridgeshire that falls within the Cam Lower Operational Catchment); and

- The creation of 261m stretch of ditch (which will contain standing water for at least four months of the year) within the proposed northern area of Works No. 39 (as shown on Works Plan Sheet 2 (App Doc Ref 4.3) [AS-150]), which will generate 2.01 river units. This is also shown in Figure 1 below.

2.1.3 To achieve an overall BNG and resolve the trading down for reedbed habitats, the loss of reedbed habitat units will be minimised as far as possible (e.g. by reducing the extent of the proposed outfall) and the creation of 0.0245ha of reedbeds within the created wet ditches in the proposed northern area of Works No. 39.

2.1.4 The northern area within Works No. 39 has been identified for the delivery of on-site river units and to avoid trading down in reedbed habitat units, the indicative location and layout is shown on Figure 1. This area has been identified for BNG river unit opportunities using information obtained from the existing ecological baseline surveys. This area is also desirable as it would link to a habitat type used by water voles.

2.1.5 It is proposed that around the indicative location and layout of the created ditches and reedbed habitats in Work No. 39 area, other neutral grassland habitat will be created by re-seeding following construction of the ditches and reedbeds.

2.2 Results – Wet Ditch Creation

2.2.1 The landscape masterplan is focused on landscape and ecological mitigation suitable for land required for the proposed WWTP and access road (east of Horningsea Road), which is characterised by free-draining soils and a ground level of 9-10 meters AOD. The ground water levels within this location are up to five metres below ground level. There are existing ditches within the proposed WWTP landscape masterplan area which are dry for most of the year, except for the retained ditch to the east which is incorporated in the landscape masterplan.

2.2.2 The only proposed ditches (in the form of swales) in the landscape masterplan are to provide temporary storage of surface water from the access road.

2.2.3 There are no suggestions for further surface water features within the landscape masterplan for river unit BNG; these have been dismissed as any channels created would:

- need to be very deep (and present a safety concern in the context of the other objectives of the LERMP),

- would not maximise connectivity to existing wet ditches as much as other locations could, and

- may require lining.

2.2.4 It is recommended that an additional length of wet ditch is created within the Scheme Order Limits to achieve the 20% net gain in river units. This is also desirable as it would perform a wider biodiversity function and could be designed to benefit species such as water voles that are present within the Scheme Order Limits.

2.2.5 The northern area within Works No. 39 has been identified for the delivery of on-site river units and avoid trading down in reedbed habitat units, as shown on Figure 1.

Key

- ▭ Scheme Order Limits
- ■ Open Ditch Channel
- ▨ Reedbed Habitat
- ■ 2:1 Sloped Banks

Note:

This is an indicative potential layout and location and is NOT to be used to measure from.

A

B

Scale	1:1,250 @ A3

0   25   50 m

Drawn: KN	Checked: RC
Ref:	Revision: 06
Date: 22/01/2024	

Indicative Alignment of Proposed Ditches and Reedbeds

Figure 1

Cambridge Waste Water Treatment Plant Relocation (CWWTPR) Project

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

2.2.6   There is a wet ditch at the northern margin of the field in area Works No. 39. The wet ditch is approximately 1 to 1.5 meters deep and 1.5m wide bank to bank as shown in Photo 1Photo 1. It is connected to the River Cam downstream of Baits Bite Lock and on visits throughout the year has remained wet.

Photo 1 Existing ditch along northern boundary of area Works No. 39

2.2.7   The indicative proposal is to create approximately 345m of wet ditch connected to the existing wet ditch along the northern boundary of Works No. 39 as shown on Figure 1. The separation between the existing ditch and proposed ditches will allow access in the event that vehicular access is required for reactive or long-term maintenance e.g., to remove fallen debris from nearby trees or de-silting.

2.2.8   The 345m indicative location and layout of the ditches shown in Figure 1 would contribute towards a 20% net gain in river units and provide approximately:

- 84m of ditch creation for water vole mitigation, and

- 261m ditch creation for 20% BNG in river units, 62m of which is proposed to include 0.0245ha reedbed habitat creation (62m ditch up to 5m wide to include a 4m wide area of reedbed (as shown on Figure 2) to resolve the trading down in reedbed habitat units.

Existing ditch and treeline

Proposed ditch with reedbed habitat

Proposed Ditch

Public Right of Way Diversion

2:1 Sloped Banks

4m wide reedbed

1m wide channel

2:1 Sloped Banks

1m wide channel

A

B

Drawn: KN	Checked: RC
Ref:	Revision: 03
Date: 30/11/2023	

Indicative Cross-section of Proposed Ditches
Figure 2

Cambridge Waste Water Treatment Plant Relocation (CWWTPR) Project

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Connection to mitigation proposals for the Proposed Development

Water vole mitigation

2.2.9   A proportion of the wet ditches proposed are also part of the mitigation proposed as part of the Proposed Development for water vole mitigation under licence which requires the project to create and maintain ditches for compensation water vole habitat adjacent to existing habitat at this location. It is expected that 84m of ditch would be required for this purpose.

Public Right of Way Temporary Diversion

2.2.10 A temporary diversion of an existing public right of way is proposed during construction of the outfall and associated pipelines as shown in Figure Figure . The proposed wet ditches have sought to avoid the path diversion and would be fenced appropriately to avoid people or dogs accessing the ditch area. The right of way diversion will not encroach within 10m of the ditch bank top.

2.3   Results - High distinctiveness river units

2.3.1   Opportunities to enhance other sections of the River Cam within the Draft Scheme Order Limits to compensate for the loss of the high distinctiveness river units were investigated. Due to the nature of the stretch of the River Cam within the Draft Scheme Order Limits, enhancement is heavily constrained due to existing uses (public access, boating, angling, etc.).

2.3.2   Therefore, the following options are available to deliver the required 'high distinctiveness' river units off-site:

- Partnership Project/s: A partnership approach with planned project/s with local stakeholder organisations or landowners whereby those organisations deliver the BNG on behalf of AWS and maintain the land; and

- Purchasing BNG river units.

3   Value of Post-Development Habitats

3.1.1   The post-development habitats including ditch and reedbed habitats outlined here in Appendix C (but excluding the high distinctiveness river units to be delivered off-site) have been calculated as having a predicted value of:

- 700.80 habitat biodiversity units,

- 86.95~~80.52~~ hedgerow biodiversity units and

- 14.57 river biodiversity units.

3.1.2   When compared to the baseline, this equates to a predicted percentage change of:

- +42.27% in habitat biodiversity units,

- +28.13~~55~~% in hedgerow biodiversity units and

- +20.05% in river biodiversity units.

Appendix D: Metric – Detailed Summary (excluding ditch and reedbed habitats proposed in Appendix C)

Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (including all on-site & off-site habitat retention/creation)	Habitat units	208.14
	Hedgerow units	19.09
	River units	0.48

Total project biodiversity % change (including all On-site & Off-site Habitat Creation + Retained Habitats)	Habitat units	42.20%
	Hedgerow units	38.13%
	River units	3.49%

Combined habitat retention and enhancement

	Habitats	Hedgerows	Rivers
Total area / length	208.90	9.90	3.00
Total units	492.98	67.07	13.12
Area / length retained	57.90	5.98	2.80
Units Retained	139.13	67.06	11.15
Area / length proposed for enhancement	0.00	0.00	0.07
Baseline units proposed for enhancement	0.00	0.00	0.31
Area / length lost	150.99	4.30	-0.13
Units lost	373.46	20.48	0.64

Area habitats

Hedgerows and lines of trees

Rivers and Streams

Appendix E: Summary Pre-development Baseline Habitat Units

	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
1	Cropland	Cereal crops	145.63353674	Low	N/A - Agricultural	Within area formally identified in local strategy	Same distinctiveness or better habitat required	334.9635
2	Urban	Developed land; sealed surface	26.7861	V.Low	N/A - Other	Within area formally identified in local strategy	Compensation Not Required	0.00
3	Urban	Developed land; sealed surface	0.4984	V.Low	N/A - Other	Within area formally identified in local strategy	Compensation Not Required	0.00
4	Grassland	Floodplain Wetland Mosaic (CFGM)	2.0073	High	Moderate	Within area formally identified in local strategy	Same habitat required	27.70
5	Urban	Introduced shrub	0.0412	Low	Poor	Within area formally identified in local strategy	Same distinctiveness or better habitat required	0.09
6	Woodland and forest	Lowland mixed deciduous woodland	0.0069	High	Good	Within area formally identified in local strategy	Same habitat required	0.14

Ref	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
7	Woodland and forest	Lowland mixed deciduous woodland	0.0948	High	Poor	Within area formally identified in local strategy	Same habitat required	0.65
8	Heathland and shrub	Mixed scrub	1.0726~~1355~~	Medium	Good	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	14.80~~15.67~~
9	Heathland and shrub	Mixed scrub	0.1535	Medium	Moderate	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	1.41
10	Heathland and shrub	Mixed scrub	0.3368	Medium	Poor	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	1.55
11	Grassland	Modified grassland	1.0025	Low	Good	Within area formally identified in local strategy	Same distinctiveness or better habitat required	6.92

Ref	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
12	Grassland	Modified grassland	0.0078	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness or better habitat required	0.04
13	Grassland	Modified grassland	12.0489315	Low	Poor	Within area formally identified in local strategy	Same distinctiveness or better habitat required	27.718.32
14	Woodland and forest	Other coniferous woodland	0.0814	Low	Poor	Within area formally identified in local strategy	Same distinctiveness or better habitat required	0.19
15	Grassland	Other neutral grassland	0.55334904	Medium	Good	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	7.646.77
16	Grassland	Other neutral grassland	2.7454	Medium	Moderate	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	25.26

	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
17	Grassland	Other neutral grassland	2.9847	Medium	Poor	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	13.73
18	Urban	Developed land; sealed surface	1.3523	V.Low	N/A - Other	Within area formally identified in local strategy	Compensation Not Required	0.00
19	Woodland and forest	Other woodland; broadleaved	0.0251	Medium	Good	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	0.35
20	Woodland and forest	Other woodland; broadleaved	0.0309	Medium	Moderate	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	0.28
21	Woodland and forest	Other woodland; broadleaved	0.465	Medium	Poor	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	2.14

Ref	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
22	Woodland and forest	Other woodland; mixed	0.6272	Medium	Poor	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	2.89
23	Lakes	Ponds (Non- Priority Habitat)	0.0031	Medium	Poor	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	0.01
24	Wetland	Reedbeds	0.0122	High	Good	Within area formally identified in local strategy	Same habitat required	0.25
25	Wetland	Reedbeds	0.0065	High	Moderate	Within area formally identified in local strategy	Same habitat required	0.09
26	Sparsely vegetated land	Ruderal/Ephemeral	9.9706	Low	Poor	Within area formally identified in local strategy	Same distinctiveness or better habitat required	22.93
27	Urban	Vacant/derelict land/ bareground	0.3241	Low	Poor	Within area formally identified in local strategy	Same distinctiveness or better habitat required	0.75

	Habitats and areas			Distinctiveness	Condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Condition	Strategic significance		Total habitat units
28	Heathland and shrub	Bramble scrub	0.023	Medium	Poor	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	0.11
29	Grassland	Modified grassland	0	Low	Good	Within area formally identified in local strategy	Same distinctiveness or better habitat required	0.00
30	Grassland	Other neutral grassland	0	Medium	Good	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	0.00
31	Grassland	Other neutral grassland	0	Medium	Good	Within area formally identified in local strategy	Same broad habitat or a higher distinctiveness habitat required	0.00
		Total area	208.90				Total units	492.58

Appendix F: Summary Pre-development Baseline Hedgerow Units

	UK Habitats - existing habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedgerow type	Length KM	Distinctiveness	Condition	Strategic significance		Total hedgerow units
1	Native Hedgerow	0.0441	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.20
2	Native Hedgerow	0.3198	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	1.47
3	Native Hedgerow - Associated with bank or ditch	0.7106	Medium	Poor	Within area formally identified in local strategy	Like for like or better	3.27
4	Native Hedgerow	0.0004	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.00
5	Native Hedgerow with trees	0.031	Medium	Moderate	Within area formally identified in local strategy	Like for like or better	0.29
6	Native Hedgerow	0.0289	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.13
7	Native Hedgerow	0.2026	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.93
8	Native Hedgerow	0.0057	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.03

Baseline ref	UK Habitats - existing habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Hedgerow type	Length KM		Distinctiveness	Condition	Strategic significance		Total hedgerow units
9	Native Species Rich Hedgerow	0.1427		Medium	Moderate	Within area formally identified in local strategy	Like for like or better	1.31
10	Native Hedgerow	0.0501		Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.23
11	Native Hedgerow	1.0863		Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	5.00
12	Native Hedgerow	0.405		Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.93
13	Native Hedgerow	0.233		Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.54
14	Native Hedgerow - Associated with bank or ditch	0.1653		Medium	Poor	Within area formally identified in local strategy	Like for like or better	0.76
15	Native Hedgerow - Associated with bank or ditch	0.6598		Medium	Poor	Within area formally identified in local strategy	Like for like or better	3.04
16	Native Hedgerow	0.0597		Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.14
17	Native Hedgerow	0.6038		Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	2.78

Baseline ref	UK Habitats - existing habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Hedgerow type	Length KM	Distinctiveness	Condition	Strategic significance			Total hedgerow units
18	Native Hedgerow	0.0177	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.08
19	Native Hedgerow	0.0141	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.06
20	Native Hedgerow	0.2069	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.95
21	Native Hedgerow	0.1113	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.51
22	Native Hedgerow	0.0803	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.37
23	Native Hedgerow	0.0789	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.36
24	Native Species Rich Hedgerow with trees	0.3377	High	Good	Within area formally identified in local strategy	Like for like or better	6.99
25	Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.3371	V.High	Good	Within area formally identified in local strategy	Like for like	9.30
26	Native Hedgerow - Associated with bank or ditch	0.0306	Medium	Moderate	Within area formally identified in local strategy	Like for like or better	0.28

	UK Habitats - existing habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedgerow type	Length KM	Distinctiveness	Condition	Strategic significance		Total hedgerow units
27	Native Hedgerow	0.0475	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.22
28	Native Species Rich Hedgerow with trees	0.0001	High	Good	Within area formally identified in local strategy	Like for like or better	0.00
29	Native Hedgerow with trees	0.0406	Medium	Poor	Within area formally identified in local strategy	Like for like or better	0.19
30	Native Hedgerow	0.007	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.03
31	Native Hedgerow with trees	0.078	Medium	Poor	Within area formally identified in local strategy	Like for like or better	0.48
32	Native Hedgerow with trees	0.0327	Medium	Poor	Within area formally identified in local strategy	Like for like or better	0.03
33	Native Hedgerow	0.033	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.23
34	Native Hedgerow	0.1432	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.99
35	Native Hedgerow	0.0894	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.62

	UK Habitats - existing habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedgerow type		Length KM	Distinctiveness	Condition	Strategic significance		Total hedgerow units
36	Native Hedgerow		0.0062	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.04
37	Native Hedgerow		0.0016	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.01
38	Native Hedgerow with trees		0.2027	Medium	Moderate	Within area formally identified in local strategy	Like for like or better	1.86
39	Native Hedgerow with trees		0.0645	Medium	Good	Within area formally identified in local strategy	Like for like or better	0.89
40	Native Hedgerow		0.0494	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.34
41	Native Hedgerow - Associated with bank or ditch		0.1156	Medium	Moderate	Within area formally identified in local strategy	Like for like or better	1.06
42	Native Hedgerow		0.1784	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.82
43	Native Hedgerow		0.2333	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	1.07
44	Native Hedgerow		0.0305	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.14

	UK Habitats - existing habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedgerow type	Length KM	Distinctiveness	Condition	Strategic significance		Total hedgerow units
45	Native Hedgerow	0.0783	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.36
46	Native Hedgerow	0.0149	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.03
47	Native Hedgerow	0.0737	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.51
48	Native Hedgerow	0.0161	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.04
49	Native Hedgerow - Associated with bank or ditch	0.1151	Medium	Moderate	Within area formally identified in local strategy	Like for like or better	1.06
50	Native Species Rich Hedgerow	0.1285	Medium	Good	Within area formally identified in local strategy	Like for like or better	1.77
51	Native Species Rich Hedgerow	0.1295	Medium	Good	Within area formally identified in local strategy	Like for like or better	1.79
52	Native Species Rich Hedgerow	0.0899	Medium	Good	Within area formally identified in local strategy	Like for like or better	1.24
53	Hedge Ornamental Non Native	0.0157	V.Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.05

	UK Habitats - existing habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
Baseline ref	Hedgerow type	Length KM	Distinctiveness	Condition	Strategic significance		Total hedgerow units
54	Hedge Ornamental Non Native	0.0563	V.Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.19
55	Native Hedgerow with trees - Associated with bank or ditch	0.5978	High	Moderate	Within area formally identified in local strategy	Like for like or better	8.25
56	Line of trees	0.1087	Low	Moderate	Within area formally identified in local strategy	Same distinctiveness band or better	0.50
57	Line of trees	0.0849	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.20
58	Line of trees	0.0263	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.06
59	Line of trees	0.0146	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.10
60	Line of trees	0.2989	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.69
61	Line of trees	0.1196	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.28

Baseline ref	UK Habitats - existing habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Suggested action to address habitat losses	Ecological baseline
	Hedgerow type	Length KM	Distinctiveness	Condition	Strategic significance		Total hedgerow units
62	Line of trees	0.3993	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.92
63	Line of trees	0.0576	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.13
64	Line of trees	0.0149	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.03
65	Line of trees	0.024	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.06
66	Line of trees	0.0246	Low	Poor	Within area formally identified in local strategy	Same distinctiveness band or better	0.06
67	Native Hedgerow	0.0821	Low	Good	Within area formally identified in local strategy	Same distinctiveness band or better	0.57
	Total length	9.89				Total units	67.87

Appendix G: Summary Pre-development Baseline River Units

Existing river type			Habitat distinctiveness	Habitat condition	Strategic significance	Watercourse encroachment	Riparian encroachment	Suggested action	Ecological baseline
Baseline ref	River type	Length KM	Distinctiveness	Condition	Strategic significance	Extent of encroachment	Extent of encroachment		Total river units
1	Other Rivers and Streams	0.07	High	Fairly Poor	Within Local Plans	Major	Moderate	Restore	0.31
2	Other Rivers and Streams	0.497	High	Fairly Poor	Within Local Plans	Major	Moderate	Restore	2.19
3	Other Rivers and Streams	0.03	High	Fairly Poor	Within Local Plans	Major	Moderate	Restore	0.13
4	Ditches	1.5367	Medium	Good	Within Local Plans	Major	Major	Restore	7.95
5	Ditches	0.0383	Medium	Moderate	Within Local Plans	Major	Major	Restore	0.13
6	Ditches	0.825	Medium	Poor	Within Local Plans	Major	Major	Restore	1.42
	Total Length	3.00						Total units	12.13

Appendix H: Summary Post-development Habitat Units

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Habitat units delivered
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
Cropland	Cereal crops	44.3399	Low	N/A - Agricultural	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	3	Low	91.64
Urban	Developed land; sealed surface	29.0043	V.Low	N/A - Other	Within area formally identified in local strategy	Standard time to target condition applied	2	Medium	0.00
Urban	Developed land; sealed surface	0.02	V.Low	N/A - Other	Within area formally identified in local strategy	Standard time to target condition applied	2	Medium	0.00
Urban	Introduced shrub	0.0101	Low	Poor	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	3	Low	0.02
Woodland and forest	Other woodland; broadleaved	23.3348	Medium	Poor	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	7	Low	83.65

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Habitat units delivered
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
Heathland and shrub	Mixed scrub	0.45	Medium	Moderate	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	7	Low	3.23
Heathland and shrub	Mixed scrub	0.1~~1518~~	Medium	Good	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	12	Low	0.99~~1.37~~
Grassland	Modified grassland	3.8333	Low	Good	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	9	Low	19.19
Grassland	Other neutral grassland	52.9773	Medium	Moderate	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	7	Low	379.81
Woodland and forest	Other woodland; broadleaved	0	Medium	Poor	Within area formally identified in local strategy	Check details- Delay in starting habitat in	7	Low	0.00

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Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Habitat units delivered
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
						required condition?			
Lakes	Ponds (Non-Priority Habitat)	0.1665	Medium	Poor	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	3	Low	0.69
Sparsely vegetated land	Ruderal/Ephemeral	0.2069	Low	Poor	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	3	Low	0.43
Urban	Vacant/derelict land/ bareground	0.1931	Low	Poor	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	3	Low	0.40
Cropland	Cereal crops	0	Low	N/A - Agricultural	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	3	Low	0.00
Urban	Developed land; sealed surface	0.0176	V.Low	N/A - Other	Within area formally identified in local strategy	Standard time to target	2	Medium	0.00

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Habitat units delivered
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
						condition applied			
Grassland	Modified grassland	0	Low	Moderate	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	6	Low	0.00
Grassland	Other neutral grassland	0	Medium	Moderate	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	7	Low	0.00
Lakes	Ponds (Non-Priority Habitat)	0	Medium	Moderate	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	5	Low	0.00
Heathland and shrub	Bramble scrub	0.0177	Medium	Poor	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	3	Low	0.07
Grassland	Modified grassland	0	Low	Good	Within area formally identified in local strategy	Check details- Delay in starting	9	Low	0.00

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Habitat units delivered
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
						habitat in required condition?			
Grassland	Other neutral grassland	0	Medium	Good	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	12	Low	0.00
Grassland	Other neutral grassland	0	Medium	Good	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	12	Low	0.00
Wetland	Reedbeds	0.002	High	Moderate	Within area formally identified in local strategy	Check details- Delay in starting habitat in required condition?	9	Medium	0.01
Urban	Developed land; sealed surface	0	V.Low	N/A - Other	Within area formally identified in local strategy	Standard time to target condition applied	2	Medium	0.00
Urban	Developed land; sealed surface	0	V.Low	N/A - Other	Within area formally identified in local strategy	Standard time to target condition applied	2	Medium	0.00

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Habitat units delivered
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
Grassland	Other neutral grassland	0.2704	Medium	Poor	Within area formally identified in local strategy	Check details-Delay in starting habitat in required condition?	4	Low	1.08
Grassland	Other neutral grassland	0	Medium	Poor	Within area formally identified in local strategy	Standard time to target condition applied	2	Low	0.00
Grassland	Other neutral grassland	0.0418	Medium	Good	Within area formally identified in local strategy	Check details-Delay in starting habitat in required condition?	12	Low	0.38
	Total area	155.00						Total units	581.59

Appendix I: Summary Post-development Hedgerow Units

Baseline ref	Proposed habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers		Hedge units delivered
	Habitat type	Length km		Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
1	Native Hedgerow	0.0004		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.00
2	Native Hedgerow with trees	0.031		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	0.19
3	Native Hedgerow	0.0289		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.10
4	Native Hedgerow	0.2026		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.73
5	Native Hedgerow	0.0057		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.02
6	Native Species Rich Hedgerow	0.0597		Medium	Poor	Within area formally identified in local strategy	2	3	Standard difficulty applied	Low	0.25
7	Native Hedgerow	0.0141		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.05

Baseline ref	Proposed habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers		Hedge units delivered
	Habitat type	Length km		Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
8	Native Hedgerow	0.1113		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.40
9	Native Hedgerow	0.0803		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.29
10	Native Hedgerow - Associated with bank or ditch	0.0306		Medium	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.22
11	Native Hedgerow	0.0475		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.17
12	Native Hedgerow	0.007		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.03
13	Native Hedgerow with trees	0.0327		Medium	Poor	Within area formally identified in local strategy	2	3	Standard difficulty applied	Low	0.14
14	Native Hedgerow	0.033		Low	Good	Within area formally identified in local strategy	2	14	Standard difficulty applied	Low	0.14
15	Native Hedgerow	0.0016		Low	Good	Within area formally identified in local strategy	2	14	Standard difficulty applied	Low	0.01

| Baseline ref | **Proposed habitats** | | | **Habitat distinctiveness** | **Habitat condition** | **Strategic significance** | **Temporal multiplier** | | **Difficulty risk multipliers** | | **Hedge units delivered** |
	Habitat type	**Length km**		**Distinctiveness**	**Condition**	**Strategic significance**	**Delay in starting habitat creation/ years**	**Final time to target condition/ years**	**Applied difficulty multiplier**	**Final difficulty of creation**	
16	Native Hedgerow with trees	0.2027		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	1.22
17	Native Hedgerow with trees	0.0645		Medium	Good	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.41
18	Native Hedgerow	0.0494		Low	Good	Within area formally identified in local strategy	2	14	Standard difficulty applied	Low	0.21
19	Native Hedgerow - Associated with bank or ditch	0.1156		Medium	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.83
20	Native Hedgerow	0.1784		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.64
21	Native Hedgerow	0.2333		Low	Moderate	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.84
22	Native Hedgerow	0.0161		Low	Poor	Within area formally identified in local strategy	2	3	Standard difficulty applied	Low	0.03
23	Native Hedgerow with trees -	0.0123		High	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	0.11

Baseline ref	Proposed habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers		Hedge units delivered
	Habitat type	Length km		Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
	Associated with bank or ditch										
24	Line of trees	0.0263		Low	Poor	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.05
25	Native Hedgerow	0.0821		Low	Good	Within area formally identified in local strategy	2	14	Standard difficulty applied	Low	-0.34
26	Line of trees	0.0312		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.07
27	Line of trees	0.0254		Low	Poor	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.05
28	Line of trees	0.0209		Low	Poor	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.04
29	Line of trees	0.0253		Low	Poor	Within area formally identified in local strategy	2	7	Standard difficulty applied	Low	0.05
30	Line of trees - Associated with bank or ditch	0.2036		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.43

Baseline ref	Proposed habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers		Hedge units delivered
	Habitat type	Length km		Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
31	Line of trees - Associated with bank or ditch	0.0449		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.09
32	Line of trees - Associated with bank or ditch	0.0616		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.13
33	Line of trees - Associated with bank or ditch	0.0388		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.08
34	Line of trees - Associated with bank or ditch	0.0331		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.07
35	Line of trees - Associated with bank or ditch	0.0368		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.08
36	Line of trees - Associated with bank or ditch	0.0243		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.05
37	Line of trees - Associated with bank or ditch	0.0738		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.16
38	Line of trees - Associated with bank or ditch	0.0072		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.02

Baseline ref	Proposed habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers		Hedge units delivered
	Habitat type	Length km		Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
39	Line of trees - Associated with bank or ditch	0.0062		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.01
40	Line of trees - Associated with bank or ditch	0.0351		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.07
41	Line of trees - Associated with bank or ditch	0.0435		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.09
42	Line of trees - Associated with bank or ditch	0.0407		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.09
43	Line of trees - Associated with bank or ditch	0.0153		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.03
44	Line of trees - Associated with bank or ditch	0.0264		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.06
45	Line of trees - Associated with bank or ditch	0.0666		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.14
46	Line of trees - Associated with bank or ditch	0.035		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.07

Baseline ref	Proposed habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers		Hedge units delivered
	Habitat type	Length km		Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
47	Line of trees - Associated with bank or ditch	0.0915		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.19
48	Line of trees - Associated with bank or ditch	0.0732		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.15
49	Line of trees - Associated with bank or ditch	0.0375		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.08
50	Line of trees - Associated with bank or ditch	0.0375		Low	Moderate	Within area formally identified in local strategy	2	22	Standard difficulty applied	Low	0.08
51	Native Hedgerow with trees	0.0197		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	0.12
52	Native Hedgerow with trees	0.3192		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	1.92
53	Native Hedgerow with trees	0.5787		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	3.47
54	Native Hedgerow with trees	0.8621		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	5.17

Baseline ref	Proposed habitats			Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers		Hedge units delivered
	Habitat type	Length km		Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
55	Native Hedgerow with trees	0.4725		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	2.83
56	Native Hedgerow with trees	0.575		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	3.45
57	Native Hedgerow with trees	0.0484		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	0.29
58	Native Hedgerow with trees	0.2992		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	1.80
59	Native Hedgerow with trees	0.0743		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	0.45
60	Native Hedgerow with trees	0.4503		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	2.70
61	Native Hedgerow with trees	0.1577		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	0.95
62	Native Hedgerow with trees	0.0476		Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	0.29

| Baseline ref | Proposed habitats | | Habitat distinctiveness | Habitat condition | Strategic significance | Temporal multiplier | | Difficulty risk multipliers | | Hedge units delivered |
	Habitat type	Length km	Distinctiveness	Condition	Strategic significance	Delay in starting habitat creation/ years	Final time to target condition/ years	Applied difficulty multiplier	Final difficulty of creation	
63	Native Hedgerow with trees	0.3329	Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	2.00
64	Native Hedgerow with trees	0.3798	Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	2.28
65	Native Hedgerow with trees	0.3522	Medium	Moderate	Within area formally identified in local strategy	2	12	Standard difficulty applied	Low	2.11
	Total length	7.7721							Total units	39.5642

Appendix J: Summary Post-development River Units

Post-development river habitat creation

Proposed habitats		Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Watercourse encroachment	Riparian encroachment	
River type	Length km	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	Extent of encroachment	Extent of encroachment	River units delivered
Ditches	0.12	Medium	Good	Delivery within Local Plans	Standard time to target condition applied	10	Low	Major	Major	0.43
Ditches	0.01	Medium	Poor	Delivery within Local Plans	Standard time to target condition applied	1	Low	Major	Major	0.02
Ditches	0.084	Medium	Moderate	Delivery within Local Plans	Standard time to target condition applied	5	Low	No Encroachment	No Encroachment	0.65
Total length	0.21								Total units	1.10

Post-development riparian encroachment

Baseline habitats / Baseline habitat	Proposed River Type (Pre-populated can be overridden)	Change in distinctiveness and condition		Length KM	Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier		Difficulty multipliers	Watercourse encroachment	Riparian encroachment	River units delivered
		Distinctiveness movement	Condition movement		Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition /years	Final difficulty of enhancement	Extent of encroachment	Extent of encroachment	
Other Rivers and Streams	Other Rivers and Streams	High - High	Fairly Poor - Fairly Poor	0.07	High	Fairly Poor	Delivery within Local Plans	Standard time to target condition applied	1	Medium	Major	Major	0.27
			Total length	0.07								Total units	0.27

Get in touch

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Emailing at **info@cwwtpr.com**

Calling our Freephone information line on **0808 196 1661**

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You can view all our DCO application documents and updates on the application on The Planning Inspectorate website:

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