BT-NG-020621-545-0132

Bramford to Twinstead Reinforcement

Volume 7: Other Documents

Document 7.4: Environmental Gain Report

Final Issue A
April 2023

Planning Inspectorate Reference: EN020002

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

nationalgrid

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Overview

This Environmental Gain Report has been produced to include with the application for development consent ('the Application') by National Grid Electricity Transmission plc (National Grid) for reinforcement of the electricity transmission network between Bramford Substation in Suffolk and Twinstead Tee in Essex ('the project').

In the Environmental Action Plan 2021–2026 (National Grid, 2021) National Grid has set key priorities, one of which is related to caring for the natural environment which states: '*We will value nature and will protect and enhance it where possible using 'natural capital' and 'net gain' principles'*.

In addition, the Government intends to commence mandatory Biodiversity Net Gain (BNG) with 30 years set as the minimum period for which biodiversity gain must be secured. It is anticipated that Nationally Significant Infrastructure Projects accepted for examination would be subject to the BNG requirement from November 2025.

As part of its action plan National Grid has committed that by 2026 it will '*deliver net gain by at least 10% or greater in environmental value (including biodiversity) on all construction projects*.' The commitment to BNG is to be secured through the Development Consent Order by way of Requirement 13:

'Unless otherwise agreed with the relevant planning authority, written evidence (in the form of the outputs of the biodiversity metric) demonstrating how at least ten per cent in biodiversity net gain is to be delivered as part of the authorised development must be submitted to the relevant planning authority no later than the date on which that part of the authorised development comprising the installation of new overhead transmission electric line and underground transmission electric line is first brought into operational use.'

This report presents the initial (application stage) BNG calculation undertaken for the project, using Natural England's Biodiversity Metric V3.1. The calculations are based on the Proposed Alignment described in Environmental Statement Chapter 4: Project Description (**application document 6.2.4**). However, it should be noted that the permanent aspects of the project, including pylon locations, are not fixed and could be located anywhere within the Limits of Deviation (LoD), as defined on the Work Plans (**application document 2.5**). The location and orientation of the pylons, cable sealing end compounds, grid supply point substation and underground cables may change within the LoD. The use of the LoD could mean a change in the initial calculation. It is therefore considered that the BNG calculator and associated reporting would be iterative and updated throughout the planning and design phases of the project should development consent be granted.

The purpose of this report is to therefore demonstrate how BNG could be achieved on the project. The aims on this project (in accordance with guidance) are to deliver on-site biodiversity units in preference to off-site by improving habitats and biodiversity local to the site of impact.

The key results of the biodiversity metric calculation for application are summarised below.

Irreplaceable and Very High Distinctiveness Habitats

The project would impact an Ancient Woodland Inventory (AWI) site and two areas of potential ancient woodland, within and surrounding Hintlesham Woods Site of Special Scientific Interest (SSSI). The biodiversity unit value of the irreplaceable habitat impacted in the baseline and post-intervention regeneration are excluded from the biodiversity metric calculation. This is based on the Biodiversity Metric User Guide (Natural England, 2022b) which states that impacts upon irreplaceable habitats and statutory designated sites require separate consideration which must comply with relevant policy and legislation.

A small area of purple moor grass / rush pasture would also be impacted by the project and would be reinstated post-development. This habitat has been included within the baseline but habitat reinstatement has been excluded from the habitat creation tab.

Baseline Habitats Pre-construction

There are approximately 2232 baseline units of area-based habitats within the Order Limits. Cropland is the dominant habitat type, with grassland, woodland and scrub also present.

There are also approximately 511 baseline units of hedgerow within the Order Limits, and approximately 76.1 baseline units of river habitats within the Order Limits.

On-Site Habitat Clearance and Habitat Creation/Enhancement

Accounting for permanent and temporary habitat removal and management and all proposed planting (including the proposed net gain areas), the project is predicted to result in:

- An overall 12.8% net gain of area-based units;
- An overall 13.4% net gain in hedgerow and line of tree units; and
- An overall 5.0% net gain in river and stream units.

National Grid will continue to work with contractors to further reduce impact and seek ways to increase river and stream gains to achieve the at least 10% BNG target.

National Grid is committed to delivering at least a 10% BNG on this project. The biodiversity metric incentivises habitat delivery on or close to the development site. Should an on-site shortfall be identified at the detailed design stage, National Grid will look for alternatives offsite locally.

1. Introduction

1.1 Overview

1.1.1 This document accompanies National Grid Electricity Transmission plc's (here on referred to as 'National Grid') application for development consent to reinforce the transmission network between Bramford Substation in Suffolk, and Twinstead Tee in Essex. The Bramford to Twinstead Reinforcement ('the project') would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km comprising of overhead lines, underground cables and grid supply point substation. It also includes the removal of 25km of the existing distribution network and various ancillary works. A full description of the project can be found in Environmental Statement (ES) Chapter 4: Project Description (**application document 6.2.4**).

1.1.2 The purpose of this report is to demonstrate how biodiversity net gain (BNG) commitments can be achieved on the project within the Order Limits based on the Proposed Alignment.

1.1.3 In the Environmental Action Plan 2021–2026 (National Grid, 2021), National Grid has set key priorities, one of which is related to caring for the natural environment which states: '*We will value nature and will protect and enhance it where possible using 'natural capital' and 'net gain' principles'*.

1.1.4 In addition, the Government intends to commence mandatory BNG with 30 years set as the minimum period for which biodiversity gain must be secured. BNG is a strategy to develop land and contribute to the recovery of nature. It is a way of making sure the habitat for wildlife is in a better state than it was before development. It is anticipated that Nationally Significant Infrastructure Projects (NSIP) accepted for examination would be subject to the BNG requirement from November 2025.

1.1.5 Environmental net gain (ENG) is a broader approach than BNG as it includes improving the condition of, and ecosystems services that flow from, the natural environment. It is a concept of leaving the environment (not just nature) in a measurably better state compared to the pre-development baseline. In addition to BNG, ENG can include the contribution of diverse environmental improvements, ranging from aspects such as reductions in greenhouse gas emissions to reduced flood risk or improved water quality. BNG is therefore considered a narrower measurement focused on habitats and is a requirement for achieving ENG.

1.1.6 As part of its action plan (National Grid, 2021) National Grid has committed that by 2026 it will '*deliver net gain by at least 10% or greater in environmental value (including biodiversity) on all construction projects.*'

1.1.7 Measurable BNG can be achieved by either creating new habitats and/or enhancing existing habitats and can be quantitatively measured by using the biodiversity metric. This can then contribute to wider ENG, as explained in Chapter 6 of this report.

1.1.8 It should be noted however, that the permanent aspects of the project, including pylon locations, are not fixed and could be located anywhere within the Limits of Deviation (LoD), as defined on the Work Plans (**application document 2.5**). The location and orientation of the pylons, cable sealing end (CSE) compounds, grid supply point (GSP) substation and underground cables may change within the LoD. The use of the LoD could mean a change in the initial calculation. It is therefore considered that the BNG calculator and associated reporting would be iterative and updated throughout the planning and design phases of the project should development consent be granted.

1.2 Relevant Policy and Legislation

The Environment Act

1.2.1 The Environment Act 2021 introduced BNG into law, and Paragraph 3(2) of Schedule 15 to the Act confirms the requirement to be at least 10%. It is intended that this should apply across all terrestrial projects, or terrestrial components of projects, which are accepted for examination through the Nationally Significant Infrastructure Project (NSIP) regime from November 2025.

1.2.2 Whilst BNG is therefore not required by the Act at the time of Development Consent Order (DCO) application for the project in 2023, the principles are recognised as an integral component of emerging policy and aligns closely with National Grid's own commitments.

National Policy Statements

1.2.3 The project is an NSIP and therefore the National Policy Statements (NPS) provide the primary basis for decisions on applications. The relevant NPS for the project are the Overarching NPS for Energy (EN-1) and the NPS for Electricity Networks (EN-5), which were formally designated by the Department of Energy and Climate Change (DECC) in July 2011 (DECC, 2011a and 2011b, respectively).

1.2.4 Net gain is not referred to in the current EN-1 or EN-5, however these NPS are due to be replaced, and the 2021 consultation draft replacements both include reference to ENG and BNG. The government has undertaken public consultation on the draft replacements of NPS EN-1 (Department for Business, Energy and Industrial Strategy – (BEIS), 2021a) and NPS EN-5 (BEIS, 2021b), however these have not currently been designated and the current adoption date is unknown.

1.2.5 The consultation draft for EN-1 includes Section 4.5: Environmental and Biodiversity Net Gain, which states in paragraph 4.5.1:

'ENG is an approach to development that aims to leave the natural environment in a measurably better state than beforehand. Applicants should therefore not just look to mitigate direct harms, but also consider whether there are opportunities for enhancements. BNG is an essential component of ENG'.

1.2.6 Paragraph 4.5.2 of the consultation draft for EN-1 confirms:

'Although achieving BNG is not an obligation for projects under the Planning Act 2008, energy NSIP proposals should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity where possible. Applicants are encouraged to use the most current version of the Defra biodiversity metric to calculate their biodiversity baseline and inform their BNG outcomes and to present this data as part of their application'.

1.2.7 Paragraph 4.5.3 goes on to state:

'In addition to delivering BNG, developments may also deliver wider environmental gains relevant to the local area, and to national policy priorities, such as reductions in [greenhouse gas] emissions, reduced flood risk, improvements to air or water quality, or increased access to natural greenspace. The scope of potential gains will be dependent on the type, scale, and location of specific projects. Applications for development consent should be accompanied by a statement demonstrating how opportunities for delivering wider ENGs have been considered, and where appropriate, incorporated into the design (including any relevant operational aspects) of the project'.

1.2.8 The consultation draft for EN-5 includes Section 2.8: Environmental and Biodiversity Net Gain, which states in paragraph 2.8.1 that when planning and evaluating the project's contribution to ENG and BNG, '*it will be important - for both the Applicant and the Secretary of State - to supplement the generic guidance set out in EN-1 with recognition that the linear nature of electricity networks infrastructure allows excellent opportunities to:*

i) reconnect important habitats via green corridors, biodiversity stepping zones, and reestablishment of appropriate hedgerows; and/or

ii) connect people to the environment, for instance via footpaths and cycleways constructed in tandem with biodiversity enhancements'.

National Planning Policy Framework

1.2.9 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government (MHCLG), 2021) and accompanying National Planning Policy Guidance, (MHCLG, 2019) have identified that developments in England should deliver a net gain for biodiversity. The NPPF states in paragraph 174 that: '*Planning Policies and decisions should contribute to and enhance the natural and local environment by… minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.'*

Local Planning Policy

1.2.10 The relevant local planning documents also reference the need for developments to deliver net gain as part of the proposals. Mid Suffolk District Core Strategy (saved policies) (Mid Suffolk District Council, 2008) includes Policy CS5: Environment, which requires all development to maintain and enhance the environment. The emerging Babergh and Mid Suffolk Joint Local Plan (Babergh and Mid Suffolk District Council, 2021) contains policy SP09: Enhancement and Management of the Environment, which states that developments are required to maintain, protect, and enhance BNG.

1.2.11 Braintree District Council's adopted Local Plan (2022) includes Policy LPP 63: Natural Environment and Green Infrastructure, which states that developments should protect and enhance the natural environment, habitats, biodiversity and geodiversity. Policy LPP64: Protected Sites also supports proposals which provide a net gain in priority habitats.

National Grid Policy

1.2.12 In 2021 National Grid launched its 2021 – 2026 Environmental Action Plan, aligned to the UN Sustainable Development Goals, which sets out how over the following five-year period it should plan and manage its network. The Environmental Action Plan identifies four priorities, one of which is 'Caring for the natural environment'. Under this priority, National Grid has a policy commitment to go further than 'no net loss' and instead *'deliver net gain by at least 10% in environmental value (including biodiversity) on all construction projects'* (National Grid, 2021).

1.3 Structure of this Report

1.3.1 This report is structured as follows:

- Chapter 1: Introduction;
- Chapter 2: The Project;
- Chapter 3: Methodology for the Biodiversity Metric;
- Chapter 4: Existing On-Site Habitats;
- Chapter 5: Biodiversity Metric Results;
- Chapter 6: Proposed Enhancements;
- Chapter 7: Implementation, Management and Monitoring;
- Chapter 8: Conclusion and Next Steps;
- Appendix A: Site Specific Sheets;
- Figure 1: Environmental Area Design.

2. The Project

2.1 Overview

2.1.1 The reinforcement would comprise approximately 18km of overhead line (consisting of approximately 50 new pylons, and conductors) and 11km of underground cable system (with associated joint bays and above ground link pillars).

2.1.2 Four cable sealing end (CSE) compounds would be required to facilitate the transition between the overhead and underground cable technology. The CSE would be within a fenced compound, and contain electrical equipment, support structures, control building and a permanent access track.

2.1.3 Approximately 27km of existing overhead line and associated pylons would be removed as part of the proposals (25km of existing 132kV overhead line between Burstall Bridge and Twinstead Tee, and 2km of the existing 400kV overhead line to the south of Twinstead Tee). To facilitate the overhead line removal, a new GSP substation is required at Butler's Wood, east of Wickham St Paul, in Essex. The GSP substation would include associated works, including replacement pylons, a single circuit sealing end compound and underground cables to tie the substation into the existing 400kV and 132kV networks.

2.1.4 Some aspects of the project, such as the underground cable sections and the GSP substation, constitute 'associated development' under the Planning Act 2008.

2.1.5 Other ancillary activities would be required to facilitate construction and operation of the project, including (but not limited to):

- Modifications to, and realignment of sections of existing overhead lines, including pylons;
- Temporary land to facilitate construction activities including temporary amendments to the public highway, public rights of way, working areas for construction equipment and machinery, site offices, welfare, storage and access;
- Temporary infrastructure to facilitate construction activities such as amendments to the highway, pylons and overhead line diversions, scaffolding to safeguard existing crossings and watercourse crossings;
- Diversion of third-party assets and land drainage from the construction and operational footprint; and
- Land required for mitigation, compensation and enhancement of the environment as a result of the environmental assessment process, and National Grid's commitments to BNG.

2.1.6 For a full description of the project reference should be made to ES Chapter 4: Project Description (**application document 6.2.4**).

2.1.7 National Grid has used the mitigation hierarchy to avoid and reduce habitat loss through:

- Sensitive routing of the Proposed Alignment through the options appraisal as described in ES Chapter 3: Alternatives Considered (**application document 6.2.3**);
- Reductions in the land requirements to construct the project (and therefore associated vegetation removal); and

- Using non-standard construction techniques where appropriate such as trenchless crossings beneath sensitive habitats, the use of temporary clear span bridges and the use of protective matting rather than construction of temporary access routes where practicable.

2.1.8 A full description of the embedded measures can be found in the Register of Environmental Actions and Commitments (REAC) (**application document 7.5.2**) and good practice measures can be found in the Code of Construction Practice (CoCP) (**application document 7.5.1**).

3. Methodology for the Biodiversity Metric

3.1 Overview

3.1.1 This Chapter provides a description of the biodiversity metric and the assumptions that have been used as part of that to determine the quantitative output of BNG anticipated on the project.

3.1.2 The purpose of the calculation is to demonstrate how BNG could be successfully delivered for the project. However, as this is based on the Proposed Alignment and the assumed vegetation loss assumption shown on the Vegetation Retention and Removal Plans in Appendix A of the Landscape and Ecological Management Plan (LEMP) (**application document 7.8.1**), it is anticipated that, should the project be approved, further iterations of the biodiversity metric would be undertaken based on the final design and construction.

3.2 Biodiversity Unit Calculation

3.2.1 The biodiversity metric uses data from existing habitat surveys to calculates 'biodiversity units' using the size of the habitat, its quality and location. Estimated vegetation losses can then be inputted into the calculator to understand the loss or deficit anticipated during construction. The next step is to input the estimated vegetation reinstatement, which would bring the deficit back towards zero. It is unlikely that a balance of zero (i.e. 'no net loss') would be achieved from reinstatement alone, as there would likely be a loss of value of some habitats that would require a duration of time for the quality to restore.

3.2.2 Additional habitat creation can then be used to achieve net zero and any additional gain required.

3.2.3 Version 3.1 of the biodiversity metric was used as this was the latest version available at the time of application for development consent. This has been confirmed as the appropriate tool to use through discussions with stakeholders, for example, as recorded within the Statement of Common Ground with Natural England (**application document 7.3.2**).

3.2.4 The assessment was carried out in accordance with methodology specified within the following guidance:

- The Biodiversity Metric 3.1 – Technical Supplement (Natural England, 2022a); and
- The Biodiversity Metric 3.1 – User Guide (Natural England, 2022b).

3.2.5 The biodiversity metric includes three broad categories of habitats and biodiversity units for assessment:

- Area-based habitats;
- Hedgerows and lines of trees; and
- Rivers and streams.

3.2.6 These are considered in terms of their relative biodiversity units. The assessments are considered as standalone and units from one assessment cannot be combined with units from another (Natural England, 2022a). One of the fundamental rules that underpins the biodiversity metric is that these broad categories cannot be summed, traded or converted. Furthermore, trading down must be avoided with all habitat losses compensated for on a like-for-like or improved basis; new/restored habitats should always aim for a higher habitat distinctiveness and/or condition than those lost.

3.3 Biodiversity Baseline

Habitat Surveys

3.3.1 Field surveys were undertaken between June 2021 and June 2022 to gather the data on the baseline habitat type and condition required for the biodiversity metric. The survey coverage reflected the extent of the Order Limits and was undertaken by ecologists competent in botanical identification skills and experienced in the relevant methodology for the survey type being undertaken.

3.3.2 Where land access was not available, areas were habitat mapped through desk-based assessment using interpretation of aerial photography, Phase 1 survey data from 2012, surrounding mapped habitats and Natural England's (2020) Priority Habitat Inventory. A precautionary habitat condition score of moderate was provided where required (as a reflection of the score collected from across the project elsewhere).

3.3.3 Surveyors collected data using Arc Collector GIS software on geographical positioning system (GPS) enabled tablets. The minimum mapping unit (MMU), i.e. the specific size of the smallest feature that is reliably mapped, for data recording and map production was 25m^2 for area-based habitats and 5m for linear habitats.

3.3.4 Further details on the methodology used to undertake the baseline Habitat (UKHab) Survey, including limitations, can be found in ES Appendix 7.1: Habitats Baseline Report (**application document 6.3.7.1**).

Terrestrial Habitats

3.3.5 Field surveys were carried out using the methodology set out in the UKHab Classification User Manual Version 1.1 (Butcher *et al*., 2020) The principal aim of UKHab is to provide a rapid system for recording and classifying habitats. The system comprises a principal hierarchy (the Primary Habitats) - which include ecosystems, broad habitats, priority habitats and Annex 1 habitats - and non-hierarchical Secondary Codes.

3.3.6 Surveyors used the Professional Edition of the UKHab Classification, recording up to Level 5 of the UKHab primary hierarchy. UKHab secondary codes were used to help inform the habitat type where a direct translation of the UKHab Primary Habitat to biodiversity metric habitat types was not immediately obvious and further context was required. Habitat boundaries were drawn where there was a change in habitat type. In order to define those which are more fluid in terms of transition from one habitat type to another, it was coded to a dominant habitat if it covered more than 70% of the ground.

3.3.7 The Hedgerow Survey Handbook (Defra, 2007) was used to determine if a feature should be considered a hedgerow, hedgerow with trees, a line of trees or not a hedgerow at all. Surveyors categorised each hedgerow and treeline in line with UKHab methodology. Where expanded categories outlined in the biodiversity metric were required, these categories were applied using information collected in the field.

3.3.8 Habitat condition data was collected alongside the UKHab survey using the condition assessment criteria set out within the Technical Supplement (Natural England, 2022a).

River and Streams

3.3.9 Rivers were surveyed using the Modular River Physical (MoRPh) survey methodology. The streams baseline linear habitat data for the project is derived from desk study information including aerial imagery, photographs taken from site and historic maps. Combined, the habitat categories include other rivers and streams, ditches, canals and culverts.

3.3.10 The habitats were determined from field surveys carried out between August 2021 and April 2022, with ditches categorised in accordance with the definition provided in the biodiversity metric guidance (Natural England, 2022a) which states *'Artificially created, linear water-conveyancing features that are less than 5m wide and likely to retain water for more than four months of the year. Their hydraulic function is primarily for land drainage, and although partially or fully connected to a river system, they would not have been present without human intervention'.*

3.3.11 The MoRPh survey was undertaken to characterise the channel, banks and immediate bank tops (to 10m from the bank top edge) of a river. The MoRPh survey comprised all rivers within the Order Limits as shown on ES Figure 7.3.1: Aquatic Ecology Baseline (**application document 6.4**). The MoRPh surveys were undertaken between the 31 August and 3 September 2021 or the 27 and 28 April 2022. The methodology and the results of the MoRPh surveys undertaken for the project can be found in ES Appendix 7.3: Aquatic Ecology Baseline Report (**application document 6.3.7.3**).

3.3.12 Once the survey was completed, the data gathered on the morphological characteristics of the watercourse surveyed was entered into the Cartographer website. The Cartographer website was used along with desk study information to conduct the necessary analyses to provide the River Type (category A to M) used within the assessment. Further details can be found in ES Appendix 7.3: Aquatic Ecology Baseline Report (**application document 6.3.7.3**).

3.3.13 A partial ditch survey was completed as part of the assessment. It has been assumed that all of the watercourses classified as ditches meet the habitat description given in the biodiversity metric Habitat Condition Sheets. This assumption has been made for all watercourse not assessed using the MoRPh/RCA methodology.

3.3.14 An assumption has been made that condition class for all ditches under pre-existing / baseline conditions is poor. This assumption was based on professional judgement, acknowledging the likelihood of ditches meeting at least five of the eight condition assessment criteria required for the classification to exceed poor in the biodiversity metric Habitat Condition Sheets. It was also based on the results of the partial survey and supported by photographs taken during other surveys.

3.4 Biodiversity Metric

Iterations of the Biodiversity Metric

3.4.1 During the development of the project, there have been three different iterations of the biodiversity metric which have been used when available (the biodiversity metric was updated from v.2.0 to v3.0 in July 2021, and then again to v3.1 in April 2022). Version 3.1 of the biodiversity metric included revised guidance and criteria for habitat condition assessment, which meant there were data gaps for those habitat parcels which were assessed using v2.0 or v3.0 condition criteria. In order to fill these gaps without having to resurvey, the following precautionary assumptions were made:

- The answers determined from the biodiversity metric v.2.0 assessment where the criteria are the same as for v3.1 were used directly;
- Where the criteria were similar but not the same, a set of assumptions to the answers provided for the biodiversity metric v.2.0 condition assessment were used, using the updated condition criteria set out for the biodiversity metric v.3.1; and
- If no data was available to answer additional (i.e. new) condition criteria in biodiversity metric v.3.1, a precautionary approach has been taken i.e. answer ‘yes’, where it is feasible for that specific condition criteria to be met and there is no evidence to say it is not met.

Adding Data to the Biodiversity Metric

3.4.2 The following data was entered into the biodiversity metric to determine the biodiversity baseline:

- Habitat type and extent hectares (ha) for area-based habitat or kilometres (km) for hedgerows, and river and streams: each habitat is automatically assigned a predefined distinctiveness rating (ranging from very low to very high);
- Habitat condition multiplier: poor, moderate, or good (or an intermediate value where appropriate) based on condition assessment criteria defined for each habitat type;
- Strategic significance multiplier: poor, medium, or good, depending on the spatial location, whether area is formally recognised in local strategy (including catchment and restoration plans for rivers and streams) or is ecologically desirable (for area-based and hedgerow habitats only); and
- Watercourse and riparian encroachment (rivers and streams only): The extent of any interventions, encroachment into the riparian zone and watercourse channel.

3.4.3 The combination of this data produced a total number of units for each habitat, and subsequently how many overall habitat units form the biodiversity baseline for each category. This information was then used to assess the total units retained and lost.

Approach to Irreplaceable Habitats, Statutory Designated Sites and Habitats of Very High Distinctiveness within the Order Limits

3.4.4 The Proposed Alignment is the result of an options appraisal which started with strategic options that could deliver the project need, through to route corridors, potential alignments and then detailed iterations when developing the Proposed Alignment and Order Limits. Through this process, designated ecological sites and important habitats were avoided where practicable as part of the EIA process. Further details can be found in ES Chapter 3: Alternatives Considered (**application document 6.2.3**).

3.4.5 The Biodiversity Metric User Guide (Natural England, 2022b) states that impacts upon irreplaceable habitats and statutory designated sites require separate consideration which must comply with relevant policy and legislation. Irreplaceable habitats are defined by the NPPF (MHCLG, 2021) as '*habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen*'.

3.4.6 Data relating to irreplaceable habitats and statutory designated sites can still be entered into the biodiversity metric to provide an indicative picture of the biodiversity value of the site and to allow actions to enhance or restore these important habitats to contribute towards the delivery of net gain.

3.4.7 The following such features have been identified within the Order Limits:

- Hintlesham Woods Site of Special Scientific Interest (SSSI) (comprising Ancient Woodland) (statutory designated site and irreplaceable habitat);
- Potential ancient woodland sites within (PoAWS4) and to the north of Hintlesham Woods (PoAWS5), and as part of Ansell's Grove/Ash Ground Local Wildlife Site (LoWS) (PoAWS10) (both irreplaceable habitat);
- Veteran trees (irreplaceable habitat); and
- Hadleigh Railway Walk Local Nature Reserve (LNR) (comprising lowland deciduous woodland) (statutory designated site).

3.4.8 Ancient woodland has been largely avoided except for where the Order Limits intersects Hintlesham Woods SSSI where there is an existing overhead line. Vegetation management works within Hintlesham Woods SSSI (including PoAWS4) would comprise coppicing vegetation to ground level for a width of 20m along the operational maintenance swathe associated with the existing 400kV overhead line. The impacted habitat is secondary woodland on ancient woodland soils (woodland historically removed for the installation of the existing overhead line) within the SSSI. The trees would be cut with a graduated height for an additional 12.5m on either side of the 20m coppiced swathe to lift the conductors onto the arms of the conductors in accordance with embedded measure EM-AB12 in the REAC (**application document 7.5.2**). After installation, the woodland habitat would re-establish and continue to be managed as per the existing baseline.

3.4.9 PoAWS5 is a linear tree belt connecting the northern boundary of Hintlesham Woods SSSI (Ramsey Wood component) to the A1071. A temporary 5m wide access route would be required across this tree belt with an additional 20m length of coppicing and pruning to the maximum conductor swing extent to maintain safety distances between the vegetation and new overhead line. Soil from the PoAWS5 would be stored separately to general soil storage so that it can be replaced at PoAWS5, where soil is suitable for reuse (for example, not contaminated) in accordance with embedded measure EM-AB05.

3.4.10 The biodiversity unit value of both the irreplaceable habitat lost in the baseline and bespoke woodland compensation created post-intervention, are excluded from this Metric assessment.

3.4.11 Impacts on veteran trees have been largely avoided except for the unavoidable loss of one veteran oak *Quercus* (T378) located in Section G: Stour Valley.

3.4.12 Hadleigh Railway Walk LNR could permanently lose approximately 0.07ha of woodland habitat to give sufficient space to install a new pylon to the east. Post-works, scrub habitat would be planted. This is included in the Metric.

3.4.13 Impacts on very high distinctiveness area-based habitats are limited to 0.036 ha of purple moor grass and rush pastures which would be reinstated post-development. As this is considered habitat compensation, it is excluded from the Metric calculations (i.e. the reinstatement omitted from Tab A-2 Site Habitat Creation).

Calculation Inputs, Assumptions and Limitations

3.4.14 The biodiversity metric calculation is based on:

- The Proposed Alignment presented on the General Arrangement Plans (**application document 2.10**);
- The assumed vegetation loss as shown on the Vegetation Retention and Removal Plans which are in Appendix A of the LEMP (**application document 7.8.1**);
- The assumed vegetation reinstatement as shown on the Vegetation Reinstatement Plans which are in Appendix B of the LEMP (**application document 7.8.2**); and
- The planting shown on Figure 1: Environmental Area Design of this report.

3.4.15 The following assumptions have been made for the calculation used unless a specific commitment had been made otherwise in the REAC (**application document 7.5.2**) and as shown on the Vegetation Retention and Removal Plan (**application document 7.8.1**).

Coppicing

3.4.16 Coppicing can be seen as an enhancement tool for woodland habitat if undertaken as part of a rotation management plan. The coppicing required for installation of new overhead lines, and the operational management to maintain safety distances between the lines and the vegetation underneath, is repeated works in the same location and is therefore considered an adverse impact. This has been used to develop a separate defined approach to calculating the biodiversity unit change for woodlands and hedgerows where coppicing and continued operational management is required.

3.4.17 In terms of the biodiversity metric and habitat condition, coppiced woodland would change one criterion within the woodland condition assessment sheet: criterion 10, which relates to the woodland vertical structure, with the remaining 12 criteria unaffected. As such, a reduction of condition by one grade i.e. high to moderate or moderate to poor, would be applied to all woodland and hedgerows impacted by coppicing for the full extent of coppicing works i.e. a 45m wide swathe. Ongoing management would be to maintain the operational safety clearance and would not require repeat coppicing to ground level. As a bespoke approach, this is reported separately from other impacts to woodland which are directly accounted for in the standard biodiversity metric (with the change in coppice units manually subtracted from the overall biodiversity metric score). This was necessary as a reduction in habitat condition cannot be entered into the biodiversity metric.

3.4.18 Where the overhead line is permanently removed, it is assumed that the woodland parcel below would be allowed to fully re-establish with no limit on canopy height (i.e. not kept under coppice management). No change in the overall condition score would be anticipated for the 30-year duration of the biodiversity metric assessment but could improve over a longer timescale.

Habitat Grouping

3.4.19 Most lower distinctiveness habitats were not surveyed beyond UKHab level 2 (e.g. cereal crops, cereal crops other, non-cereal crops, horticulture, intensive orchards, and temporary grass and leys). These habitats have therefore been grouped together as ‘cereal crops’. This was not considered a significant limitation as the temporal difficulty is low for each of the lower distinctiveness cropland habitats (one year to target condition / 0.965 final time target multiplier).

Habitat Creation / Enhancement

3.4.20 The biodiversity metric calculation tool requires consideration of any advance planting or delays in habitat creation between the time of habitat loss and subsequent creation/re-creation. For all area-based habitats, hedgerows, and rivers and streams, it is assumed there is no advanced or delayed plantings.

4. Existing On-Site Habitats

4.1 Habitat Overview

4.1.1 An overview of the baseline habitats identified within each section of the project are described below. A summary of this existing baseline habitat summary in terms of Biodiversity Unit Type as part of the biodiversity metric is then provided in Table 4.1. Further details on the existing habitats within the Order Limits can be found in ES Appendix 7.1: Habitats Baseline Report (**application document 6.3.7.1**).

4.1.2 In general, the Order Limits are characterised by an arable farmscape on slightly acid loamy soils, intersected by a network of old species-rich hedgerows, ancient woodland, and pastoral valley floodplains.

4.1.3 In accordance with published guidance (Chartered Institute of Ecology and Environmental Management (CIEEM), 2021), a summary of the important ecological features identified and why certain receptors do not influence the feasibility of BNG, is provided in the section descriptions.

Section AB: Bramford Substation/Hintlesham

4.1.4 Section AB extends southwest from Bramford Substation in the far north-eastern corner and west from Fen Farm at the far east (approximately 2.5km south of Bramford substation) towards Hintlesham Woods SSSI. The Order Limits then converge southwest of the SSSI and continue onto the disused Hadleigh railway line at the far west, which is sited south-east of Hadleigh town.

4.1.5 The Order Limits in Section AB measure approximately 237ha and are predominantly characterised by cropland (occupying approximately 72%) and intermittent grassland (18%). The remaining broad habitat categories include heathland and shrub (<1%), lakes (<1%), wetland (<1%), rivers and streams (<1%), urban (4%) and woodland (4%).

4.1.6 The following priority habitats feature within Section AB: arable field margins; hedgerows; eutrophic standing waters; purple moor grass and rush pastures; lowland mixed deciduous woodland; and wet woodland. With the exception of arable field margins and hedgerows, which are frequent and widespread, the priority habitats are mainly confined to statutory and non-statutory designated sites as expanded upon below.

4.1.7 Hintlesham Woods SSSI features in the centre of Section AB. This is one of the largest areas of ancient coppice-with-standards woodlands in Suffolk and is further linked to other ancient woodland in the vicinity by secondary woodlands. A new overhead line is proposed around the northern edge of the SSSI, through cropland fields intersected by hedgerows. Works within the SSSI would be restricted to the existing maintenance swathe underneath the existing 400kV overhead line and are excluded from the biodiversity metric.

4.1.8 At the far western end adjoining Section C: Brett Valley, Section AB is delimited by Hadleigh Railway Walk LNR and County Wildlife Site (CWS). This designated site is formed from semi-natural habitats such as open chalky bolder clay grassland and woodland on steep banks of the disused railway cutting.

4.1.9 To the immediate east of Hadleigh Railway Walk LNR is Valley Farm Meadow CWS. The CWS is formed from an area of low-lying land and partly waterlogged year-round.

Section C: Brett Valley

4.1.10 Section C extends from the disused Hadleigh railway line at the far east to Overbury Hall at the west, with the River Brett running north-south through the centre. The Order Limits within Section C measure approximately 25ha and are predominantly formed by cropland (77%), with grassland (11%) also featuring alongside the riparian corridor in the centre and towards the west. The remaining broad habitat categories include heathland and shrub (<1%), wetland (<1%), rivers and streams (<1%), urban (5%), and woodland (6%).

4.1.11 There are no statutory or non-statutory sites within Section C. There is one priority habitat within Section C, hedgerow habitat, which is widespread throughout.

Section D: Polstead

4.1.12 Section D extends from Overbury Hall at the east before diverging towards the west and ending at Sprouts Hall and Sprouts Farm. The Order Limits in Section D measure 48ha and are predominantly formed from cropland (59%), with smaller areas of woodland (13%), urban (13%), and grassland (11%). The woodland is located within and surrounding non-statutory designated sites towards the east and west, and a quarry in the centre where urban habitat also features. The grassland is located within and surrounding a non-statutory designated site (Valley Farm Wood CWS) at the far east and pastoral fields to the west. The remaining broad habitat categories include heathland and shrub (3%), wetland (<1%), lakes (<1%), rivers and streams (<1%).

4.1.13 The following priority habitats feature within Section D: arable field margins; hedgerows; mesotrophic standing waters; lowland mixed deciduous woodland; and wet woodland. With the exception of arable field margins and hedgerows which are frequent and widespread, the priority habitats are mainly confined to non-statutory designated sites as expanded upon below.

4.1.14 Three non-statutory designated sites occur within Section D, Valley Farm Wood CWS at the far eastern end, Layham Pit Woodland and Meadow CWS in the centre and Millfield Wood CWS towards the western extent. Valley Farm Wood CWS is formed from secondary woodland with an area on its northern side considered to be ancient. Layham Pit Woodland and Meadow CWS is an active quarry, with areas of undisturbed habitats fed by a cut off tributary with habitats of semi-natural woodland, wet woodland unimproved wet grassland and fen meadow and Millfield Wood CWS is semi-natural woodland and also designated ancient woodland.

Section E: Dedham Vale AONB

4.1.15 Underground cables are proposed in Section E which extends from Sprouts Hall and Sprouts Farm at the east, towards the River Box, before diverging onto Hill Farm and south of Blackthorn Lodge at the west. The Order Limits in Section E measure approximately 65ha and are predominantly formed from cropland (60%) and grassland (34%). The remaining broad habitat categories include heathland and shrub (<1%), wetland (<1%), rivers and streams (<1%), urban (3%), and woodland and forest (2%).

4.1.16 The following priority habitats feature within Section E: arable field margins and hedgerows (which are widespread throughout); and lowland mixed deciduous and wet woodland (towards the east and west of the River Box).

4.1.17 The Dollops CWS features at the eastern end of the section near Sprouts Farm. The site is formed from woodland situated along the course of a stream, which has a varied structure due to a steep topography down to the watercourse.

4.1.18 Broomfield Wood CWS features to the east of the River Box. The site is formed from an ancient woodland which has been partially replanted with non-native species although still holds a wide age range of native tree species.

Section F: Leavenheath/Assington

4.1.19 Section F extends from Hill Farm and south of Blackthorn Lodge at the east onto Stanton's Farm at the west. The Order Limits in Section F measure approximately 86ha and are predominantly formed from cropland (71%), intermittent grassland (12%) and urban habitats (10%). The remaining broad habitat categories include heathland and shrub (<1%), wetland (1%), and woodland (6%).

4.1.20 The following priority habitats feature within Section F: arable field margins and hedgerows (widespread throughout); open mosaic habitat on previously developed land and wet woodland (along a brook in the section centre); and lowland mixed deciduous woodland (around a small field pond towards the east).

Section G: Stour Valley

4.1.21 Underground cables and overhead lines are proposed in Section G. The Order Limits in Section G measure approximately 161ha and are predominantly formed from cropland (51%) and grassland (36%). The remaining broad habitat categories include heathland and shrub (2%), wetland (<1%), rivers and streams (<1%), urban (3%), and woodland and forest (8%).

4.1.22 The following priority habitats feature within Section G: arable field margins and hedgerows; lowland dry acid grassland; river; open mosaic habitat on previously developed land; and lowland mixed deciduous and wet woodland. Arable field margins and hedgerows are frequent and widespread throughout, whereas lowland dry acid grassland is located at the far western end northeast of Twinstead. The remaining priority habitats are mainly confined to non-statutory designated sites as expanded upon below, and the main watercourses which cross the Order Limits.

4.1.23 Alphamstone Meadows LoWS is located towards the western end of Section G and contains diverse habitats including wet meadows, dry grassland, alder carr, woodland, swamps and marsh.

4.1.24 Loshes Meadow Complex LoWS (part Essex Wildlife Trust (EWT) Reserve) is located to the north of Twinstead Tee beneath the existing 400kV overhead line. The site contains a mosaic of grassland, woodland, plantations, hedgerows and marsh. The Loshes Brook to the north of the site provides further habitats for wildlife.

4.1.25 Ansell's Grove/Ash Ground LoWS is located at the western end of the Order Limits beside Henny Back Road. The LoWS is characterised by woodland within a valley varying in structure from the damp valley centre to the dryer slopes. Wet woodland indicator species are present as well as ancient woodland indicative species.

4.1.26 Twinstead Marsh LoWS is located at the far western end, north of Twinstead. The LoWS holds a wide variety of habitats including alder and willow carr, marsh and open water.

Section H: GSP Substation

4.1.27 The Order Limits in Section H measure approximately 23ha and are predominantly formed from cropland (79%), with intermittent grassland (10%).

4.1.28 The remaining broad habitat categories include heathland and shrub (<1%), urban (8%), and woodland and forest (3%). The following priority habitats feature within Section G: arable field margins and hedgerows (which are widespread throughout); and wet woodland (at the far western end north-west of Wickham St Paul).

4.2 Existing Habitat Summary

4.2.1 A summary of the habitat baseline is provided in Table 4.1.

Table 4.1 – Habitat Baseline

Biodiversity Unit Type	Habitat	On-site Units	Total Units
Area Habitat			**2231.9**
	Cropland	891.1	
	Arable field margins	54.3	
	Purple moor grass and rush pastures	5.7	
	Lowland dry acid grassland	0.5	
	Other lowland dry acid grassland	2.0	
	Bracken	1.6	
	Other neutral grassland	451.9	
	Modified grassland	332.8	
	Blackthorn scrub	0.5	
	Hazel scrub	0.5	
	Bramble scrub	3.9	
	Gorse scrub	0.3	
	Mixed scrub	72.0	
	Ponds (Priority Habitat)	13.3	
	High alkalinity lakes	2.1	
	Moderate alkalinity lakes	2.7	
	Vegetated garden	3.1	
	Open Mosaic Habitats on Previously Developed Land	43.4	
	Wet woodland	95.6	
	Lowland mixed deciduous woodland	178.0	
	Other woodland; broadleaved	50.9	

Biodiversity Unit Type	Habitat	On-site Units	Total Units
	Other woodland; mixed	25.7	
Hedgerows and Line of Trees			**510.7**
	Hedgerows	487.4	
	Line of trees	23.3	
Rivers and Streams			**76.1**
	Priority rivers	0.0	
	Other rivers and streams	31.1	
	Ditches	45.0	

4.3 Wider BNG Assumptions

4.3.1 This section describes wider assumptions that have informed the BNG calculation. It includes reference where appropriate to measures set out in the Register of Environmental Actions and Commitments (REAC) (**application document 7.5.2**) and the Code of Construction Practice (CoCP) (**application document 7.5.1)**.

4.3.2 The REAC details embedded measures (prefixed EM-), which are typically intrinsic to the design submitted as part of the application for development consent, as well as the additional mitigation measures (prefixed EIA_) that have been identified through the EIA to avoid or reduce likely significant effects.

4.3.3 The CoCP sets out the standard good practice measures (for example GG01) that will be undertaken during construction of the project if it is granted consent.

Section AB: Bramford Substation/Hintlesham

4.3.4 At Hadleigh Railway Walk LNR, efforts would be made to reduce the impact on trees (LV01) however, some vegetation may have to be cut in order to put netting over the scaffold crossing. No temporary access route would be located within the Railway Walk LNR, Hadleigh (between approximate X, Y 604355, 241072 to 604145, 241135) (EM-C02).

4.3.5 At Valley Farm Meadow CWS the temporary access route through this area avoids wet woodland and fen marsh and swamp habitat (EM-AB03). It is anticipated that purple moor grass and rush pastures would be impacted during construction and reinstated afterwards.

4.3.6 There are two further CWS that feature off-site in proximity of Section AB which are not anticipated to be affected by the project. The Order Limits avoid the ancient woodland habitat of Tom's / Broadoak Wood CWS at the western end of the section. There would be no effect on the Belstead Brook, which discharges at the eastern end of the section into Sproughton Park CWS as no temporary access route crossing is proposed.

Section C: Brett Valley

4.3.7 There would be no effect on the River Brett crossing (clear span bridge proposed as per good practice measure W17). There are no likely effects on the River Brett CWS downstream.

Section D: Polstead

4.3.8 There is anticipated to be a minor permanent loss of non-priority woodland in Valley Farm Wood CWS for installation of a new pylon but habitat reinstatement where an existing pylon would be removed. Minor permanent loss of priority woodland in Layham Pit Woodland and Meadow CWS would also be required for pylon installation. These new pylon bases would be planted post construction with scrub species which would be maintained at a reduced height during operation. Millfield Wood CWS lies towards the western extent of Section D outside of the Order Limits and would not be affected by the project. The LEMP (**application document 7.8**) details the approach to working near trees, including ancient woodland.

Section E: Dedham Vale AONB

4.3.9 In The Dollops CWS, an embedded measure has been made (EM-E02) to confine the works associated with the removal of the 132kV overhead line to the existing maintenance swathe. The conductors would be lowered down and pulled out. No vehicles would be used within the woodland. Once the 132kV overhead line has been removed, the maintenance swathe would be left to recolonise naturally.

4.3.10 The River Box would be crossed by underground cables using a trenchless technique (EM-E05). A clear span bridge is also proposed at this location to avoid impacts on the river channel. No effects are foreseen on Broomfield Wood CWS features to the east of the River Box as no vegetation clearance is required and an exclusion zone implemented to avoid this site.

Section F: Leavenheath/Assington

4.3.11 Two designated sites feature off-site in proximity to Section F; Arger Fen SSSI is formed from lowland and wet woodlands, fen and acid and calcareous grassland habitats. Tiger Hill LNR is a component of Arger Fen SSSI and is formed from heathland, fen and woodland. Good practice measures outlined in the CoCP (**application document 7.5.1**) (specifically GG04, GG06, GG15, W02, W03 and W15) would reduce potential for accidental sedimentation and pollution incidents on the watercourse which feeds into Arger Fen SSSI and LNR. No other effects are anticipated.

4.3.12 Leadenhall Wood CWS is ancient woodland consisting of mainly ash and lime coppice and lies just outside of the Order Limits. The LEMP (**application document 7.8**) details the approach to working near designated trees which includes ancient woodland.

4.3.13 Arger Fen and Spouse's Vale SWT Reserve is a mosaic of ancient coppice woodland and new naturally regenerating woodland alongside wet meadows. Tiger Hill Long Meadow CWS is designated for its fen meadow habitats. Both sites lie outside of the Order Limits and are unlikely to be affected by the project, when assuming good practice measures outlined in the CoCP (including GG04, GG15, W02, W03 and W15) are in place (**application document 7.5.1).**

Section G: Stour Valley

4.3.14 It is proposed that underground cables will cross Alphamstone Meadows Local Wildlife Site (LoWS) using a trenchless construction technique and a commitment has been made to use existing routes through the woods for construction access (EM-G08). There are no anticipated effects on the site once the good practice measures in the CoCP (**application document 7.5.1**) are in place and no habitat impact is included in the biodiversity metric.

4.3.15 Works at the following sites include pruning to provide safety clearance around an existing pylon to undertake conductor works: Loshes Meadow Complex LoWS (part Essex Wildlife Trust (EWT) Reserve), Ansell's Grove/Ash Ground LoWS, and Twinstead Marsh LoWS. There is no vegetation clearance required at ground level and no habitat impact is included in the biodiversity metric.

4.3.16 The River Stour would be crossed by underground cables using a trenchless technique (EM-G04). A clear span bridge is also proposed at this location to avoid impacts on the river channel and no habitat impact is included in the biodiversity metric.

Section H: GSP Substation

4.3.17 The proposed GSP substation borders two areas of ancient woodland (Butler's Wood LoWS and Waldegrave Wood LoWS). However, construction works would not encroach into or beyond the ditch that runs east west along the northern and southern edges of the GSP substation (EM-H03) preventing any direct impacts on those habitats. Occasional operational safety management may be required on individual trees where branches overhang.

5. Biodiversity Metric Results

5.1 Introduction

5.1.1 This section describes the outputs of the biodiversity metric based on the Proposed Alignment and current assumptions at the point of the application for development consent.

5.1.2 The biodiversity metric results excluding the impact of coppicing are presented in Table 5.1. As a bespoke approach to incorporating the impacts of coppicing in the biodiversity metric calculations has been taken, this is discussed separately and then presented, combined, with the output shown in Table 5.2.

5.2 Area-Based Habitats

5.2.1 The vast majority of habitat impacts would be temporary with permanent losses limited to arable and improved grassland habitat in the footprint of the GSP substation, the four CSE compounds, their permanent access tracks and where woodland at the base of new pylons cannot be reinstated due to operational requirements (although would be replaced by scrub).

5.2.2 In addition to standard habitat reinstatement (like for like), the following habitats would be created within the Order Limits: marshy grassland (specified as 'other neutral grassland' in the biodiversity metric), mixed scrub, ponds (priority habitat) and other woodland, broadleaved. In the absence of the coppicing of woodland habitats, there would be a gain of 306.9 biodiversity units post-development for all area habitats (see Table 5.1).

5.2.3 The separate coppicing impact on woodland habitats is expressed as the difference in biodiversity units between the baseline condition category of the impacted woodlands in the Order Limits and that when the condition category is reduced by one category. The baseline biodiversity units for impacted woodland is 44.8 units. If these were reduced by one condition category, the biodiversity units reduce to 24.0. The difference of 20.9 units is the adverse change in woodland condition which is used in the biodiversity metric. When this is combined with the other habitat areas, a net gain is the result at 12.8%.

5.3 Hedgerows and Line of Trees

5.3.1 The majority of hedgerows and lines of trees impacted by the project would be reinstated post works with approximately 72m of hedgerow being permanently lost, for example at the location of any permanent access routes. Reinstatement of hedgerows to increased condition as well as enhancing retained poor quality and some moderate quality hedgerows within the Order Limits would generate approximately 100.4 biodiversity units.

5.3.2 The separate coppicing impact on hedgerows and lines of trees is expressed as the difference in biodiversity units between the baseline condition category of the impacted features in the Order Limits and that when the condition category is reduced by one. The baseline biodiversity units for impacted hedgerows and lines of trees is 80.4 units. If these were reduced by one condition category, the biodiversity units reduce to 48.5. The difference of 31.9 units is the adverse change in hedgerow and tree line condition which is used in the biodiversity metric. When this is combined with the impacts on hedgerows and lines of trees, a net gain is the result at 13.4%.

5.4 Rivers and Streams

5.4.1 In order to meet the trading rules of the metric, ditches and rivers have been split into two separate metrics: ditches and rivers.

5.4.2 There is a -0.2% defect in ditch units based on the proposed baseline and reinstatement proposals for ditches within the Order Limits. National Grid will work with contractors during the detailed design to reduce impacts on ditches where possible.

5.4.3 For rivers, all watercourses within the Order Limits were classified as onsite (consistent with Section 3.2 of the Biodiversity Metric User Guide (Natural England, 2022b)). Proposed enhancement of a 368m length of the River Stour within the Order Limits through management of invasive non-native species and/or increasing the complexity of riparian vegetation would result in a +12.4% change in biodiversity units.

5.4.4 Overall, this would therefore result in a net gain of +5.0% for rivers and streams.

5.5 Biodiversity Metric Summary

5.5.1 A summary of the biodiversity metric is provided in Table 5.1 (which excludes the impact of coppicing) and Table 5.2 (which includes the impact of coppicing).

Table 5.1 – Biodiversity Metric Summary (excluding coppicing impact)

Biodiversity Unit Type	Baseline Units	Post Development Units	Change in Biodiversity Units	Net Change
Area habitat	2231.9	2538.9	+306.9	+13.8%
Hedgerows and lines of trees	510.7	611.1	+100.4	+19.7%
Rivers and streams	76.1	79.8	+3.8	+5.0%

Table 5.2 – Biodiversity Metric Summary (including coppicing impact)

Biodiversity Unit Type	Baseline Units	Post Development Units	Change in Biodiversity Units	Net Change
Area habitat	2231.9	2518.0	+286.1	+12.8%
Hedgerows and lines of trees	510.7	579.2	+68.5	+13.4%
Rivers and streams	76.1	79.8	+3.8	+5.0%

5.6 Alternative Mechanisms

5.6.1 Although the habitat reinstatement and creation proposals within the Order Limits, at this stage of the project, do not meet the 10% net gain target for rivers and streams, it is assumed that should the project be approved, that detailed design would refine and enhance the outline proposals provided here to increase the BNG output within the Order Limits.

5.6.2 In line with both Government requirements and National Grid targets, National Grid is committed to delivering at least a 10% BNG on this project. National Grid will continue to seek ways to increase river and stream gains to achieve the 10% BNG target.

5.6.3 It should be noted that there may be additional opportunities to enhance the watercourses temporarily affected by the proposed bridges though creating better connectivity with adjacent floodplains, addition of backwaters and ponds in the riparian environment as well as a wide range of instream and bankside interventions. Furthermore, to deliver no net loss for ditches would require the creation of approximately 30m of Poor, 17m of Moderate or 14m of Good condition ditch within the Order Limits.

5.6.4 The biodiversity net gain approach embeds a fundamental principle for spatial hierarchy of habitat delivery, where there is a preference for onsite or local enhancements. The aims therefore on the project (in accordance with best practice) are to deliver on-site biodiversity units or offsite locally by improving habitats and biodiversity local to the site of impact. The biodiversity metric incentivises habitat delivery on or close to the development site.

5.7 Trading Rules

5.7.1 At this stage of the project, trading rules relating to habitat distinctiveness (i.e. habitats of the same distinctiveness are created/enhanced to those habitats impacted) are not met for two high distinctiveness habitats: -28.6 units of lowland mixed deciduous woodland; and -0.5 units of wet woodland. The loss and modification of woodland resulting in degradation has been mitigated for by the creation of nearly 35ha of other woodland, broadleaved habitat. However, despite the increase in woodland extent post development, there is a net loss of woodland units and a failure of the trading rules. This is because of two main reasons:

- The impact to areas of semi-natural, lowland mixed deciduous woodland, which is assigned a high distinctiveness in the biodiversity metric, is not mitigated for on a like for like basis i.e. it has been compensated by the creation of other broadleaved woodland and other mixed broadleaved woodland, which are medium distinctiveness woodland types, due to the acknowledged level of difficulty in creating high distinctiveness woodland; and
- Woodland creation takes time and this is recognised in the biodiversity metric where significant risk multipliers are applied to woodland creation. This results in an overall loss of woodland units despite an increase in extent of woodland within the Order Limits post-development.

6. Proposed Enhancements

6.1 Overview

6.1.1 This section sets out the project proposals for delivering BNG on the project. These are based on the results of the biodiversity metric (as set out in Chapter 5).

6.1.2 Environmental assessment has been an integral part of the project design process since conception, embedding measures into the design of the project to avoid or reduce significant effects that may otherwise be experienced during construction and operation of the project. Through this process, National Grid has also sought opportunities to deliver a range of environmental enhancements, working with appointed technical specialists, environmental organisations and landowners to identify potential opportunities.

6.1.3 All planting set out in the ES (**application documents 6.1-6.4**), the LEMP (**application document 7.8**) and the proposed enhancement areas are factored into the biodiversity metric but only enhancement areas are described further within this report to avoid duplication with the ES and LEMP.

6.2 Identification of Environmental Areas

6.2.1 Potential 'Environmental Areas' were identified through workshops with landscape architects and ecologists in 2021 following desk-based searches and habitat condition survey site visits to identify areas within close proximity to the project that would be suitable locations for delivering BNG, such as habitat creation. Multifunctional areas were prioritised providing mitigation or enhancements for different environmental aspects i.e. sites where landscape mitigation and biodiversity gains could be achieved.

6.2.2 A meeting with the following stakeholders was held on 21 November 2021 to provide a general overview of the project including current design (at that time), to discuss the process and principles for developing environmental gain (including BNG), and to review initial proposals for environmental areas within the proposed Order Limits. The meeting included representatives from the following organisations:

- Babergh and Mid-Suffolk District Councils;
- Braintree District Council;
- Dedham Vale Area of Outstanding Natural Beauty (AONB) and Stour Valley Partnership;
- Essex County Council;
- Natural England;
- Royal Society for the Protection of Birds (RSPB);
- Suffolk County Council; and
- Suffolk Wildlife Trust.

6.2.3 Attendees were also invited to identify any other areas of potential environmental gain that National Grid may be able to develop as part of the project. Input on net gain was also sought through discussion with landowners, consultation events and through other thematic meetings with environmental stakeholders.

6.2.4 Where potential opportunities were identified, including those raised through the consultation responses received during the statutory and targeted consultations, these were subject to consideration by National Grid and its environmental advisors, to consider aspects such as technical feasibility and land availability. Where feasible, this then informed the iterative design process.

6.3 Environmental Areas

6.3.1 A shortlisting exercise was undertaken following the feedback received at the Statutory Consultation alongside the evolving design and the EIA process being undertaken for the application for development consent. One additional area was identified, River Stour, which would benefit from the management of invasive non-native species (INNS) present within the Order Limits as well as bank stabilisation and enhancing biodiversity along the watercourse.

6.3.2 The proposals would provide a range of environmental benefits considered to contribute to wider ENG targets which are described in Table 6.1. The iterative process has helped refine and reduce land take and vegetation loss on the project, as well as to confirm any additional planting required as set out in the ES and the LEMP. A full description of the proposed environmental areas is provided in Appendix A: Site Specific Sites and shown on Figure 1: Enhancement Area Design.

6.3.3 Each environmental area has also been subject to a qualitative environmental appraisal to identify whether the enhancement would lead to any other detrimental effects on other receptors which may provide reasons for not taking the biodiversity enhancement forward. Further details of the environmental appraisal are provided in Appendix A: Site Specific Sites.

Table 6.1 – Environmental Benefits (including Biodiversity Net Gain)

Environmental Area	Topic	Net Gain
ENV01: South of Bramford Substation	Landscape and Visual	Enhancement planting along the watercourse would complement the proposed planting/hedgerow thickening (either by natural regeneration or planting).
	Biodiversity	Provision of areas of woodland mix, species rich grassland, marshy grassland and a pond would increase biodiversity through additional habitat for dormouse and farmland birds and enhance the habitat connectivity for bats.
	Recreational amenity	Enhancement planting would help enhance the experience of users of public rights of way (PRoW).
ENV02: Hintlesham Hall	Landscape and visual	Proposed natural regeneration would establish planting to help filter and screen views.
	Heritage	Enhancement planting along the historical avenue would help improve and enhance the existing parkland outside of the house to reflect the original design intent and benefit heritage setting.

Environmental Area	Topic	Net Gain
	Biodiversity	Provision of areas of species rich grassland and tree avenues would enhance habitat connectivity.
ENV05: Hintlesham Woods (South)	Landscape and Visual	Enhancement planting is proposed to enhance the amenity value of the PRoW.
	Biodiversity	Strengthening field boundaries through proposed hedgerows and hedgerow reinforcements, as well as extending existing habitats through natural regeneration of woodland along the south-western extent of Hintlesham Woods and a corner copse, comprised of woodland mix planting is proposed south of Pond Hall Road would enhance habitat connectivity for bats, and provide habitat for dormouse and farmland birds.
	Heritage	The corner copse of woodland mix planting south of Pond Hall Road would help create landscape features originally present in the historic landscape type.
ENV09: River Box	Biodiversity	Enhancement planting comprised of woodland mix, scrub mix, species rich grassland, hedgerows and hedgerow reinforcement would provide the opportunity to improve habitat connectivity with existing habitats between Broom Hill and Bushy Park Wood, both identified as ancient woodland, for species such as dormouse, bats, and birds including barn owls.
ENV11: The Painters Trail	Landscape and Visual	Planting of strategically positioned trees/hedgerows to soften and filter views of the project from the trail where this lies within or adjacent to the Order Limits, would likely enhance the amenity value of the trail for users.
	Biodiversity	Planting of strategically positioned trees/hedgerows would enhance habitat for dormouse. Lesser calamint seeding along the roadside verge in unshaded, semi-open habitat is proposed to enhance the diversity of existing habitats.
	Recreational amenity	National Grid is also seeking opportunities to increase awareness of the trail through potential updates to maps and literature about the trail.
ENV12: Stour Valley East	Biodiversity	Natural regeneration of species rich grassland would provide an opportunity to strengthen field boundaries, extend existing habitats and enhance habitat connectivity for species such as dormouse, bats, and birds including barn owls.
ENV13: Stour Valley West	Landscape and Visual	Proposed woodland mix, hedgerow planting and hedgerow reinforcement would likely help further screen views of the proposed GSP substation.

Environmental Area	Topic	Net Gain
	Biodiversity	Proposed woodland mix, species rich grassland, natural regeneration of species rich grassland, hedgerow and hedgerow reinforcement would enhance enhance habitat for dormouse, breeding birds and bats.
ENV14: GSP Substation	Landscape and Visual	Enhanced planting with woodland mix is proposed to the west of the proposed GSP substation which would provide further landscape and visual screening for users of the PRoW.
	Biodiversity	The enhancement planting would primarily reconnect the Butler's Wood and Waldegrave Wood, both of which are ancient woodland and Essex CWS. Within the north-west corner of the proposed woodland mix, two ponds, joined and surrounded by marshy grassland are proposed which would create additional habitat for species such as dormouse and farmland birds, and may enhance the habitat connectivity for bats.
ENV15: River Stour	Biodiversity	Management of the invasive species Himalayan balsam along the River Stour within the Order Limits (approximately 370m). Enhancement of the existing riparian zone by adding complexity and diversity through habitat works.

7. Implementation, Management and Monitoring

7.1 Introduction

7.1.1 This section sets out how the proposals would be taken forward both in terms of implementation on site and then the long-term management. It also describes the monitoring that would be undertaken at each site.

7.1.2 The environmental areas shown on Figure 1: Enhancement Area Design have been designed to demonstrate a proposal that is capable of delivering a minimum of 10% BNG for area habitats and hedgerows and lines of trees and a minimum of 5% BNG for Rivers and Streams. Further iterations of the designs are anticipated both through working with environmental bodies, discussions with landowner and ongoing detailed designs which may reduce areas of assumed vegetation loss and identify additional opportunities to deliver BNG.

7.2 Implementation

7.2.1 The planting proposals for the environmental areas have been designed to complement and tie into other planting described in the ES and the LEMP and would also follow the principles for reinstatement contained within that document. It is anticipated that site specific management plans would be developed for the environmental areas during the detailed design stage of the project such as for the management of invasive non-native species along the River Stour within the Order Limits.

7.2.2 The proposed species mixes and typical stock sizes for the environmental areas are set out in Figure 1: Enhancement Area Design. These generally reflect existing species compositions and habitat types identified within the ecological and arboricultural surveys, where these were considered appropriate. Tree and shrub planting areas would initially be protected to shield young trees from browsing rabbits and deer during establishment, for example using tree/shrub shelters or fencing.

7.2.3 The enhancement proposals and designs would be discussed with the relevant landowner (and, where appropriate, tenant). This would be to confirm the suitability of proposed planting and other measures. A suitably qualified landscape contractor would be appointed to deliver the planting proposals. This is likely to be undertaken at the same time as adjacent planting is to be undertaken where appropriate.

7.2.4 Soils in areas for planting would be assessed prior to construction to ensure appropriateness for the species proposed. It is likely due to the rural nature of the area that no additional preparation to soils would be required. All plants would be protected by an appropriate plant protector. This is important when planting within areas undisturbed areas as allows the plant to be easily identified for future maintenance and ensures plant is not overcrowded by surrounding existing vegetation. The planting would be undertaken at a suitable time of year and following the principles and methodology set out within the LEMP (**application document 7.8**).

Woodland Mix and/or Scattered Trees and/or Scrub Mix Planting

Environmental Areas: ENV01, ENV02, ENV05, ENV09, ENV11, ENV13 and ENV14

7.2.5 Areas of woodland mix and scrub mix planting and areas of scattered trees would use species of local provenance (to reduce risks associated with disease when importing stock from overseas sources) and shall be supplied in accordance with British Standard (BS) 8545:2014 Trees: from nursery to independence in the landscape (British Standards Institution, 2014). The planting schedules in LEMP Appendix C: Planting Schedules (**application document 7.8.3**) provide examples of proposed species mix composition.

7.2.6 Woodland and tree planting would typically be undertaken between November and the end of March, avoiding periods of frosts, extreme cold and waterlogged conditions.

Natural Regeneration of Woodland

Environmental Area: ENV05

7.2.7 Natural regeneration of woodland would follow natural regeneration guidance from Flora Locale (2022). Trees would develop naturally in from seeds that have fallen from the immediately adjacent ancient woodland. Seed would also be collected from the trees within Hintlesham Woods, propagated and planted.

7.2.8 To prepare the site the soil may need to be ploughed or subsoiled to break up any compacted soil. The area may need to be fenced off with deer-proof fencing (or similar) to protect young trees from browsing by deer and rabbits.

7.2.9 Initially, the ground would likely be colonised by annual and biennial weeds. During the first few years the vegetation would be regularly topped to prevent biennial and tall weeds from setting seed and becoming dominant. Creeping thistle would be removed by using a chisel hoe in May, or by spot-spraying with a suitable weedkiller. Other undesirable perennial weeds would be cut or spot-sprayed and would reduce over time providing the vegetation is topped regularly. Trees would be avoided by the strimmer or mower. After this time, the ground cover would be left to allow the tree seedlings to grow above the height of this vegetation. The developing woodland would also be monitored annually to avoid the establishment of invasive species.

Species Rich Grassland

Environmental Areas: ENV01, ENV02, ENV09 and ENV13

7.2.10 Areas identified for species rich grassland would be seeded with an appropriate grass mix (such as EM2 – Standard General Purpose Meadow Mix or similar) suited to the existing soil conditions and site use. Seed would be applied at a suitable time of year e.g. autumn or spring but can be sown at the other times of the year if there is sufficient warmth and moisture. The planting schedules in LEMP Appendix C: Planting Schedules (**application document 7.8.3**) provide examples of the proposed species mix composition.

7.2.11 There may be areas of proposed planting in locations which are previously undisturbed and would require some preparation works prior to planting or seeding. Where species rich grassland is proposed on previously agricultural fields, the soil quality and use for enhancement proposed would be determined. Where existing soil conditions are deemed unsuitable for the proposed planting and/or seeding, soils would be treated suitably to bring them up to the correct quality. Exact methods would be agreed with an ecologist and/or landscape specialist prior to construction.

Natural Regeneration of Species Rich Grassland

Environmental Areas: ENV12 and ENV13

7.2.12 Natural regeneration of grassland would follow guidance on how to create and restore species-rich grassland (Defra, 2022a) and is proposed in Section G: Stour Valley (Environmental Areas ENV12 and ENV13) within current arable land. A locally derived seed mix would be used, such as lowland meadow habitat in the vicinity (subject to landowner permission). To prepare the site the existing grassland would be cut or grazed very short to create 50% bare ground in June to mid-July and any cuttings removed. The best time to spread seed is from late July to mid-September. This is when most grassland plants shed. The seeds germinate best when scattered on the surface and the ground would be rolled after sowing to keep in moisture and ensure good seed-to-soil contact. The grassland would be grazed or cut in the first autumn after sowing the seed to keep the grass short and reduce competition for emerging wildflowers from grasses.

Marshy Grassland

Environmental Areas: ENV01 and ENV14

7.2.13 Areas identified for marshy grassland would be seeded with an appropriate grass mix (such as EM8 – Meadow Mixture for Wetland or similar) suited to the existing soil conditions and site use. Seed would be applied at a suitable time of year e.g. autumn or spring but can be sown at the other times of the year if there is sufficient warmth and moisture. The planting schedules in LEMP Appendix C: Planting Schedules (**application document 7.8.3**) provide examples of the proposed species mix composition.

7.2.14 There may be areas of proposed planting in locations which are previously undisturbed and would require some preparation works prior to planting or seeding. Where marshy grassland is proposed on previously agricultural fields, the soil quality and use for enhancement proposed would be determined. Where existing soil conditions are deemed unsuitable for the proposed planting and/or seeding, soils would be treated suitably to bring them up to the correct quality. Exact methods would be agreed with an ecologist and/or landscape specialist prior to construction.

Hedgerow Planting and Hedgerow Reinforcement

Environmental Areas: ENV05, ENV11 and ENV13

7.2.15 Hedgerows would be planted and reinforced using the same or other locally appropriate species to those in which they are adjacent to, subject to suitability in relation to tree pests and diseases.

7.2.16 Hedgerows would typically be planted at 300mm centres in a double staggered row 450mm apart. The hedgerow would be appropriately fenced to protect the plants until they established. In addition, dead hedging would be installed for hedgerows within the underground cable sections, where practicable, to restore ecological connectivity until permanent reinstatement can be undertaken.

7.2.17 It is anticipated that a proportion of tree species within hedgerows would be planted as feathered stock to help establish hedgerow tree forms where appropriate for the landscape. The planting schedules in LEMP Appendix C: Planting Schedules (**application document 7.8.3**) provide examples of the proposed species mix composition.

Ponds

Environmental Areas: ENV01 and ENV14

7.2.18 Ponds have been identified for environmental areas ENV01 and ENV14. The design of these would be developed in further detail by an ecologist and/or landscape specialist prior to construction. Where ponds are proposed the design would consider the following as appropriate to the location and to integrate the pond with their surroundings:

- The depth and lining of ponds so they are appropriate for the location, this could include lining the ponds with either clay or an impermeable liner. The design would also consider the water source so that a water level can be maintained;
- Have at least one gently sloping margin that allow animals to enter and exit easily as well as providing areas of shallow water. The profile would be designed to undulate with hummocks and hollows; and
- Consideration of the vegetation planting in the zones surrounding the pond, this could include the use of emergent and marginal plants.

River Stour

Environmental Area: ENV15

7.2.19 The River Stour has areas of Himalayan balsam recorded within the Order Limits. In addition to the CoCP measure B04 (**application document 7.5.1**) that would control the spread of invasive species during construction, the full stretch of watercourse within the Order Limits would undergo management in order to manage the presence of Himalayan balsam and any other floral invasive species present. Dependent on the outcome of a preconstruction survey, INNS would be controlled through an INNS management plan that would likely comprise hand pulling and/or spraying with a suitable herbicide. Management would be undertaken each year during the construction phase.

7.2.20 The existing riparian zone has been identified as a location that could be enhanced through planting and management. Trees, including black poplar (*Populus nigra*), could be planted to aid biodiversity but also stabilise the riverbank.

7.3 Management and Monitoring

7.3.1 It is anticipated that National Grid would own or lease the environmental enhancement areas and therefore would be responsible for maintaining the habitats on-site in for a period of up to 30 years. Based on the planting proposals shown in Figure 1: Enhancement Area Design post-development monitoring of the site would be as follows:

- Year 1-3: annual monitoring through the establishment period (three years). This is considered necessary as fertile bare ground, even with a cover crop, might easily get invaded by expansive nitrophiles or invasives;
- Year 3-5: the monitoring would decrease to bi-annual checks as the habitat would be relatively closed; and
- Post Year 5: the monitoring would either reduce to the standard every-four-years practice (which is considered typical for established and not overly dynamic habitats).

7.3.2 A Net Gain Management and Monitoring Plan (MMP) would be produced after the first monitoring visit at each site and would be updated accordingly after each subsequent visit. The MMP would be shared with local repositories for environmental data in accordance with the British Standard for BNG – BS8683 (British Standards Institution, 2021 and Construction Industry Research and Information Association (CIRIA), 2019).

Maintenance of Shrub and Tree Planting

7.3.3 The native woodland and shrub planting would be monitored in accordance with the timeframes set out above. During each visit, the following checks would be made:

- The planting shall be maintained clear of weeds growth;
- All planting is windfirm;
- The security and fitting or all shrub guards and where necessary adjust/replace; and
- All planted areas are free from litter.

Maintenance of Grassland

7.3.4 The seeded grassland areas would be maintained in a way that would establish a diverse sward, avoiding cuts between June to August to enable plants species to produce flowers and seeds. Areas would not be cut less than 150mm to provide habitat for invertebrates. If low density grazing is identified in the MMP then alternatives approaches may be used.

Pests and Diseases

7.3.5 The periodic checks of reinstatement planting would include a check for any obvious signs of pests or diseases, including ash dieback or reoccurrence of any invasive or non-native species. Any instances would be recorded on the quarterly inspection reports and appropriate action taken.

8. Conclusion and Next Steps

8.1 Introduction

8.1.1 This section presents the overall conclusion and outlines the next steps and development of detailed design for the project.

8.2 Overall Conclusion

8.2.1 The biodiversity metric calculation shows how a positive BNG for Area-based Habitats (by +12.8%) and Hedgerows and Line of Trees (by +13.4%) and Rivers and Streams (+5.0%) can be delivered based on the Proposed Alignment at this stage of the project.

8.2.2 In line with both Government requirements and National Grid targets, National Grid is committed to delivering at least a 10% BNG on this project. National Grid will continue to seek ways to reduce impacts and increase gains to ditches to achieve the 10% BNG target. The BNG approach embeds a fundamental principle for spatial hierarchy of habitat delivery, where there is a preference for onsite or local enhancements. The aims therefore on the project are to deliver on-site biodiversity units in preference to off-site by improving habitats and biodiversity local to the site of impact.

8.3 Next Steps and Development of Detailed Design

8.3.1 This assessment represents an initial calculation based on the current stage of the project, using the Proposed Alignment, and would be updated and refined at key milestones to further develop the forecast for net biodiversity change. Updates to the assessment would be made based on refinement of the project design and construction information, including the habitat impacted/avoided and construction timetable and development of the LEMP (**application document 7.8**) including consideration of opportunities to enhance retained habitats.

8.3.2 As the project is developed, opportunities would be sought to further apply the mitigation hierarchy and to increase the distinctiveness and condition of the habitats created.

8.3.3 As the full landscape design is developed, opportunities would be sought to ensure the condition and distinctiveness of habitats proposed for creation are maximised and that this is captured in future biodiversity metric assessments. Opportunities to increase the distinctiveness of woodland habitats proposed for creation, where this is feasible, would support trading rules in respect of the impacts upon lowland mixed deciduous woodland and wet woodland habitats.

8.3.4 Evidence of how National Grid will deliver their BNG target on this project is secured through the DCO (**application document 3.1**) by way of Requirement 13:

'Unless otherwise agreed with the relevant planning authority, written evidence (in the form of the outputs of the biodiversity metric) demonstrating how at least ten per cent in biodiversity net gain is to be delivered as part of the authorised development must be submitted to the relevant planning authority no later than the date on which that part of the authorised development comprising the installation of new overhead transmission electric line and underground transmission electric line is first brought into operational use.'

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Appendix A. Site Specific Sheets

1. Introduction

1.1.1 This appendix provides an overview of each environmental area in which enhancement planting has been identified.

1.1.2 Under each environmental area, an overview of the existing habitats is provided along with a description of the proposed enhancements, such as for landscape and visual, biodiversity, or the historic environment. The environmental areas are shown in Figure 1: Enhancement Area Design.

1.1.3 For each proposed environmental area, an appraisal has been undertaken to determine whether their implementation would have detrimental environmental effects, such as on historic environment assets or through loss of productive farmland. Further details on the approach taken are provided under Methodology.

1.1.4 As implementation, monitoring and management measures are broadly similar for each planting type, irrespective of the environmental area in which they are proposed, these aspects are described in Chapter 7 of the Environmental Gain Report rather than being duplicated under each site in this appendix.

2. Methodology

2.1.1 This section summarises the general approach to the environmental appraisal to describe the potential impacts resulting from the proposed environmental areas.

2.1.2 The following topics were considered within the environmental appraisal:

- Landscape and Visual;
- Biodiversity;
- Historic Environment;
- Water Environment;
- Geology and Hydrogeology;
- Agriculture and Soils;
- Traffic and Transport;
- Air Quality;
- Noise and Vibration;
- Other aspects (Socio-economics, Health and Electro-magnetic Fields, Major Accidents and Disasters and Climate); and
- Cumulative Effects.

2.1.3 An initial review of the above topics was undertaken to scope out from further appraisal those with limited potential for detrimental or beneficial effects due to the establishment of the environmental areas.

2.1.4 As the initial planting and ongoing maintenance of the environmental areas would involve limited short-term periods, require a limited number of vehicle movements and be unlikely to require prolonged use of heavy machinery, no detrimental effects were anticipated for: Traffic and Transport; Air Quality; Noise and Vibration; Other Issues (Socio-economics, Health and Electro-magnetic Fields, Major Accidents and Disasters and Climate); or Cumulative Effects. These topics were therefore not further considered in this appraisal.

2.1.5 Ground disturbance would be limited to ploughing or subsoiled to break up any compacted soil. No new below ground infrastructure or areas of hardstanding to be installed. Potential spills or accidents involving plant and affecting groundwater quality would be avoided or reduced through good practice measures outlined in the CEMP (**application document 7.5**). Therefore, impacts on geology and hydrogeology have been scoped out of further consideration in this appraisal.

2.1.6 This appraisal therefore focuses on Landscape and Visual, Biodiversity, Agriculture and Soils, and Historic Environment as these were considered the most likely as having potential for detrimental effects.

3. Proposed Environmental Areas

3.1 ENV01: South of Bramford Substation

Overview

3.1.1 ENV01 is situated to the south of Bramford Substation and is characterised by an arable farmscape with Hintlesham Woods Site of Special Scientific Interest (SSSI) to the south-west. Hintlesham Woods SSSI is one of the largest areas of ancient coppice-with-standards woodlands in Suffolk and is further linked to other ancient woodland in the vicinity by secondary woodlands.

3.1.2 Based on the UKHab Survey (September 2022), g3c neutral grassland and c1 arable and horticulture comprise the majority habitat types within the site area. To the east of the site is Round Wood and Bullen Wood that are areas of ancient and semi-natural woodland. The site also crosses multiple h2a hedgerows (priority habitat).

3.1.3 The Ministry of Agriculture, Fisheries and Food (MAFF) guidelines (1998) contain a system of grading land quality for land use planning. It divides farmland into five grades (Grades 1-5), with Grade 1 land as excellent quality agricultural land with very minor or no limitation to agricultural use, and Grade 5 as very poor-quality land. Grades 1,2, and 3a (good quality land) are defined as the best and most versatile (BMV) land.

3.1.4 Provisional ALC mapping shows the land within ENV01 to be Grade 2 (very good) land and therefore it is considered likely that BMV land would be present.

3.1.5 This land has been identified as providing opportunities for biodiversity and landscape and visual enhancements.

Proposed Enhancements

3.1.6 Environmental enhancements in ENV01 would comprise woodland mix planting to the east of the Public Right of Way (PRoW) and species rich grassland to the west. Further south, beyond the PRoW linking to Round Wood, ENV01 would widen out into marshy grassland and woodland mix and incorporate a pond in its southern extent. The proposed location for the pond is defined by the existing small ditch which would provide a natural water source.

3.1.7 This is anticipated to enhance the amenity value for the users of the PRoW and provide additional habitat for species such as dormouse and farmland birds, and enhance the habitat connectivity such as foraging and commuting routes for bats

Environmental Appraisal

3.1.8 No adverse landscape and visual, biodiversity or historic environment impacts are anticipated for the proposed enhancement planting.

3.1.9 This area is not farmed, therefore no adverse impacts due to loss of farmland is anticipated. Whilst the land is not currently under agricultural use, its classification as likely BMV land indicates it has the potential to be productive. The proposed enhancements would limit the ability of this land to support biomass production for agricultural purposes, but the reduction in land use intensity associated and the proposed habitats is likely to support enhanced function of the land in relation to biodiversity, soil carbon and soil hydrology, therefore, ENV01 is considered to result in overall beneficial effects.

3.2 ENV02: Hintlesham Hall

Overview

3.2.1 Hintlesham Hall was historically set in an area of parkland with a tree lined avenue leading from the hall through the former parkland. The former parkland has largely been eroded and put over to agricultural use.

3.2.2 Based on the UKHab Survey (September 2022), the habitat type within the site is predominantly c1 arable and horticulture and u1c artificial unvegetated unsealed surface habitat type. A woodland area known as Church Belt that consists of mainly Sycamore Coppice with Oak standards, can be found on the southern boundary of the site.

3.2.3 Provisional ALC mapping shows the land to be Grade 3 (good to moderate quality) and it is therefore considered likely that BMV could be present.

Proposed Enhancements

3.2.4 The original tree lined avenues to the south-west of Hintlesham Hall would be partially restored with proposed scattered trees.

3.2.5 The planting would reinstate a small element of the historic character of Hintlesham Park visible on historic maps, providing environmental enhancement for the Grade I listed building. It would reinforce the synergy with the cleared avenue within Hintlesham Woods, which was a continuation of the original tree-lined avenue to the west of the Hall, extending outside the park as the original avenue did. Surrounding the proposed scattered trees would be species rich grassland providing further biodiversity enhancement.

Environmental Appraisal

3.2.6 No adverse impacts on the historic environment are anticipated for the proposed enhancement planting.

3.2.7 There would be a small loss of arable farmland; however, this would not result in any severance of remaining farmland and no adverse impact on farm business viability is anticipated.

3.2.8 A small amount of Grade 3 land (likely BMV land) would be required permanently, which would constitute an irreversible loss of one or more soil functions (in particular the impact on BMV land). The proposed enhancements would limit the ability of this land to support biomass production for agricultural purposes, but the proposed habitats are likely to support enhanced function of the land in relation to biodiversity, soil carbon and soil hydrology therefore, ENV02 is considered to result in overall beneficial effects.

3.3 ENV05: Hintlesham Woods (South)

Overview

3.3.1 ENV05 is Hintlesham Woods (South). The Hintlesham Woods SSSI is one of the largest areas of ancient coppice-with-standards woodlands in Suffolk and is further linked to other ancient woodland in the vicinity by secondary woodlands.

3.3.2 Based on the UKHab Survey (September 2022), the habitat type within the site is predominantly arable and horticulture farmland. There are also grassland habitats to the south of the site that may be grazed occasionally, however no animals were present at the time of survey. There are cattle grazed modified grassland areas to the north of the site with low sward height. To the east off the site is mixed scrub, potentially planted for game cover. The site crosses multiple linear features including hedgerows (h2a priority habitat) and line of trees. There is also a section of built linear features.

3.3.3 The north-eastern extent of this land is classified as Grade 3 (good to moderate quality) land and the remainder as Grade 2 (very good) land according to the ALC. Therefore, all land is assumed to be BMV.

3.3.4 This area has been identified for biodiversity and landscape and visual purposes, situated to the south-west of Ramsey Wood.

3.3.5 Enhancement planting/ natural regeneration would provide an opportunity to strengthen field boundaries, extend existing habitats, enhance habitat connectivity and enhance the experience of users of PRoW.

Proposed Enhancements

3.3.6 Enhancement planting/natural regeneration proposals at Hintlesham Woods (south) as part of ENV05 include strengthening field boundaries through proposed hedgerows and hedgerow reinforcements, as well as extending existing habitats through natural regeneration of woodland along the southwestern extent of Hintlesham Woods.

3.3.7 South of Pond Hall Road at Hadleigh Bee Farm and Primrose Farm, a corner copse of woodland mix planting is proposed.

3.3.8 These proposals as part of ENV05 would enhance the experience of users of PRoW, enhance habitat connectivity such as foraging and commuting routes for bats, and provide habitat for species such as dormouse and farmland birds. The corner copse would provide historic environment enhancements through the creation of landscape features originally present in the historic landscape type.

Environmental Appraisal

3.3.9 No adverse impacts on the historic environment are anticipated for the proposed enhancement planting. The land parcel identified for natural regeneration of woodland appears to not be cultivated and already covered in scrub and would not result in any severance of remaining farmland; therefore, no adverse impact on farm business viability is anticipated.

3.3.10 Whilst the land does not appear to currently be under agricultural use, its classification as likely BMV land indicates it has the potential to be productive. The proposed enhancements would limit the ability of this land to support biomass production for agricultural purposes, but the reduction in land use intensity associated and the proposed habitats is likely to support enhanced function of the land in relation to biodiversity, soil carbon and soil hydrology therefore, ENV05 is considered to result in overall beneficial effects.

3.4 ENV09: River Box

Overview

3.4.1 Site ENV09 is situated in an Area of Outstanding Natural Beauty. Based on the UKHab Survey (September 2022), the site comprises of modified grassland and arable and horticulture habitats and crosses multiple linear features including hedgerows (h2a priority habitat) and lines of trees.

3.4.2 Grassland to the east of the site is priority habitat floodplain grassland. The land is predominantly used for non-cereal crops, namely rapeseed. The site overlaps with Bushy Park Wood and Broom Hill, both areas of ancient and semi-natural woodland.

3.4.3 Provisional ALC mapping shows the land to be Grade 3 (good to moderate quality) and therefore it is considered likely that BMV land would be present.

3.4.4 Land proposed for both biodiversity and landscape purposes is largely situated between Broom Hill woodland to the north and Bushy Park Wood to the south. ENV09 extends to the south-west to cover the riverbanks and fields adjacent to the River Box.

Proposed Enhancements

3.4.5 Enhancement planting comprised of woodland mix, scrub mix, species rich grassland, hedgerows and hedgerow reinforcement would provide the opportunity to improve habitat connectivity with existing habitats between Broom Hill and Bushy Park Wood, both identified as ancient woodland, for species such as dormouse, bats, and birds including barn owls. The boundaries for ENV09 have been designed to largely follow existing field and woodland boundaries or to reflect the character and appearance of the existing field/landscaping patterns.

3.4.6 Operational restrictions that mean National Grid restricts planting over the underground cables to plant varieties that have roots that go no deeper than 600mm, which includes many trees, therefore through this section species rich grassland is proposed above and between the underground cables, which would then lead into scrub mix and on into woodland mix.

Environmental Appraisal

3.4.7 No adverse impacts on the historic environment are anticipated for the proposed enhancement planting.

3.4.8 There would be a loss of Grade 3 (good to moderate quality) arable farmland however this would not result in any severance of remaining farmland and no adverse impact on farm business viability is anticipated. Whilst the land is not currently under agricultural use, its classification as likely BMV land indicates it has the potential to be productive. The proposed enhancements would limit the ability of this land to support biomass production for agricultural purposes, but the reduction in land use intensity associated and the proposed habitats is likely to support enhanced function of the land in relation to biodiversity, soil carbon and soil hydrology therefore, ENV09 is considered to result in overall beneficial effects.

3.5 ENV11: The Painter's Trail

Overview

3.5.1 Site ENV11 The Painter's Trail is a 69 mile (111km) long cycle trail across the region, linking sites with associations with famous artists. This length of the Painter's Trail was identified for both landscape and visual and historic environment purposes.

3.5.2 The site is located within an Area of Local Landscape Sensitivity and the southern section of the site crosses through an Area of Outstanding Natural Beauty. In this section, the site runs in close proximity to the Tiger Hill LNR and Arger Fen SSSI.

3.5.3 Following the UKHab Survey (September 2022), the habitat type is a mixture of grasslands and arable fields, predominately used for cereal crops and winter stubble. The site crosses multiple linear features including hedgerows (h2a priority habitat) and line of trees. There are also built linear features to the east of the site.

Proposed Enhancements

3.5.4 There is an opportunity to plant strategically positioned trees/hedgerows to soften and filter views of the project from the trail where this lies within or adjacent to the draft Order Limits, enhancing the amenity value of the trail for users and also provide additional habitat for dormouse.

3.5.5 Along the roadside verge in unshaded, semi-open habitat, lesser calamint seeding is proposed to enhance the existing habitats.

Environmental Appraisal

3.5.6 No adverse impacts are anticipated for the historic environment or any other environmental factor as a result of the proposed enhancements for ENV11.

3.6 ENV12: Stour Valley East

Overview

3.6.1 Site ENV12 Stour Valley East is located north of a Potential Candidate Area (Potential Dedham Vale AONB Extension). Based on the UKHab Survey (September, 2022), the site is comprised predominantly of arable and horticulture farmland, modified grassland and other neutral grasslands.

3.6.2 Provisional ALC mapping shows the land to be Grade 3 (good to moderate quality) and therefore it is considered likely that BMV land would be present.

3.6.3 This area has been identified for landscape and visual planting to reduce the effects of the Stour Valley East CSE compound and the valley slope provides opportunities for environmental gain. The area proposed for environmental enhancement was selected because it is adjacent to an area identified for embedded planting and the existing condition of the grassland would mean that work to enhance would not be overly onerous.

Proposed Enhancements

3.6.4 Natural regeneration of species rich grassland is anticipated to provide an opportunity to extend existing habitats and enhance habitat connectivity for species such as dormouse, bats, and birds including barn owls.

Environmental Appraisal

3.6.5 No adverse impacts on the historic environment are anticipated for the proposed enhancement planting. The land parcel identified for natural regeneration of species rich grassland appears to not be currently cultivated and is being managed as pasture. The proposal would not result in any severance of remaining farmland.

3.6.6 The proposed enhancements would limit the ability of this land to support biomass production for agricultural purposes, but the reduction in land use intensity associated and the proposed habitats is likely to support enhanced function of the land in relation to biodiversity, soil carbon and soil hydrology therefore, ENV12 is considered to result in overall beneficial effects.

3.7 ENV13: Stour Valley West

Overview

3.7.1 Site ENV13 Stour Valley West is located within a Potential Candidate Area (Potential Dedham Vale AONB Extension). Based on the UKHab Survey (September 2022), the site is comprised predominantly of croplands, namely cereal crops and winter stubble. There is also an area of lowland mixed deciduous woodland habitat.

3.7.2 Provisional ALC mapping shows the north-eastern extent of this land to be Grade 3 (good to moderate quality) and the remainder to be Grade 2 (very good). Therefore, it is assumed likely that BMV land would be present.

3.7.3 This area has been identified for biodiversity and landscape and visual purposes at the CSE compound. Land would be used for landscape planting to soften the effects of the Stour Valley West CSE compound, to mitigate habitat loss and to enhance connectivity between Pebmarsh House CWS and south of Alphamstone Complex CWS.

Proposed Enhancements

3.7.4 Woodland mix planting is proposed to tie into and complement the embedded woodland mix planting at the CSE compound. This, alongside the species rich grassland and natural regeneration of species rich grassland would provide additional habitat for species such as dormouse and farmland birds and is anticipated to enhance the habitat connectivity such as foraging and commuting routes for bats.

3.7.5 Proposed hedgerows and hedgerow reinforcement is anticipated to provide additional screening of the project and would also provide additional habitat for dormouse.

Environmental Appraisal

3.7.6 No adverse impacts on the historic environment are anticipated for the proposed enhancement planting.

3.7.7 There would be loss of Grade 2 (very good) and Grade 3 (good to moderate quality) arable farmland as a result of the land identified for species rich grassland and natural regeneration of species rich grassland. This would not result in any severance of remaining farmland.

3.7.8 The proposed enhancements would limit the ability of this land to support biomass production for agricultural purposes, but the reduction in land use intensity associated and the proposed habitats is likely to support enhanced function of the land in relation to biodiversity, soil carbon and soil hydrology therefore, ENV13 is considered to result in overall beneficial effects.

3.8 ENV14: GSP Substation

Overview

3.8.1 Site ENV14 GSP Substation is located on the edge of Butlers Wood and Waldegrave Wood, both areas of ancient and semi-natural woodland and Essex CWS. Based on the UKHab Survey (2022), the site is comprised of predominately arable and horticulture, and neutral grasslands. The site also crosses a hedgerow (h2a priority habitat), with another hedgerow (h2a priority habitat) on the east of the site.

3.8.2 Provisional ALC mapping shows the land to be Grade 2 (very good) (BMV) land.

3.8.3 This area has been identified for biodiversity and landscape and visual purposes at the GSP substation site.

Proposed Enhancements

3.8.4 Enhancement planting with woodland mix is proposed to the west of the proposed GSP. This would reconnect the Butler's Wood and Waldegrave Wood, both of which are ancient woodland and Essex CWS as well as providing further landscape and visual screening to the PRoW to the west of the GSP substation.

3.8.5 In the north-west corner of the proposed woodland mix, two ponds, joined and surrounded by marshy grassland are proposed which would provide additional habitat for species such as dormouse and farmland birds, and is anticipated to enhance the habitat connectivity such as foraging and commuting routes for bats.

3.8.6 The boundaries for ENV14 have been designed to largely follow existing field and woodland boundaries and to reflect the character and appearance of the existing field/landscaping patterns. The formerly curved western boundary has since been refined as a result of the formal written feedback received from Braintree District Council dated 5 October 2021 to better reflect existing field boundaries in the area.

Environmental Appraisal

3.8.7 There would be loss of Grade 2 (very good) arable farmland as a result of the land identified for species rich grassland and natural regeneration of species rich grassland. This would not result in any severance of remaining farmland.

3.8.8 The proposed enhancements would limit the ability of this land to support biomass production for agricultural purposes, but the reduction in land use intensity associated and the proposed habitats is likely to support enhanced function of the land in relation to biodiversity, soil carbon and soil hydrology therefore, ENV14 is considered to result in overall beneficial effects.

3.9 ENV15: River Stour

Overview

3.9.1 Site ENV15 River Stour comprises the riparian and terrestrial habitats (excluding the watercourse itself) both sides of the River Stour within the Order Limits. The riparian zone is approximately 15m wide on the western bank and a maximum of 5m on the eastern bank though much narrower in places. Both sides have scattered trees. The western side of the river comprises cereal crop habitat while the eastern side is mostly modified grassland with a small linear area of broadleaved woodland. This area has been identified for biodiversity purposes, specifically in relation to rivers and streams.

Proposed Enhancements

3.9.2 The River Stour has areas of Himalayan balsam (*Impatiens glandulifera*) recorded along the banks within the Order Limits. In addition to the CoCP measure B04 (**application document 7.5.1**) that would control the spread of invasive species during construction, it is proposed that following a detailed pre-construction survey for invasive non-native species (INNS), a management plan to manage the presence of Himalayan balsam and any other floral invasive species present.

3.9.3 Dependent on the outcome of a pre-construction survey, INNS would be controlled through an INNS management plan that would likely comprise hand pulling and/or spraying with a suitable herbicide. Management would be undertaken each year during the construction phase.

3.9.4 The existing riparian zone has been identified as a location that would be enhanced through planting and management. A planting design to increase the complexity and diversity of the existing riparian habitat would be produced to comprise planting of trees, to include black poplar, and introduction of features suitable as hibernacula for invertebrates, amphibians and reptiles, to aid biodiversity and also stabilise the riverbank.

Environmental Appraisal

3.9.5 No agricultural land would be lost or fragmented through these proposals. The proposals would not only enhance the biodiversity of the location but add resilience to the physical structure and long-term maintenance of the watercourse banks. Therefore ENV15 is considered to result in overall beneficial effects.

Figure 1: Enhancement Area Design

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Application Document 7.4

Legend
- Section boundaries
- Order Limits
- Local authority districts
- Existing Bramford Substation

Mid Suffolk District Council
Babergh District Council
Braintree District Council
Colchester Borough Council
Tendring District Council

Bramford Substation
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D: Polstead
AB: Bramford Substation/Hintlesham
C: Brett Valley
F: Leavenheath /Assington
E: Dedham Vale Area of Outstanding Natural Beauty
H: Grid Supply Point Substation
G: Stour Valley

Clare, Acton, Sudbury, Hadleigh, Ipswich, Halstead, Colchester, Market

255000
250000
245000
240000
235000
230000
225000

580000 585000 590000 595000 600000 605000 610000 615000

0 1 2 3 4 5 Kilometers

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nationalgrid

TITLE : Figure 1 Enhancement Area Design Key Plan

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO. AAA_BTT_Figure_EnvGainReport_Fig1_KeyPlan_Rev0

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NG DRAWING No.	SHEET NO.	NO. OF SHEETS	ISSUE:
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SCALE : 1:125000

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
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REGULATION 5(2)(q)
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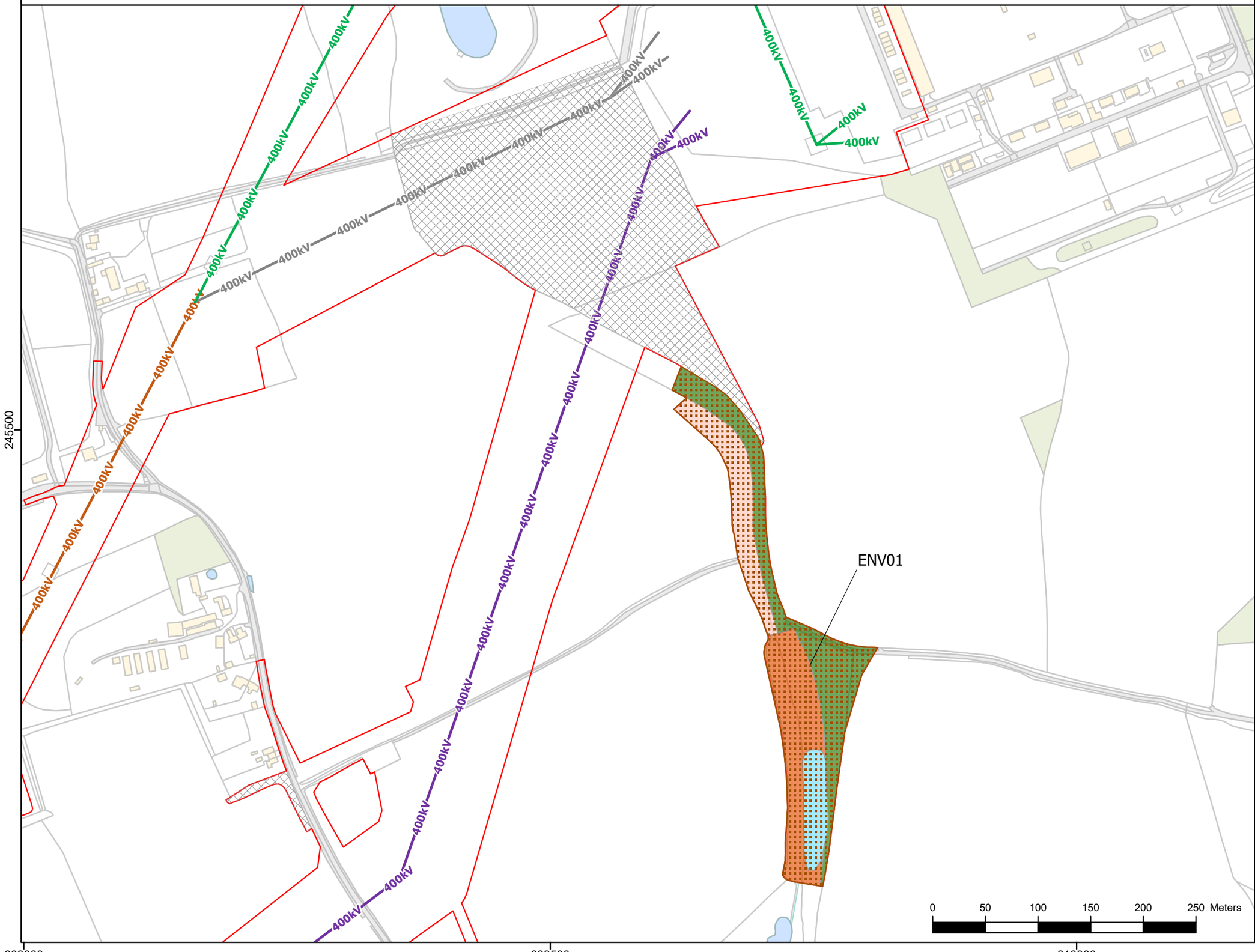
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL



Application Document 7.4

- Section boundaries
- Order Limits

Proposed Project
- Proposed overhead line
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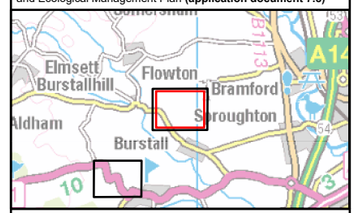
- Natural regeneration of woodland
- Proposed lesser calamint seeding

Note: Further details on planting can be found in the Environmental Statement **(application document 6.2-6.4)** and the Landscape and Ecological Management Plan **(application document 7.8)**



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TITLE :
Figure 1
Enhancement Area Design

CIRCUIT / SITE :
Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO.
AAA_BTT_Figure_EnvGainReport_Fig1_Rev01

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SCALE : 1:3500

SHEET NO. 1
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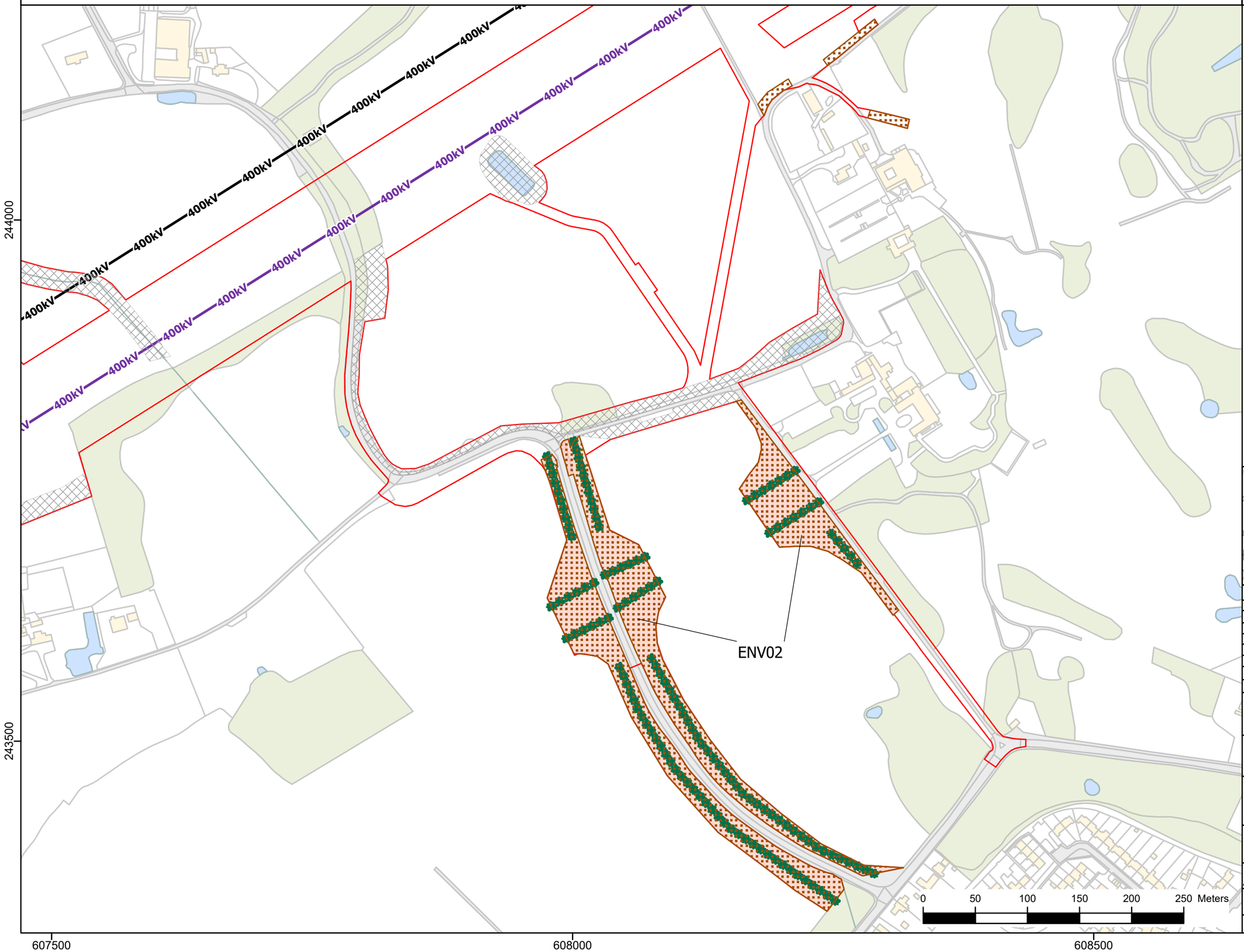
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL



Application Document 7.4

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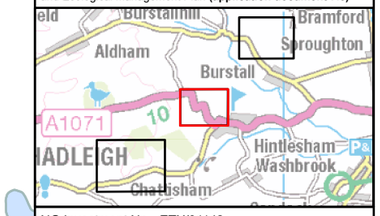

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TITLE :
Figure 1
Enhancement Area Design

CIRCUIT / SITE :
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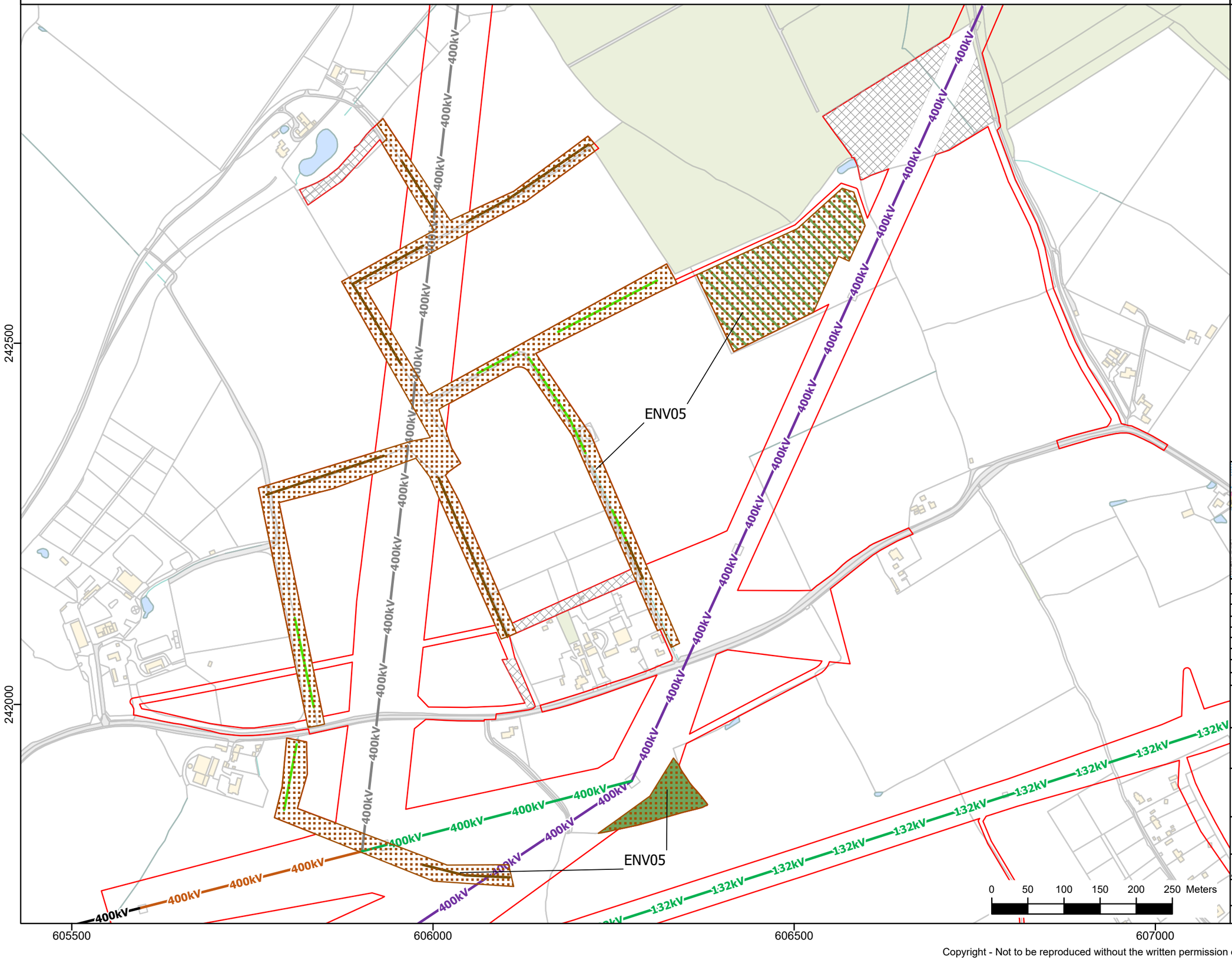
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 7.4



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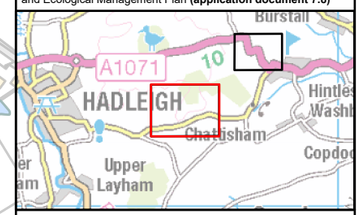

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PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE :
Figure 1
Enhancement Area Design

CIRCUIT / SITE : Bramford – Pelham & Bramford – Braintree – Bulls Lodge

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- Section boundaries
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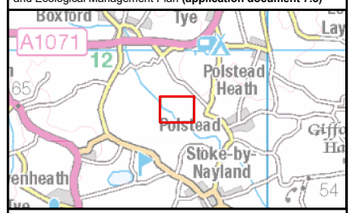

ENV09

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598000

0 50 100 150 200 250 Meters

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TITLE :
Figure 1
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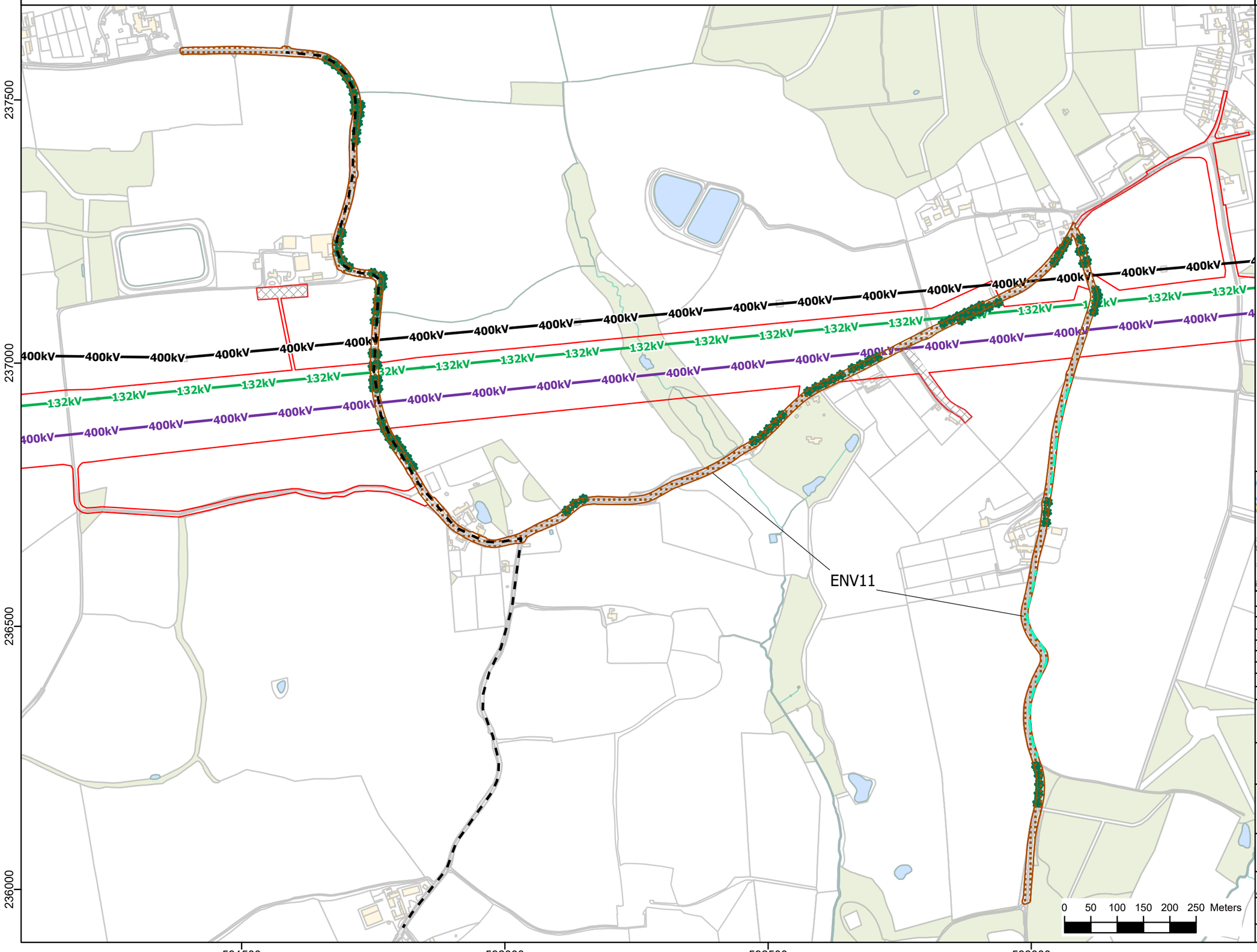

Application Document 7.4

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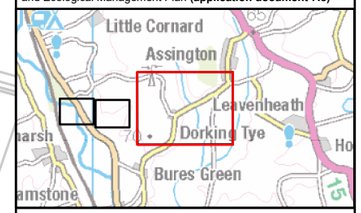

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TITLE :
Figure 1
Enhancement Area Design

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SCALE : 1:7000

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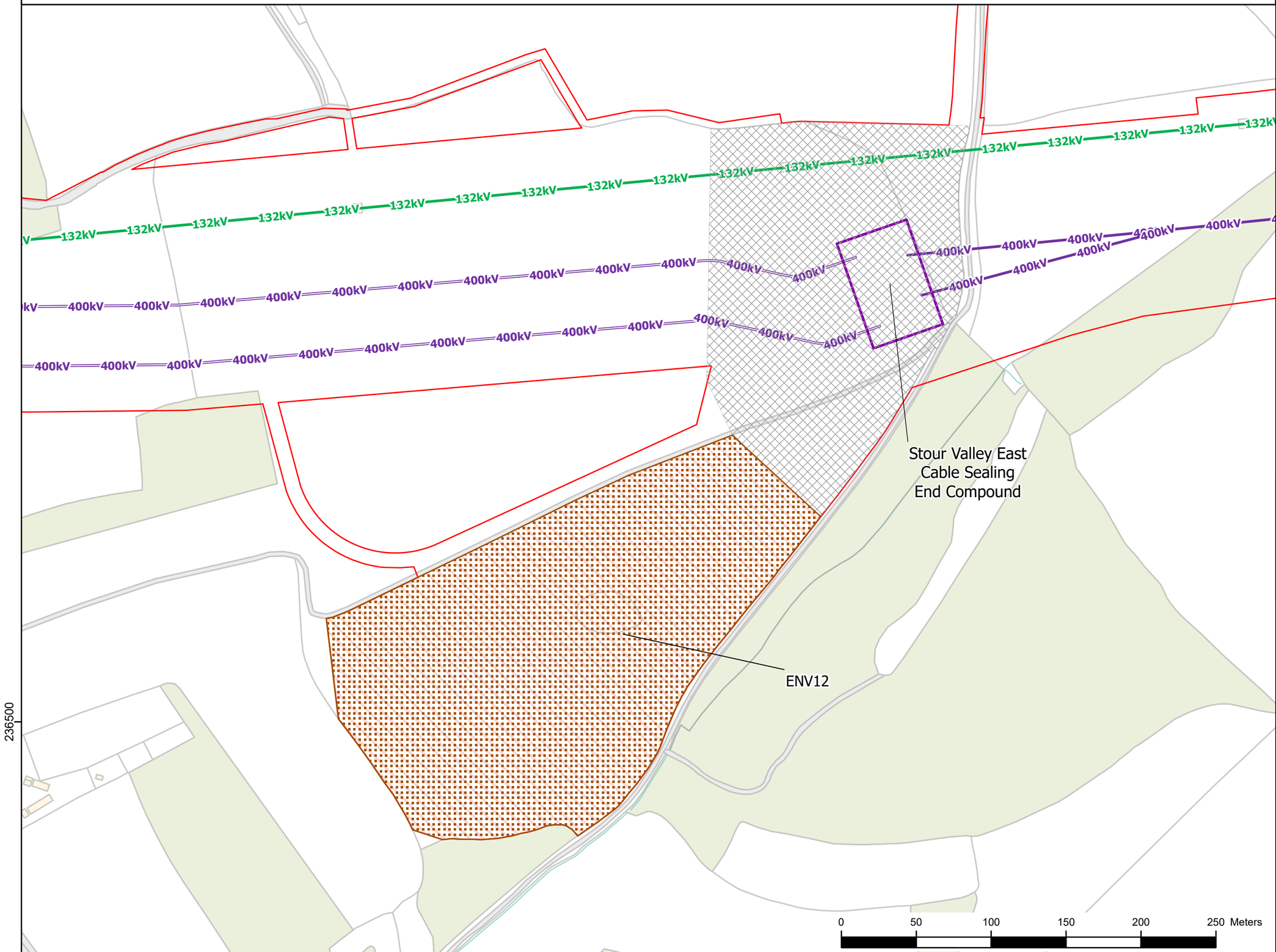
SHEET 6 OF 9
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL



Application Document 7.4

- Section boundaries
- Order Limits

Proposed Project
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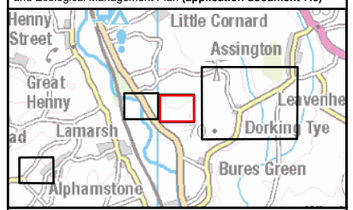

NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
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nationalgrid

TITLE :
Figure 1
Enhancement Area Design

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ORIGINATOR DRAWING NO.				A3
AAA_BTT_Figure_EnvGainReport_Fig1_Rev01				
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REGULATION 5(2)(q)
SHEET 7 OF 9
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

237000

236500

589500

590000

ENV15

Invasive non-native species management and riparian enhancement planting

400kV 132kV

0 50 100 150 200 250 Meters

Application Document 7.4

- Section boundaries
- Order Limits

Proposed Project
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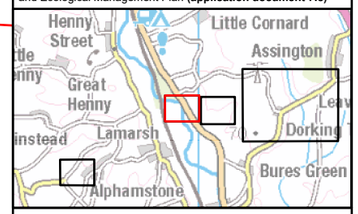

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PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE :
Figure 1
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CIRCUIT / SITE :
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GIS

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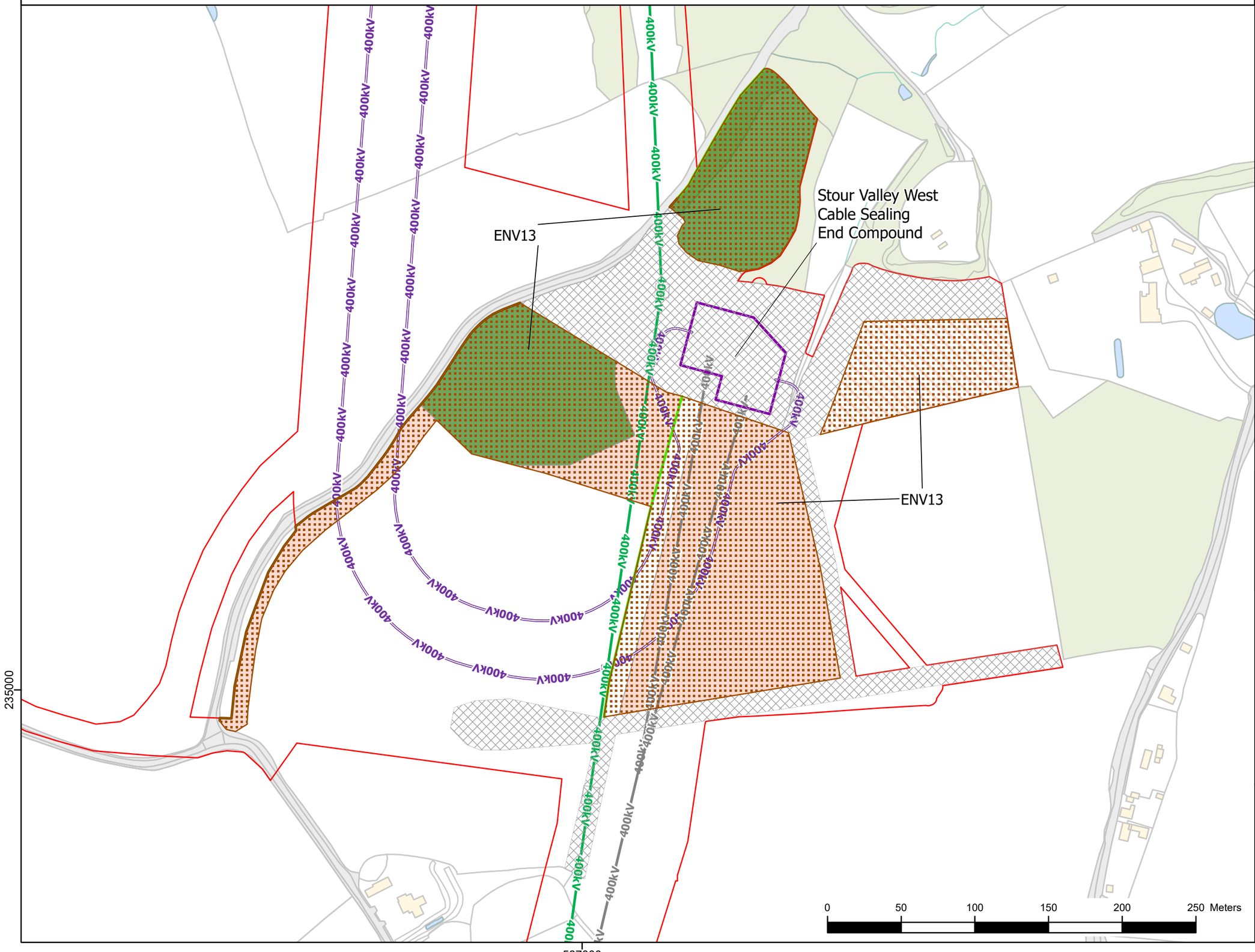
SHEET 8 OF 9
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL



Application Document 7.4

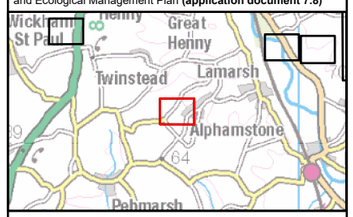
- Section boundaries
- Order Limits

Proposed Project
- Proposed overhead line
- Existing overhead line
- Proposed modification to overhead line
- Proposed realignment of existing overhead line
- Proposed removal of overhead line
- Proposed underground cable
- Cable sealing end compound
- Proposed grid supply point substation (GSP)

Planting areas
- Enhancement areas
- Other planting

Planting Proposals
- Proposed hedgerow
- Proposed hedgerow reinforcement
- Proposed tree planting
- Proposed scrub mix
- Proposed species rich grassland
- Proposed marshy grassland
- Proposed woodland mix
- Proposed pond
- Natural regeneration of species rich grassland
- Natural regeneration of woodland
- Proposed lesser calamint seeding

Note: Further details on planting can be found in the Environmental Statement **(application document 6.2-6.4)** and the Landscape and Ecological Management Plan **(application document 7.8)**



NG Investment No. ETX/01142

ISSUE	DATE	REMARKS	DRWN	CHKD	APPD
A	04/2023	Rev A for DCO Application	PM	DD	CW

PROJECT: Bramford to Twinstead Reinforcement

nationalgrid

TITLE :
Figure 1
Enhancement Area Design

CIRCUIT / SITE :
Bramford – Pelham & Bramford – Braintree – Bulls Lodge

GIS

ORIGINATOR DRAWING NO.
AAA_BTT_Figure_EnvGainReport_Fig1_Rev01

A3

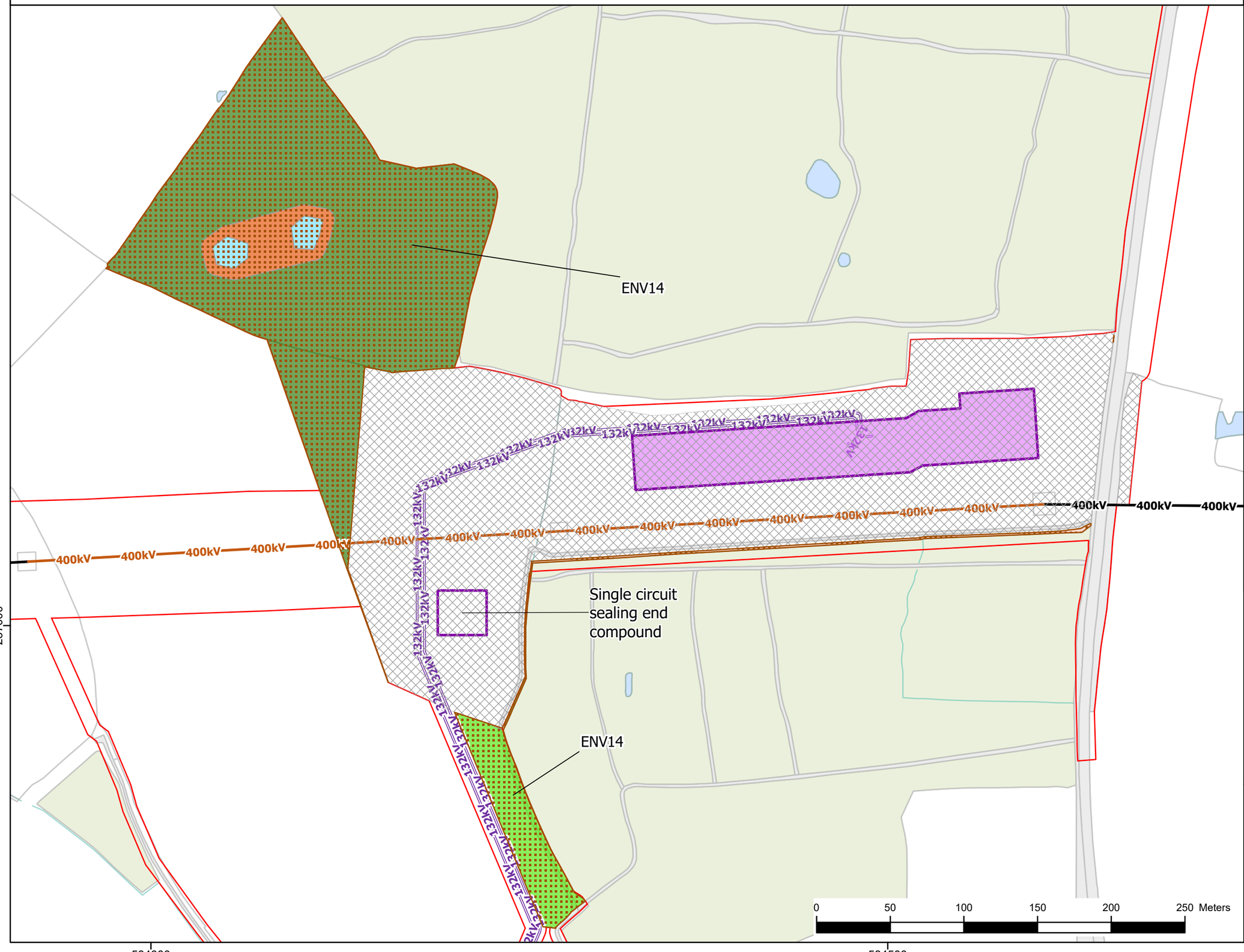
NG DRAWING No.
BT-JAC-020631-500-0147

SCALE : 1:2500

SHEET NO.	NO. OF SHEETS	ISSUE:
8	9	A

NATIONAL GRID (BRAMFORD TO TWINSTEAD REINFORCEMENT) ORDER
PINS APPLICATION NUMBER: EN020002
ENHANCEMENT AREA DESIGN
REGULATION 5(2)(q)
SHEET 9 OF 9
IN THE DISTRICTS OF MID SUFFOLK DISTRICT COUNCIL, BABERGH DISTRICT COUNCIL AND BRAINTREE DISTRICT COUNCIL

Application Document 7.4



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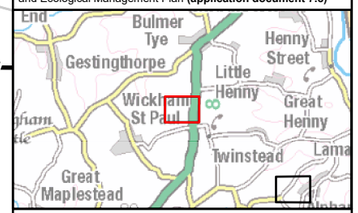

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NG DRAWING No. BT-JAC-020631-500-0147	SHEET NO. 9	NO. OF SHEETS 9	ISSUE: A
SCALE : 1:2500			

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