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Bramford to Twinstead Reinforcement

Volume 7: Other Documents

Document 7.8: Landscape and Ecological Management Plan

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nationalgrid

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1. Introduction

1.1 Summary

1.1.1 National Grid Electricity Transmission plc (here on referred to as National Grid) has produced an application for an order granting development consent to reinforce the transmission network between the existing Bramford Substation in Suffolk, and Twinstead Tee in Essex. This would be achieved by the construction and operation of a new electricity transmission line over a distance of approximately 29km. The project meets the threshold as a Nationally Significant Infrastructure Project (NSIP), as defined under Part 3 of the Planning Act 2008, hence National Grid requires a development consent order (DCO).

1.1.2 This Landscape and Ecological Management Plan (LEMP) sets out site-specific measures and construction methodologies that are required to help avoid or reduce potential effects of the project on the environment during construction. The LEMP is based on the project detail as submitted with the application for development consent and also takes into account feedback received on a consultation draft of the LEMP in autumn 2022. It is recognised that there may be minor refinements through the examination process as part of the application for development consent.

1.2 Project Overview

1.2.1 The reinforcement would comprise up to 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).

1.2.2 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.

1.2.3 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 grid supply point (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.

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

1.2.5 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 the 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 Biodiversity Net Gain (BNG).

1.2.6 The development authorised by the DCO must be undertaken in accordance with this LEMP, pursuant to Requirement 4 of the draft DCO (**application document 3.1**). The LEMP includes Appendix A: Vegetation Retention and Removal Plan (**application document 7.8.1**) and Appendix B: Vegetation Reinstatement Plan (**application document 7.8.2**) which are secured through Requirement 9 of the draft DCO (**application document 3.1**).

1.2.7 The LEMP describes the works undertaken pursuant to the DCO whether this is undertaken by National Grid, UK Power Networks (UKPN) and any appointed contractors appointed by these organisations. This document refers to 'the contractor' when referring to any organisation responsible for constructing components of the project (including removal of the 132kV overhead line).

1.2.8 National Grid, UKPN and any appointed contractors will carry out all work in accordance with the LEMP during the construction, reinstatement and five year aftercare period of the project unless otherwise agreed with the relevant planning authority.

1.3 Purpose of the LEMP

1.3.1 The purpose of the LEMP is to set out how landscape and ecological features such as landform, watercourses, vegetation (including trees) and habitats will be protected and managed during construction. It also sets out how land, vegetation and habitats will be reinstated following construction together with the subsequent aftercare and, where applicable, monitoring arrangements. The contractor will be responsible for implementing the measures outlined within the LEMP and associated management plans.

1.3.2 The objectives of the LEMP are to:

- Provide a mechanism for the delivery of landscape and ecological measures (other than those which will be secured through specific requirements of the DCO), to avoid, reduce or compensate for environmental effects identified in the Environmental Statement (ES);
- Demonstrate compliance with legislation and identifying where it will be necessary to obtain authorisation from relevant statutory bodies such as Natural England;
- Provide details of what vegetation would be affected by the project, how vegetation would be retained and protected on the project and where vegetation would be removed, how this would be undertaken; and
- Provide details of the vegetation which would be provided as part of the embedded measures, reinstatement or additional mitigation proposals.

1.3.3 The project as submitted with the application for development consent includes environmental commitments under the following categories:

- Good practice measures: standard approaches and actions to be implemented on construction sites, intended to protect the environment. These may be general or topic-specific and are typically applicable across the whole project. The good practice measures are provided in full in CEMP Appendix A: Code of Construction Practice (CoCP) (**application document 7.5.1**);
- Embedded measures: those that are intrinsic to and built into the design of the project, some of which are inherent to the draft DCO (**application document 3.1**) and / or shown on the Works Plans (**application document 2.5**). It also includes measures that have been identified through the environmental assessment as part of the iterative design and have been committed to as part of the application of the mitigation hierarchy, to avoid or reduce likely significant environmental effects to support a proportionate assessment. These are set out in CEMP Appendix B: Register of Environmental Actions and Commitments (REAC) (**application document 7.5.2**); and
- Additional mitigation: any additional project-specific measures that has been identified during the EIA process as being necessary to avoid or reduce significant impacts on the environment. These can be found in CEMP Appendix B: REAC (**application document 7.5.2**).

1.3.4 The CEMP (**application document 7.5**) and its appendices provide a securing mechanism for all environmental commitments (refer to paragraph 1.3.3) made on the project. This LEMP provides a securing mechanism for construction phase measures relating to landscape and ecology and provides additional information to guide implementation of these measures.

1.3.5 Construction phase measures for all other environmental topics are secured by one of the following three management plans which are all secured through Requirement 4 in the draft DCO:

- CEMP (**application document 7.5**): general construction measures and methodologies to avoid or reduce potential effects of the project.
- Construction Traffic Management Plan (CTMP) (**application document 7.6**): measures to manage construction traffic and impacts on the wider traffic network; and
- Material and Waste Management Plan (MWMP) (**application document 7.7**): measures to reduce consumption of raw materials and reduce waste.

1.3.6 The above plans are referenced in the LEMP where appropriate.

1.3.7 The LEMP does not duplicate the measures set out within the relevant European Protected Species (EPS) Licences or actions required to comply with any permits or licences applied for on the project.

1.3.8 This LEMP should be read alongside ES Chapter 6: Landscape and Visual (**application document 6.2.6**), ES Chapter 7: Biodiversity (**application document 6.2.7**) and the Arboricultural Impact Assessment (AIA) (**application document 5.10**), which describe the existing baseline conditions and the impact assessment.

1.4 Environmental Gain

1.4.1 National Grid has developed an Environmental Action Plan (2021-2026), which sets firm targets for the five-year period (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'. This includes a priority area of caring for the natural environment. With regard to this, National Grid has committed to valuing nature, and protecting and enhancing it where possible using 'natural capital' and 'net gain' principles (National Grid, 2021). In line with both Government requirements and National Grid targets, National Grid is committed to delivering at least a 10% biodiversity net gain on this project.

1.4.2 Although not yet mandatory, the Environment Act 2021 includes a requirement for NSIP to deliver at least 10% biodiversity gain, which would come into effect in November 2025. The 2021 consultation draft of the Overarching National Policy Statement for Energy (EN-1) (Department for Business, Energy and Industrial Strategy) also states that '*although achieving biodiversity net gain 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'*.

1.4.3 A summary of the proposals is presented in the Environmental Gain Report (**application document 7.4**) submitted with the application for development consent. This report presents the initial (application stage) results of the biodiversity metric undertaken for the project, using Natural England's Biodiversity Metric V3.1. The metric is based on the Proposed Alignment described in Environmental Statement Chapter 4: Project Description (**application document 6.2.4**). The ES submitted with the application for development consent excludes the assessment of enhancements when determining likely significant effects and therefore the LEMP does not reference the enhancement proposals. It is anticipated that the enhancements would be delivered through alternative mechanisms outside of the main construction works with the evidence provided in accordance with Requirement 13 of the draft DCO (**application document 3.1**).

1.5 Structure of the Landscape and Ecological Management Plan

1.5.1 The LEMP structure is set out in Table 1.1.

Table 1.1 – Structure of the LEMP

Chapter/Appendix	Content
1. Introduction	This sets out the purpose of the LEMP and how it is structured.
2. Project Description	This describes the features of the project, the project commitments from the CoCP and other documents. This also sets out the work that has been done to date to inform the LEMP and that will continue to happen during detailed design and pre-construction.
3. Project Team Roles and Responsibilities	This sets out the main roles and responsibilities relevant to the LEMP and the training and awareness that will be completed.
4. Engagement on the LEMP	The LEMP was issued to relevant consultees for comment. This section summarises the comments received and how these have been considered when developing the final LEMP.

Chapter/Appendix	Content
5. Landscape and Ecological Features	This sets out the landscape and ecological designations relevant to the LEMP and summarises the main land uses crossed by the project.
6. Vegetation Retention	This sets out how vegetation and features that are to be retained on site will be protected during construction.
7. Vegetation and Tree Removal	This sets out how vegetation and features will be removed during construction, with reference to the Vegetation Retention and Removal Plan in Appendix A.
8. Landscape and Ecological Reinstatement	This sets out how vegetation and features will be reinstated following construction, with reference to the Vegetation Reinstatement Plan in Appendix B.
9. Aftercare	This sets out the aftercare proposed on the project with regards to vegetation.
10. Implementation	This explains procedures in relation to site checks and reporting and how Material or Non-material change would be managed, if change were necessary to implement the project.
Appendix A	Vegetation Retention and Removal Plan
Appendix B	Vegetation Reinstatement Plan
Appendix C	Planting Schedules

2. Project Description

2.1 Project Commitments

2.1.1 The project design is the result of a process of iterative design development that was introduced at project inception. Environmental considerations have had a key influence on the project, with knowledge gained through the EIA process, input from the project team (including the results of site surveys) and discussions with interested parties (such as landowners, relevant planning authorities and regulators).

2.1.2 As explained in Chapter 1, the project incorporates environmental considerations through measures embedded in the design, good practice (general measures and topic-specific) measures and mitigation measures identified in the ES (**application document 6.2**). For ease of reference these have been assigned a reference number:

- Embedded measures are given a prefix of EM then the relevant geographical section e.g. AB: Bramford Substation/Hintlesham, followed by a unique number for example EM-AB01 is the first embedded measure identified in Section AB: Bramford Substation/Hintlesham;
- Good practice measures are given a unique reference number based on the aspect. For example, general good practice measures are identified with a GG prefix, whereas the topic-specific ones are given a prefix based on the topic initials for example landscape and visual measures are referenced as LV01, LV02 etc; and
- Additional mitigation measures are given a prefix of EIA, followed by the topic initials and a unique reference number, for example EIA_B01 would be a measure identified in the biodiversity assessment to offset a significant effect.

2.1.3 These references are used throughout this LEMP.

2.2 Construction Schedule

2.2.1 In common with other NSIP, the eventual detailed construction programme will be subject to change from factors such as procurement, system access requirements (outages), resource and material availability, weather and ground conditions and in the case of the project, whether the GSP substation is constructed pursuant to the separate Town and Country Planning Act (TCPA) application. National Grid obtained planning permission for the GSP substation under the TCPA in October 2022 (planning reference 22/01147/FUL).

2.2.2 Advance works may also take place prior to development consent, where consented under alternative regimes. Any such early works would be controlled under the terms of the relevant planning permission and would not relate to development that can only be carried out under a DCO.

2.2.3 The construction schedule will be included within the Stage Plan submitted to the relevant planning authorities in accordance with Requirement 3 of the draft DCO (**application document 3.1**) prior to commencement.

2.2.4 The LEMP applies to both of the two construction schedule scenarios provided within ES Appendix 4.2: Construction Schedule (**application document 6.3.4.2**):

- The baseline construction schedule: This assumes that the GSP substation is constructed in advance of DCO consent, via a separate planning permission under

the TCPA. Under this scenario it is assumed that the project would be operational by late 2028.

- The alternative scenario: This assumes that the GSP substation is constructed under the DCO. Under this scenario the project it is assumed that the project would be operational by the end of 2028 (subject to securing appropriate system access to undertake outage-related works).

2.2.5 Construction activities will be sequenced and of a transient nature given the linear construction site. There are likely to be a number of construction work fronts working at the same time during removal of the 132kV overhead line and during construction of the new overhead transmission line and underground cable. This will reduce the overall construction programme and will help with project efficiencies such as delivery of goods to site.

2.2.6 Due to the nature of the works, and as some aspects need to take place during agreed outage windows, there may be periods of time where works do not take place within a particular geographical area. In addition, some access routes and temporary fencing may need to remain on site until after testing has been completed to allow any snagging matters to be addressed before reinstatement takes place. The schedule of works will be communicated with each landowner and they will be updated of any amendments to the schedule during construction.

2.2.7 The final construction schedule will take into account timings relevant to the EIA, for example vegetation with the potential to support breeding birds will be programmed to be removed outside of breeding bird season (March to August inclusive) where practicable (B02) and other seasonal restrictions set out within the ES or relevant EPS licence.

2.3 Working Hours

2.3.1 Working hours will be in accordance with Requirement 7 in the draft DCO (**application document 3.1**). Further details can be found in the CEMP (**application document 7.5**).

2.4 Procedure for Identifying the Final Alignment

2.4.1 The Order Limits delineate the extent of the project for which development consent is being sought; and encompass the land required temporarily to build the project and permanently to operate the project. The Order Limits include the Limits of Deviation (LoD), which represent the maximum deviation for permanent infrastructure. The LoD allow for adjustment to the final positioning of permanent project features to avoid localised constraints or unknown or unforeseeable issues that may arise.

2.4.2 Subject to the grant of the DCO, the designs will continue to evolve and be refined within the parameters set by the LoD, as shown on the Works Plans (**application document 2.5**). National Grid will employ environmental specialists as required to advise on the design refinements and the micro-siting of project components within the LoD. The Final Alignment will also be informed by the results of pre-construction surveys and consultation with the landowners.

2.4.3 The LEMP is based on the Proposed Alignment shown on the General Arrangement Plans (**application document 2.10**) and potential changes that could be anticipated through application of the LoD. If the Final Alignment requires changes to the LEMP, these would be addressed through the change process documented in Section 10.5.

2.5 Surveys Supporting the LEMP

2.5.1 Table 2.1 sets out the surveys undertaken as part of the baseline assessment within the EIA and where the results of these surveys can be found in the application documents.

Table 2.1 – Baseline Surveys

Baseline Survey and Description	Supporting Documents
UK Habitats Classification survey	The Habitats Baseline Report can be found in ES Appendix 7.1 (**application document 6.3.7.1**).
River Condition Assessment survey	The Aquatic Ecology Baseline Report can be found in ES Appendix 7.3 (**application document 6.3.7.3**).
National Vegetation Classification survey of woodlands	The Ancient Woodland and Potential Ancient Woodland Report can be found in ES Appendix 7.4 (**application document 6.3.7.4**).
Important Hedgerow Survey	The Important Hedgerow Assessment can be found in ES Appendix 7.5 (**application document 6.3.7.5**).
Arboricultural survey in accordance with BS 5837:2012	The results of the arboricultural survey can be found in the AIA (**application document 5.10**).
Protected species	The factual survey report for species can be found in ES Appendix 7.2 Species Baseline Report (**application document 6.3.7.2**) with species-specific reports for bats, dormouse and badgers in ES Appendices 7.7 to 7.9 respectively (**application documents 6.3.7.7 to 9**).
Soil surveys (soil profile and characteristics information presented as part of the Agricultural Land Classification (ALC) survey report)	The ALC survey report can be found in ES Appendix 11.1 (**application document 6.3.11.1)**

2.5.2 As noted in Table 2.1, an arboricultural survey has been undertaken of trees within the Order Limits and within a 15m buffer of the Order Limits. The 15m buffer allows for trees whose root protection areas (RPA) may extend into the Order Limits. This is particularly relevant in relation to ancient and potential ancient woodland and for ancient and veteran trees for which planning guidance indicates a 15m minimum buffer.

2.5.3 The arboricultural survey involved arboricultural specialists surveying trees in accordance with British Standard (BS) 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (BS 5837:2012). Surveys recorded attributes of the trees to include species, height, stem diameter and canopy extents, and assigned a quality category based on a cascade chart contained within BS5837:2012. This information has been used to determine the above and below ground tree constraints, including the calculation of RPA, presented in the AIA (**application document 5.10**).

2.5.4 Further surveys will be carried out pre-construction to supplement the baseline information currently collected for the EPS licences and to inform the construction methodology produced for the project. The pre-construction surveys which will support the project will comprise:

- Walkover survey to confirm that the habitats on site are still the same as the 2021-22 baseline surveys;

- Ground and climbing bat surveys for hibernation and summer activity across the project to support the final licence application and inform detailed site-specific measures for the exclusion of species during construction;
- Badger surveys: walkover to check for changes from the 2022 baseline surveys. This may include sett monitoring from early spring onwards at targeted setts to support final licence application; and
- Invasive non-native species (INNS) survey: during the summer across the project to check for changes from the 2021-22 baseline surveys.

2.5.5 The ES includes a full suite of landscape and ecological surveys that have informed the development of the LEMP and the draft EPS licences, informing the commitments and methods proposed within these documents. Pre-construction surveys are a standard approach taken to verify that there have been no changes within the Order Limits prior to works starting. National Grid does not anticipate that information gathered during the preconstruction surveys would affect the commitments and methods of implementation set out within the LEMP. However, if the surveys identify new or different features, then these would be reviewed in accordance with the change process set out in Section 10.5.

2.5.6 The pre-construction survey information will inform the updated versions of Appendices A and B of the LEMP which will be provided to the relevant planning authorities in accordance with Requirement 8 of the draft DCO (**application document 3.1**) which states:

(1) 'Unless otherwise agreed with the relevant planning authority, no stage of the authorised development may commence until, for that stage, a plan showing the trees, groups of trees, woodlands and hedgerows to be retained and/or removed during that stage has been submitted to and approved by the relevant planning authority.

(2) The plan submitted under sub-paragraph (1) must include details of the location of the trees, groups of trees, woodlands and hedgerows to be removed during that stage of the authorised development.

(3) The planting scheme submitted under sub-paragraph (1) must be in general accordance with the LEMP.

(4) All trees, groups of trees, woodlands and hedgerows shown on the relevant scheme for that stage of the authorised development must be retained and/or removed in accordance with the relevant plan for that stage of the authorised development, unless otherwise approved by the relevant planning authority.'

2.6 Consents, Licences and Permits

2.6.1 The project will be run in compliance with all relevant legislation, consents and permits in accordance with good practice measures GG01 and B01 in the CoCP. The licences and consents currently identified as being relevant to the LEMP, are listed in Table 2.2.

Table 2.2 – Consents, Licences and Permits

Consent Type	Consenting Agency	Licences and Permits
Conservation of Habitats and Species Regulations 2017 Protected Species Licence: bats and dormouse	Natural England	Where protected species have been identified in the pre-construction surveys. Further licences may be required should additional protected

Consent Type	Consenting Agency	Licences and Permits
		species be identified prior to or during construction.
Protection of Badgers Act 1992 Badger Licence	Natural England	Where badger setts have been identified in the pre-construction surveys.
Environmental Permitting Regulations 2016 Flood Risk Activities	Environment Agency	Ecological issues connected with working in or near rivers will need to be avoided, mitigated or compensated for as part of the Flood Risk Activity Permit applications for activities in, over, under or within 8m of main river.

2.6.2 The application for development consent includes the draft EPS licences for bats and dormouse (**application documents 6.3.7.7** and **6.3.7.8** respectively) and the draft badger licence (**application document 6.3.7.9**). The final licences will be produced and submitted to Natural England in accordance with good practice measures B01 in the CoCP (**application document 7.5.1**). The final licences will contain the mitigation measures required to comply with legislation. All applicable works will be undertaken in accordance with the relevant requirements and conditions set out in those licences.

3. Project Team Roles and Responsibilities

3.1 Environmental Management Systems

3.1.1 National Grid will implement management processes and briefings so that the works are carried out in accordance with current legislation and guidance. This will be achieved by application of well-established work processes that apply the recognised BS EN ISO 14001:2015 or equivalent.

3.1.2 The contractor will have an Environmental Policy that meets the requirements of ISO 14001 or equivalent, through their internal Business Management System procedures. The policy statement will be displayed on the site notice boards, publicised to all site staff and operatives, and made available to interested parties upon request.

3.2 Project Responsibilities

3.2.1 The contractor will undertake the construction works in accordance with the DCO and its associated documents including this LEMP. The relevant aspects of this LEMP will be notified to the workforce at commencement of works to highlight the relevant commitments and responsibilities to those undertaking the work.

3.2.2 Overall roles and responsibilities relevant to the LEMP are presented in Table 3.1. These roles may be delivered by multiple people across the project, who are designated with that specific responsibility, e.g. Environmental Clerk of Works (EnvCoW). The EnvCoW will also draw on the experience of the technical specialists, who will advise in specific areas, for example the arboriculturist will advise on working near trees.

Table 3.1 – Overall Roles and Responsibilities Relevant to the LEMP

Role	Organisation	Responsibilities
Environmental Manager	Contractor	The Environmental Manager will be responsible for the maintenance of all environmental plans and registers, including monitoring that the environmental measures and mitigations are implemented on site and as recorded within the LEMP. It is assumed that they will be the main point of contact for all environmental matters on the project and will oversee ecological pre-construction surveys. They will also develop good working relationships with external stakeholders such as the Environment Agency, Natural England and the relevant planning authorities.
EnvCoW	National Grid	The EnvCoW will monitor that the works proceed in accordance with relevant environmental DCO requirements and adhere to the required mitigation measures. The EnvCoW will be supported as necessary by appropriate technical specialist advisors.
Permits and Consents Manager	Contractor	It is anticipated that the Permits and Consents Manager will work with the Environmental Manager to draft and submit permits and consents on behalf of the project, track the progress, provide updates and communicate approvals.

Role	Organisation	Responsibilities
Works Supervisor	Contractor	It is anticipated that the Works Supervisor will be responsible for delivering the site works in accordance with the requirements of the LEMP and implementing good environmental practices required by the Environmental Manager. They are responsible for managing operatives, plant and their areas of work in accordance with the principles of good environmental practice.
Technical specialist advisors	Contractor / National Grid	These will have the relevant experience to supervise the relevant aspects of the works, which might include an arboriculturist, land contamination specialist, soil specialist, ecologist, archaeologist.

3.3 Information Training and Awareness

3.3.1 In accordance with CoCP (**application document 7.5.1**) good practice measure GG05, all staff and operatives working on the project will undergo a site-specific induction, which is anticipated to include the following environmental topics:

- Ecology: working in or adjacent to protected sites and priority habitats, protected species, management, mitigation and controls;
- Working around trees: tree and root protection;
- Working in or near water; and
- Soil management and protection of soil quality.

3.3.2 Regular environmental toolbox talks will be provided by the contractor. These will give targeted information about site-specific issues or activities taking place at that time.

4. Engagement on the LEMP

4.1 Introduction

4.1.1 This chapter sets out the engagement that has been undertaken on the LEMP and how the comments were considered when developing the final LEMP for submission with the application for development consent.

4.2 Engagement

4.2.1 The LEMP was issued to the relevant planning authorities and other relevant statutory consultees to seek feedback on the contents and structure before producing the final LEMP for the application for development consent. The LEMP was issued to the following organisations:

- Environment Agency;
- Natural England;
- Babergh and Mid Suffolk District Councils;
- Braintree District Council;
- Essex County Council; and
- Suffolk County Council.

4.3 Feedback on the LEMP

4.3.1 Table 4.1 summarises the feedback received on the draft LEMP and how these have been considered when developing the final LEMP for application. General comments that just noted points within the draft LEMP have been excluded so that Table 4.1 focuses on the main discussion points. In some cases, the relevant planning authorities share technical resources and therefore more than one council has in some cases, made the same comment. In order to keep the table concise, the comment has only been included once. No specific comments were received from Essex County Council on the draft LEMP.

Table 4.1 – Feedback Received on the Draft LEMP

Comment	How This Has Been Considered
Environment Agency	
Flood Risk Activity Permits (FRAP) should be added to Table 2.2 as they are relevant to the LEMP. This is because we will expect the ecological issues connected with working in or near rivers to be avoided, mitigated or compensated for as part of the FRAP applications for activities in, over, under or within 8m of main river.	The FRAP were included in the equivalent table in the CEMP but have been added to Table 2.2 for completeness.
Working in or near rivers should be included as an environmental topic as part of Information Training and Awareness.	Good practice measure GG05 in the CoCP (**application document 7.5.1**) and paragraph 3.3.1 of this LEMP have been amended to include reference to working in or near water.

Comment	How This Has Been Considered
All Main Rivers should be bridged rather than culverted where temporary access routes across watercourses are required during the construction phase.	Good practice measure W17 in the CoCP (**application document 7.5.1**) states that temporary clear span bridge crossings will be used for the temporary access route crossing at the River Stour, River Box and the River Brett. No crossing is anticipated of the Belstead Brook. Any main river crossings would require a FRAP.
Trenching across rivers risks serious damage to the river bed substrate. Therefore, it is important that the bed is properly reinstated as well as the banks. During the temporary works measures will be needed to ensure that: 1) Only a short length of channel is impacted at any one time in order to minimise the disruption to wildlife. 2) An unobstructed corridor is maintained at all times for the movement of wildlife, including otters, up and down the river corridor. 3) Any pumps used for over-pumping water are fitted with a mesh grid screen with grid squares no larger than 2mm by 2mm in order to prevent trapping/entrainment of fish and other wildlife 4) Adequate pollution prevention measures are put in place in order to avoid downstream pollution caused by suspended sediment or other pollutants.	Good practice measure W02 in the CoCP (**application document 7.5.1**) states for opencut watercourse crossings and installation of vehicle crossing points, good practice measures will include but not be limited to reinstating the riparian vegetation and natural bed of the watercourse, using the material removed where appropriate, on completion of the works and compacting as necessary. Good practice measure B13 has been added to the CoCP and states the use of pumps to move water will require 2-3mm screening to avoid the impingement of fish and juvenile eels. Pollution prevention measures are detailed in the CEMP (**application document 7.5**), however a cross reference to the CEMP has been added to paragraph 6.5.3 of the LEMP.
Section 7.5 is very woodland focussed. It should be expanded to include consideration of aquatic/riverine INNS, including signal crayfish, Himalayan balsam and giant hogweed.	Text has been added to Section 6.9 to cover aquatic/riverine INNS.
There is no mention of otter or water vole in this section on protected species. They need to be included due to the risk of impacts at the river crossings.	Text has been added to Section 7.4 to cover otter and water vole.
Watercourses will need to be reinstated to a condition which is an improvement compared with the pre-works condition, which is in line with Biodiversity Net Gain principles and which takes account of the wider Water Framework Directive objectives of the affected watercourses. Features that require post-construction monitoring include the river channel/corridor at the Main River crossings. This should be through use of MoRPh surveys or River Habitat Surveys of the affected sections of channel and adjacent control reaches.	Clear span bridge crossings will be used for the temporary access route crossing at the River Stour, River Box and the River Brett (W17) to avoid disturbance to the channel. The remaining minor watercourses are typically farm drains, where it may be inappropriate to improve the condition of the watercourse without loss of land or functionality to the land use. National Grid has made a commitment to deliver net gain by at least 10% or greater in environmental value (including biodiversity) on all construction projects. Further details can be found in the Environmental Gain Report (**application document 7.4**). The need for monitoring post construction would be agreed through the consenting (e.g. FRAP) process with the consenting authority.

Comment	How This Has Been Considered
Natural England	
It appears that the majority of detailed plans i.e. the Vegetation Retention and Removal Plan, the Vegetation Reinstatement Plan and the Planting Schedules are yet to be produced for the scheme. Consequently, it is not possible to comment in any detail on the draft LEMP at this stage, so our comments focus on the broad principles outlined in the document.	The appendices were not shared as part of this engagement which focused on the broad principals of the LEMP. However, Appendix A: Vegetation Retention and Removal Plan, Appendix B - Vegetation Reinstatement Plan and Appendix C - Planting Schedules are now included (**application documents 7.8.1, 7.8.2** and **7.8.3** respectively).
Section 5 does not list any landscape designations. In particular, the Dedham Vale Area of Outstanding Natural Beauty (AONB) and Special Landscape Areas (SLA) some of which form part of 'the setting' to the Dedham Vale AONB should be listed here.	Landscape designations, including Dedham Vale AONB and SLA have been included in Section 5.1 of the LEMP.
Broadly speaking from a purely landscape perspective, Natural England is satisfied with proposals for how vegetation would be retained and protected by the project and are in agreement with the proposed approach to re-instatement as stated in paragraph 8.1.3	Noted.
Paragraph 6.2.16 states that wood chips would be laid in RPA. It is important to consider risk management of spreading plant pests and diseases and wood chips should only be used where they have been generated from branch offcuts from within the work zone.	The text in paragraph 6.2.16 has been amended to reflect this matter.
Proposals for works around hedges allow for retention of hedge roots in-situ with mats proposed to protect the roots to allow for natural regeneration. Natural England is supportive of this approach but would want to see detailed proposals demonstrating that hedge roots would be adequately protected such that regeneration is viable.	The method proposed for hedgerows is set out in Section 7.3. This states that protective matting would be used where hedgerows are coppiced to ground level (no excavation of the rootzone) to protect the roots. The landscape contract will include inspections to check that coppicing is re-growing and allows for further intervention in the form of planting if required.
We would also wish to see provision included for replacement hedgerow planting should the hedgerow fail to regenerate naturally in the first growing season after works have taken place.	Further text has been added to Section 9.2 to explain that inspections will also be undertaken to any areas that were coppiced during construction to check that the vegetation is re-establishing. This will confirm that these areas are regenerating as planned or would identify the need for further measures, such as additional planting where the coppicing is not leading to successful regrowth.
Natural England expect that as a minimum the proposed plant species used will be native, of local provenance wherever possible, suited to the soil and climate and landscape character of the local area.	Section 8.2 of the LEMP details that tree and shrubs will be of local provenance. Further details can be found in LEMP Appendix C: Planting Schedules (**application document 7.5.3**).

Comment	How This Has Been Considered
Natural England notes and mostly accept that new or reinstated woodland, trees and hedgerows would be inspected and maintained by National Grid for a period of five years, after which these assets would be handed back to the landowner. We would however, question whether planting specifically to screen the CSE compounds would be wholly or partly on land that remains within National Grids ownership and could therefore be under its permanent care.	National Grid will maintain land they own and will seek rights to maintain the vegetation around the CSE compounds (non-linear elements). On this basis, National Grid anticipates maintaining the embedded planting for the life of the asset (CSE compounds and GSP substation).
Paragraph 10.3.1 states, *"Monitoring will be undertaken at local wildlife sites directly impacted as part of the project."* It is unclear why only local wildlife sites have been listed. For example, Hintlesham Woods SSSI will be affected but has not been listed as a site for monitoring, as this would be expected	There would be limited impact on Hintlesham Woods SSSI beyond the maintained swathe for operation of the existing 400kV overhead line. Therefore, no monitoring has been proposed at this location.
Additional Feedback Received From Natural England in Relation to Ancient Woodland	
Table 6.1 notes that the mitigation hierarchy has been considered not applicable or that there is no likely impact for a number of sites. Natural England advises that they either need to be included in the table with the mitigation hierarchy applied or an explanation as to why they have not been included is required.	Text has been added to Table 6.1 to explain that N/A applies where the ancient woodland is located further than 15m away from ground disturbing activities or where a feature such as an existing ditch or road has been identified as limiting the RPA.
Tables 6.1 and 6.2. Natural England reiterates our previous advice that the applicant should apply the standing advice for Ancient woodland, ancient trees and veteran trees to the design of their project. The A1 mitigation principle is not considered suitable and does not meet Natural England's standing advice. Natural England advise that for each case where each mitigation principle cannot be upheld, it is identified and it should be counted as a loss of irreplaceable habitat. As detailed in Natural England's standing advice, a compensation strategy should be provided in these circumstances.	The standing advice states that '*for ancient woodlands, the proposal should have a buffer zone of at least 15m from the boundary of the woodland to avoid root damage (known as the RPA). Where assessment shows other impacts are likely to extend beyond this distance, the proposal is likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic*. As any effects of the project in relation to other impacts, such as from traffic would be temporary, a 15m buffer is considered an appropriate buffer for avoiding impacts on ancient woodland on the project. The mitigation hierarchy is based on the approach taken on the Southampton to London Pipeline DCO (a similar linear project) where Natural England agreed to the methodology and mitigation proposed within the in the Technical Note on Ancient Woodland and Veteran Trees using a similar hierarchy approach to mitigation.
Tables 6.1 and 6.2. A2/B2 does not state what the RPA buffer is and Natural England refer again to our standing advice for guidance on this. If the intention is that the buffer area will deviate from Natural England's guidance, the buffer area should be stated and an explanation provided as to why this differs from Natural England's standing advice.	
Tables 6.1 and 6.2. For A3/B3 it is unclear what the benefit of hand-digging would be. More clarity is needed as to its purpose and what action will be taken should a root be reached.	Hand digging would be used to allow placement of project components around or between roots without impacting them where practicable, or in worst case it is to allow clean severance of roots with sharp saw or secateurs.

Comment	How This Has Been Considered
Suffolk County Council	
The measures in place with regard to working near trees are appropriate for the proposal and all measures stated in this section should be strictly adhered to during all operations at the site. SCC would like to see the AIA report as and when it becomes available.	Noted. The AIA (**application document 5.10**) has been submitted with the application for development consent.
Before carrying out any works to install the bridges across the various rivers referred to in the report, each site should be scoped for the potential presence of otters and water vole before any works take place. Any pre-works survey should also check for the potential presence of any INNS.	Paragraph 6.5.4 of the LEMP states that '*Prior to carrying out any works to watercourses, a preconstruction check will be undertaken to check for the presence of otter, water vole and any INNS.'*
All trees, hedges and areas of vegetation within the order limits should be retained where possible. Any necessary tree and vegetation removal should be undertaken outside of bird nesting season (March to August inclusive).	Good practice measure B02 in the CoCP (**application document 7.5.1**) states that vegetation with the potential to support breeding birds will be programmed to be removed outside of breeding bird season (March to August inclusive) where practicable. If any vegetation clearance is required during the breeding bird season, vegetation will be checked by an ecologist for nesting birds prior to removal. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the ecologist.
Any trees or hedges lost (either fully or partially) to the development must be replaced on a like for like basis.	LEMP Appendix B shows the proposed reinstatement on the project. In addition, National Grid has committed to delivering net gain by at least 10% or greater in environmental value (including biodiversity) on the project and has used the Biodiversity Metric 3.1 (Natural England, 2022) to quantify the vegetation loss that is anticipated to occur and what would be replaced to achieve the gains. Further details can be found in the Environmental Gain Report (**application document 7.4**)
The measures stated with regard to avoiding causing potential harm to reptiles are appropriate and should be adhered to during works, in order to avoid causing potential harm to any reptiles that may be present within the order limits.	Noted.
All works that have the potential to impact on bats must be carried out under the appropriate licence(s) from Natural England, and any mitigation measures stated in the licence conditions must be strictly adhered to during works.	A draft bat licence has been completed as part of the DCO application (**application document 6.3.7.7**). Natural England has provided a Letter of No Impediment (with caveats). A final draft licence will be submitted to Natural England should development consent be granted.

Comment	How This Has Been Considered
The measures stated in the report with regard to avoiding impacting on Dormice during works are appropriate for the proposal and the Ecology Team and Suffolk Biodiversity Information Service (SBIS) are keen to see the results of any surveys carried out as part of the licence requirements.	ES Appendix 7.8: Dormouse Survey Report (**application document 6.3.7.8**) contains the results of the dormouse surveys.
The section regarding invasive species is appropriate and any measures stated should be adhered to during operations onsite. The pre-works check for the likely presence of invasive species is essential to negate the risk of accidental or unintentional spread/ disturbance of invasive plant species during operations.	Noted. Preconstruction surveys would be undertaken as stated in Section 6.9.
The aftercare period of five years is not sufficient to allow plants and trees to establish fully. This aftercare period should be extended to a minimum of 10 years.	Five years is considered to be a standard duration for aftercare of hedgerows and trees, as these are expected to have matured sufficiently to have establish during this period. Five years is typical for most large infrastructure projects.
SCC welcomes the monitoring of designated sites and protected species that could be potentially impacted by the works. This monitoring should be carried out by suitably qualified and licenced (where required) professionals.	Noted. Paragraph 10.3.1 states that *'Monitoring will be undertaken at local wildlife sites directly impacted as part of the project by a suitably qualified and licensed (where required) person.'*
SCC are keen to see the finalised LEMP as and when it becomes available and ask that the relevant planning authorities are consulted on future updates and on the discharge of DCO Requirement 5 (now Requirement 4).	The LEMP has been submitted with the DCO application. Requirement 4 of the draft DCO (**application document 3.1**) states that all construction works forming part of the authorised development must be carried out in accordance with the LEMP, unless otherwise agreed with the relevant planning authority or other discharging authority as may be appropriate to the relevant plan concerned.
SCC would advise that an Advisory Group is set up to help inform decision making throughout the duration of the LEMP and recommend that relevant planning authorities are invited as appropriate.	National Grid intends to continue the landscape and ecological thematic meetings and the regular Host Authority meetings as required.
To reduce the use of standard plastics we would expect biodegradable guards to be used. Given many of the products on the market need to be removed and composted in industrial facilities to biodegrade, we would also have a preference for plastic free guards where possible, as these do not necessarily have to be removed at the end of their lifespan	National Grid will continue to seek to use sustainable products on its projects. However, it is noted that many biodegradable tree guard products are still being tested and therefore it is not suitable to specify these at the current time.
The LEMP does not include reference to veteranising individual trees or management to create veteran features in trees over the lifetime of the LEMP. We recommend that this is added to the management requirements for this habitat type.	Reference to veteranising individual trees has been added to Section 7.2 and 9.2 of the LEMP.

Comment	How This Has Been Considered
The monitoring plan should set out measures for remedial / corrective actions where necessary. These measures alongside ongoing actions should be reported to the steering/advisory group as part of the monitoring report.	Further details have been added to the monitoring section to explain that intervention would be undertaken if habitats are not re-establishing to their pre-construction quality.
Babergh and Mid Suffolk District Council / Braintree District Council	
We are satisfied with the structure of the draft LEMP.	Noted.
To avoid confusion with the role of an Ecological Clerk of Works which uses the standard abbreviation ECoW, we recommend using EnvCoW instead for Environmental Clerk of Works.	The LEMP and other management plans have been updated to use the abbreviation 'EnvCoW' for the Environmental Clerk of Works role.
We recommend that the two Roadside Nature Reserves (RNR) are referenced with their District/Parish as well as their number to avoid any confusion.	The RNR have been added to Section 5.1 along with the district.
We welcome the provision of bat boxes on retained trees, although we are concerned that only two artificial bat boxes will be deployed on retained trees to every one tree with high or moderate bat roosting potential felled. We recommend that where is not practicable to attach limbs with potential roost features from trees with high bat roosting potential suitability to retained trees within the Order Limits, additional bat boxes are provided to avoid loss of these roosting opportunities.	A draft bat licence has been completed as part of the DCO application (**application document 6.3.7.7**). Natural England has provided a Letter of No Impediment (with caveats). A final draft licence will be submitted to Natural England should development consent be granted. Reference to additional bat boxes has been added to paragraph 7.4.6 of the LEMP.
We request that a reference to B07 is added to the bats section as it is stated that this mitigation measure will also be used for removal of hedges which have value for bats.	Reference to dead hedging has been added to both the bat and dormouse text in Section 7.4.
We recommend that adequate protection from deer and appropriate management is referenced in the section about natural regeneration.	Reference to deer protection has been added to Sections 8.2 and 9.1 of the LEMP.
We note that good practice measure LV03 is landscape based and recommend that a suitably experienced professional may need to be an ecologist where natural regeneration is proposed for woodland and grassland sites and where there are ecological objectives for restoration.	A suitably qualified person will be involved in the monitoring of habitat restoration, as stated in Section 10.3 of the LEMP.

5. Landscape and Ecological Features

5.1 Landscape and Ecological Designations

5.1.1 The landscape and ecological designations relevant to the LEMP are summarised below. Further details relating to the landscape designations can be found in ES Chapter 6: Landscape and Visual (**application document 6.2.6**), and further information relating to ecological designations can be found in ES Chapter 7: Biodiversity (**application document 6.2.7**). Further information on the soils which support landscape and ecological features can be found in ES Chapter 11: Agriculture and Soils (**application document 6.2.11**).

5.1.2 The statutory landscape designations relevant to the LEMP and located within or close to the Order Limits are as follows:

- Dedham Vale AONB
- Special Landscape Areas (SLA):
  - Gipping Valley SLA (local designation);
  - Brett Valley SLA (local designation);
  - Stour Valley SLA (local designation); and
  - Box Valley SLA (local designation).

5.1.3 The statutory ecological designations relevant to the LEMP and located within the Order Limits are as follows and are described in Section 6.7 of this report:

- Hintlesham Woods Site of Special Scientific Interest (SSSI); and
- Hadleigh Railway Walk Local Nature Reserve (LNR).

5.1.4 Non-statutory designated sites that are also relevant to the LEMP are County Wildlife Sites (CWS) in Suffolk, Local Wildlife Sites (LoWS) in Essex and Roadside Nature Reserves (RNR). The following sites are located within the Order Limits:

- Valley Farm Meadow CWS;
- Hadleigh Railway Walk CWS;
- Valley Farm Wood CWS;
- Layham Pit Woodland and Meadow CWS;
- The Dollops CWS;
- Alphamstone Meadows LoWS;
- Alphamstone Complex LoWS;
- Ansell's Grove/Ash Ground LoWS;
- Loshes Meadow Complex LoWS (part Essex Wildlife Trust Reserve);
- Twinstead Marsh LoWS; and
- RNR 195 (Babergh 179).

5.1.5 The following non-statutory designated sites are located immediately adjacent to the Order Limits;

- Tom's/Broadoak Wood CWS;

- Millfield Wood CWS;
- Broom Hill Wood CWS;
- Bushy Park Wood CWS;
- Leadenhall Wood CWS;
- Daws Hall CWS;
- Pebmarsh House LoWS;
- RNR 202 (Babergh 181);
- Butler's Wood; and
- Waldegrave Wood.

5.1.6 Other important ecological features which are found within the Order Limits, but which are not formally designated, comprise:

- Habitats of Principal Importance in England, i.e. Priority Habitats that include: coastal and floodplain grazing marsh; lowland dry acid grassland; lowland fen; wet woodland, lowland broadleaved deciduous woodland; arable field margins, open mosaic habitat on previously developed land; purple moor grass and rush pasture; hedgerows; rivers; and ponds;
- Notable plants within designated sites; and
- Protected and notable species e.g. aquatic macroinvertebrates; bats; badger; breeding birds; hazel dormouse; reptile species; riparian mammals; and fish.

5.1.7 Ancient Woodland, Potential Ancient Woodland, trees subject to a tree preservation order (TPO) and veteran trees are described in Section 6.3 of this report.

5.2 Summary of Main Land Uses Crossed by the Project

5.2.1 The land uses that the Order Limits would pass through, along with information on the main soil types present and their characteristics, are presented in ES Chapter 11: Agriculture and Soils (**application document 6.2.11**). The local geology and hydrogeology are described within ES Chapter 10: Geology and Hydrogeology (**application document 6.2.10**). This section summarises some of the features that are particularly relevant to the LEMP.

5.2.2 The land use is principally arable, with small woodland blocks and some pasture, often associated with river corridors. The Order Limits cross Hintlesham Woods, which is a large area of deciduous woodland designated as a SSSI for its ancient woodland habitat.

5.2.3 The project crosses several areas of wet woodland and lowland deciduous woodland which are Priority Habitats, some of which are also CWS/LoWS. These sites include:

- Lowland deciduous woodland: north of Mill Farm; Layham Pit Woodland and Meadow CWS; north-west of Millfield Wood CWS; west of Dollops Wood CWS; Stewards Farm and Mill Farm; and
- Wet woodland: Ansell's Grove/Ash Ground LoWS.

5.2.4 Further details on the habitats present can be found in ES Appendix 7.1: Habitats Baseline Report (**application document 6.3.7.1**).

5.2.5 There are areas of land within entry level plus higher level agri-environment schemes within the Order Limits (Department for Environment, Food and Rural Affairs (Defra),

2023), in particular south of Hadleigh, south of Boxford and west of the River Stour. There are also woodland areas within the English Woodland Grant Scheme or for which there are felling licences in place.

5.2.6 A range of soil types are present within the Order Limits and the variation is in part a reflection of the underlying geology, both the solid geology and overlying drift deposits, see ES Chapter 10: Geology and Hydrogeology (**application document 6.2.10**) for details. Further information from soil and Agricultural Land Classification surveys is presented in ES Appendix 11.1: Agricultural Land Classification Survey (**application document 6.3.11.1**).

6. Vegetation Retention

6.1 General Approach

6.1.1 The overarching aim will be to retain vegetation where practicable in accordance with good practice measure LV01 in the (CoCP (**application document 7.5.1**).

6.1.2 In accordance with good practice measure GG06, it is anticipated that a full record of condition will be carried out (photographic and descriptive) of the site and surrounding areas that may be affected by the construction activities. This record will be available for comparison following reinstatement after the works have been completed to demonstrate that the standard of reinstatement at least meets that recorded in the pre-condition survey or as agreed in the LEMP.

6.1.3 In accordance with good practice measure GG24, where working areas are fenced, the type of fencing installed will take into consideration the level of security required in relation to the surrounding land and public access, rural or urban environment and arable or stock farming. For some locations the fence used may also serve to provide acoustic and visual screening of the work sites and reduce the potential for disturbance of users in the surrounding areas. Fencing will be regularly inspected and maintained and removed as part of the demobilisation unless otherwise agreed with the relevant landowner to meet ecological objectives. It is anticipated that the EnvCoW and arboriculturalist will contribute to discussions on appropriate signage and/or fencing to protect environmentally sensitive features.

6.1.4 Areas of the Order Limits that are only identified to be used for landscape and ecological mitigation (i.e. not part of the general working area) are anticipated to be inherently low-impact works. These include areas where dormouse and bat boxes would be installed and areas of landscape planting to help screen project features. In these areas, access may be required on foot or by a small van and works would be completed without recourse to tree felling or pruning. It is not intended that works to mitigate for effects on landscape and biodiversity will give rise to other effects on trees.

6.2 Working Near Trees

6.2.1 All trees (which may include individual trees or collectively as groups, tree belts and woodlands) within the Order Limits and immediate surrounds have been surveyed in accordance with BS 5837:2012, where land access was granted. The results of the survey can be found in the AIA (**application document 5.10**).

6.2.2 Trees that are alongside existing tracks, hard surfaces or heavily compacted ground (such as unmetalled internal agricultural tracks) are considered to have adapted to the presence of that rooting constraint. Whereas such an arrangement including a proposed track or hard surface might cause an unacceptable effect on tree health, root architecture is influenced over time by the presence of barriers to growth in a way that is benign and does not affect long-term prospects for healthy development.

6.2.3 Retained trees will be protected during construction in accordance with the measures set out in BS 5837:2012 and BS 3998:2010 Recommendations for Tree Work. Works to trees and the agreement of relevant protection measures will be undertaken under the supervision of an arboriculturalist and/or the EnvCoW.

6.2.4 Working in accordance with clause 6.2 of BS 5387:2012, barriers and / or ground protection will be used to safeguard RPA on site of trees to be retained. A precautionary RPA may be provided around groups of trees with the RPA reflecting the maximum

calculated extent. In accordance with clause 6.2.1.1 of BS 5387:2012, it is assumed that all barriers and ground protection will be installed prior to construction at each relevant location.

6.2.5 The type of barriers will be provided dependent on the level of risk posed to the RPA and to suit the location in accordance with clause 6.2.2.3 of BS 5387:2012, as agreed with the arboriculturalist on site. For example, this may be post and rope, or netlon-type fencing in low-risk areas, plastic style pedestrian barriers in medium risk areas or, in high-risk areas, welded mesh panels on rubber feet with stabiliser struts, commonly known as Heras-type fencing.

6.2.6 It is anticipated that a barrier will be erected to demarcate the RPA and to prevent works encroaching into the RPA. In accordance with clause 6.2.2.1 of BS 5387:2012, it is anticipated that the contractor will maintain the barriers so that they remain rigid and complete, for as long as they are in-situ.

6.2.7 Tree Protection Fencing types is anticipated to include:

- Level 1 Protection: This will be used in areas with a low risk to trees, for example marking the RPA of trees lying outside of the working area. This may include orange netting on steel pins (or similar) to mark out the extent of the RPA for trees beyond the working area.
- Level 2 Protection: This will be used to reduce the risk of construction encroachment for example trees at the edge of the working area. This may include rigid pedestrian barriers.
- Level 3 Protection: This will be used to protect important trees within areas of high construction activity. It could include measures such as braced Heras-type panels with signage or solid hoarding in areas where it provides a combined function of protecting trees and providing security and screening.

6.2.8 It is assumed that physical barriers will not be provided where retained vegetation is in a location where there is a very low risk of accidental damage being caused, for example at the top of a steep cutting where the cutting itself provides protection.

6.2.9 As well as delineating the site, the working area fencing (where required) will serve to protect the trees that lie outside of the working area.

6.2.10 In accordance with good practice and to avoid ground compaction, as referenced in clause 8.4 of BS 5387:2012, it is assumed that no materials (including fencing material prior to installation), plant or equipment will be stored in an RPA at any time. This will be briefed to the construction workforce working in or adjacent to an RPA, and be monitored by, the EnvCoW. In addition, construction vehicles and construction plant will not be allowed to idle or be parked in the RPA. Where exclusion is not practical in either of these instances, alternative appropriate ground protection will be used following, discussion with the arboriculturalist.

6.2.11 In accordance with clause 6.2.2.4 of BS 5387:2012, it is anticipated that project signage will be installed on fencing to identify the RPA. No signage (excluding tree ID tags) will be nailed or screwed to trees.

6.2.12 In addition, and in accordance with good practice measure B08, decaying and dead wood within the Order Limits would be retained and protected during construction, subject to landowner agreement, to provide an important habitat for terrestrial invertebrates.

Vehicle Access Within an RPA

6.2.13 It will not always be practical to keep construction vehicles outside of the RPA in all instances. In some cases, temporary construction access may be required within some RPA, as identified in clause 6.2.3.1 of BS 5387:2012. Where this is required, the barriers will be set back as far as is required and clause 6.2.3.2 of BS 5387:2012 will apply. It is anticipated that temporary ground protection will be designed and installed in accordance with the requirements of clause 6.2.3.3 of BS 5387:2012.

6.2.14 Proprietary systems, as noted in point C of clause 6.2.3.3 of BS 5387:2012, will be installed where construction plant is required to traffic within the RPA. The proprietary system will be suitable to the duration and type of vehicular disturbance. It may include the following, as advised by the arboriculturalist:

- **Proprietary geo-cell**: A permeable geotextile membrane is laid in the RPA followed by placement of the geo-cell. Geo-cell is available in various thicknesses which can be built up to provide the appropriate protection as detailed by the arboriculturalist. The geo-cell is then filled with clean angular stone fill. When works are complete the geo-cell can be teased from the angular stone, leaving the stone on the surface of the membrane. The stone can then be removed using hand tools or plant, such as a vac-ex truck, that operates from an intact adjacent section of geo-cell. This enables the removal of the stone working backwards out of the RPA.
- **Proprietary trackway / trackmat**: A permeable geotextile membrane is laid in the RPA as detailed by the arboriculturalist. The proprietary trackway / trackmat is then laid on top and fixed together. Reversing this process removes the temporary ground protection. As with the geo-cell, the stone can be removed using hand tools or plant, such as a vac-ex truck, that operates from an intact adjacent section of ground protection. This enables the removal of the stone working backwards out of the RPA. If acceptable to the arboriculturalist, the trackway / trackmat will be placed directly on the ground.

6.2.15 The proprietary systems are reusable and it is expected that these would be moved around the project as required by the programme of works, subject to any biosecurity measures that may be required.

Pedestrian Access Within an RPA

6.2.16 Where there are likely to be frequent worker (pedestrian) movements only in the RPA, lighter ground protection will be installed prior to works commencing, in accordance with clause 6.2.3.3 of BS 5837:2012. This could include the following methods:

- **Wood chips**: A permeable geotextile membrane is laid in the RPA followed by placement of the wood chips to a depth of 100mm or that specified by the arboriculturalist. If required by the arboriculturalist, a proprietary pedestrian walkway board will be placed on the wood chips and connected. In order to avoid the introduction of pests and diseases, wood chips will only be used where they have been generated as a result of the tree pruning / removal works generated from offcuts within the immediate working area.
- **Walkway Boards**: A proprietary pedestrian walkway board will be placed on a compression resistant layer or suspended onto a driven scaffold frame.

Working Around Roots in Roads

6.2.17 Where roots are encountered in an existing road RPA, as described in clause 6.2.3.1 of BS 5837:2012, the existing road pavement will be left in place to provide the ground protection, where practicable. The arboriculturalist will confirm that the existing road pavement is suitable to provide appropriate ground protection to tree roots or will advise on alternative methods if retaining the pavement is not practicable.

Opencut Works within an RPA

6.2.18 It is anticipated that excavation in a RPA of a tree that is to be retained will be undertaken under the supervision of an arboriculturalist. It is anticipated that the following excavation techniques, individually or in combination, will be used to reduce any potential damage to the roots during opencut works, as agreed with the arboriculturalist:

- **Use of an air lance or air spade:** This provides a concentrated air flow in a high velocity stream jet which penetrates and dislodges the soil without damage to roots. An air compressor is used to power the lance/spade. An experienced operator will be able to effectively dislodge the soil around the roots for removal. This method may be used with a vacuum excavation wagon, which sucks up the displaced soil without damaging the roots and is an accepted method of excavating safely in accordance with clause 7.2.1 of BS 5837:2012. The soil displaced during excavation can be stored to use later for reinstatement activities; and.
- **Hand excavation:** This involves hand digging the soil around tree roots using a spade or other suitable non-mechanised tools. The soil would typically be stored so that it is available for reuse after works are completed. Hand digging would be used to allow placement of project components around or between roots without impacting them where practicable, or in worst case it is to allow clean severance of roots with sharp saw or secateurs.

6.2.19 Where on initial excavation there is an absence of roots within the works area, and in agreement with the arboriculturalist, a small rubber tracked excavator may be used to excavate the soil. All excavated spoil will be removed from the area or placed on temporary ground protection to be used for back filling upon completion.

6.2.20 It is assumed that any roots uncovered during the works will be assessed and treated in accordance with clauses 7.2.2, 7.2.3 and 7.2.4 of BS 5837:2012.

6.2.21 Roots, whilst exposed, will be wrapped in dry hessian or covered to prevent desiccation and to protect them from temperature changes. Any wrapping will be removed prior to backfilling, which will take place as soon as practicable once construction is complete.

6.2.22 Upon reinstatement the roots will be surrounded with topsoil, sharp sand (builders sand will not be used due to its high salt content which would harm the trees and soil) or other loose inert granular fill, before soil or other medium is replaced. This material should be uncontaminated and free from injurious objects. Temporary ground protection will be removed in a backwards direction away from the tree so as always to be positioned on protected and not on unprotected ground. Once the work area is cleared of ground protection the recently backfilled spoil will be watered.

Tree Works to Overhead Canopies

6.2.23 Where branches overhang the working area and / or access routes, these may require trimming back or pruning to avoid further damage for example from passing construction

vehicles. All tree works will be carried out by a specialist arboricultural contractor to avoid damage to the health of the tree.

6.3 Working Near Designated Trees

Definitions

6.3.1 In the Standing Advice (Forestry Commission and Natural England, 2022) 'Ancient Woodland, Ancient Trees and Veteran Trees: protecting them from development', Ancient Woodland is defined as '*any area that's been wooded continuously since at least 1600 AD'*. It includes:

- Ancient semi-natural woodland mainly made up of trees and shrubs native to the site, usually arising from natural regeneration; and
- Plantations on ancient woodland sites - replanted with conifer or broadleaved trees that retain ancient woodland features, such as undisturbed soil, ground flora and fungi. (Forestry Commission and Natural England, 2018).

6.3.2 For the purposes of this document, 'designated and protected trees' comprise:

- Ancient Woodland: woodland identified on the Ancient Woodland Inventory (AWI);
- Potential ancient woodland (PoAW): woodland that has been identified through desktop and field surveys and that correspond to the definition of designated ancient woodland in paragraph 6.3.1 but is less than 2ha in size and not on the AWI, see ES Appendix 7.4: Ancient Woodland and Potential Ancient Woodland Report (**application document 6.3.7.4**);
- Veteran trees: trees with veteran status on the Woodland Trust Ancient Tree Inventory. Trees identified during the project arboricultural surveys as veteran based on the definition of a veteran tree in BS 5837:2012, which are not currently listed on the Woodland Trust Ancient Tree Inventory are also included within this definition; and
- Trees subject to a TPO.

6.3.3 No ancient trees as listed on the Woodland Trust Ancient Tree Inventory are recorded within the Order Limits or within a 15m buffer of these (checked March 2023). No potential ancient trees have been identified during the arboricultural site surveys, therefore, ancient trees and potential ancient trees are not considered further within this document.

General Approach to Designated Trees

6.3.4 ES Chapter 3: Alternatives Considered (**application document 6.2.3**) describes how the project has sought to avoid designated Ancient Woodland, through careful siting or reduce impacts by narrowing of the Order Limits. Areas where this was not practicable are described in ES Appendix 7.4: Ancient Woodland and Potential Ancient Woodland Report (**application document 6.3.7.4**). This included trees identified as PoAW through desk study and field survey, which have been treated the same as designated Ancient Woodland in terms of the assessment and approach to mitigation.

Approach for Ancient Woodland and Potential Ancient Woodland

6.3.5 The project has considered the Forestry Commission and Natural England Standing Advice (2022) which states that '*For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage…*'. ES Appendix 7.4: Ancient Woodland and

Potential Ancient Woodland Report (**application document 6.3.7.4**) sets out the assessment of the project on Ancient Woodland and PoAW.

6.3.6 Table 6.1 lists the designated Ancient Woodland and the PoAW within the Order Limits or within a 15m buffer and which tier of mitigation applies. These are also shown on the Vegetation Retention and Removal Plan in Appendix A (**application document 7.8.1**).

Table 6.1 – Ancient and Potential Ancient Woodland Sites Within 15m of the Order Limits

Mitigation Hierarchy	Further Mitigation Principle	Ancient/PoAW site
No impact anticipated to these sites due to distance or other features.	Not applicable/no likely impact due to these being located further than 15m away from ground disturbing activities or where a feature such as a ditch or road has been identified as limiting the RPA.	Wolves Wood Hintlesham Great Wood Bushy Park Wood Butler's Wood Waldegrave Wood
This will apply where practicable **A1 (15m buffer)**	A minimum buffer width of 15m will be maintained between areas of excavation / soil stripping and the AWI boundary. Appropriate and readily visible demarcation shall be maintained to define the 15m buffer where this extends within the Order Limits and to control access during construction. Installation of the pylon foundations or underground cables will be kept outside of this 15m buffer. Where a temporary access route is required within 15m of Ancient Woodland boundaries, appropriate ground protection measures will be put in place within the 15m buffer to mitigate the potential effects of compaction on trees (see measures in Section 6.2).	Ramsey Wood Keeble's Grove Tom's/Broadoak Wood Millfield Wood Broom Hill Wood Leadenhall Wood
If A1 was not practicable due to other site constraints, A2 will apply. **A2 (RPA buffer)**	A minimum buffer equivalent to the extent of the RPA shall be maintained between areas of excavation / soil stripping and Ancient Woodland boundary. Appropriate and readily visible demarcation will be maintained to define the RPA buffer where this extends within the Order Limits and to control access during construction. Installation of the pylon foundations or underground cables will be kept outside of this RPA buffer. Where not practicable to exclude all potentially compacting activities within the RPA buffer, appropriate ground protection measures shall be put in place to mitigate the potential effects on trees (see measures in Section 6.2).	PoAWS10 – Ansell's Grove PoAWS5
If A2 was not practicable due to other site constraints, A3 will apply. **A3 (Specialist techniques)**	Where not practicable to exclude areas of excavation / soil stripping from within the RPA of Ancient Woodland boundaries, site-specific measures that will be employed to mitigate the effects on the RPA, for example, hand digging / vacuum excavation under arboricultural supervision (see measures in Section 6.2). These will be recorded in a method statement.	Hintlesham Little Wood PoAWS4 – Hintlesham Woods SSSI

Approach for Veteran Trees

6.3.7 The project has considered the Standing Advice on protecting veteran trees from development which states '*A buffer zone around [a]… veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter*' (Forestry Commission and Natural England, 2018).

6.3.8 Veteran trees within the Order Limits or within a 15m buffer of the Order Limits are recorded in the AIA (**application document 5.10**). Table 6.2 summarises the veteran trees that have been located within the Order Limits. As set out in Table 6.2, all veteran trees based on the Proposed Alignment are anticipated to fall into category B1. The other categories are included for reference as to what measures would apply if there were changes to these assumptions, which, if required, would be recorded in future iterations of the LEMP. The stem diameter is as measured at 1.5m above highest adjacent ground level. Veteran trees are shown on the Vegetation Retention and Removal Plan in Appendix A (**application document 7.8.1**).

Table 6.2 – Veteran Trees

Mitigation Hierarchy	Further Mitigation Principle	Tree Reference, Grid Reference and Buffer
This will apply where practicable **B1 (RPA buffer)**	A buffer width of 5m from the edge of the canopy of the veteran tree, or up to fifteen times the tree stem diameter, whichever is the greater will be maintained between the location of soil excavations and the veteran tree. Appropriate and readily visible demarcation shall be maintained to define the buffer where this extends within the Order Limits and to control access during construction. Installation of pylon foundations or the cable trench will be kept outside of this buffer. Where not practicable to exclude all potentially compacting activities within the buffer, appropriate ground protection measures shall be put in place to mitigate the potential effects on trees (see measures in Section 6.2).	T196 (TL 99092 39665) 25.5m T256 (TL 96534 37741) 22.8m T264 (TL 95149 37543) 23.4m T272 (TL 94863 37483) 24.0m T615 (TL 83690 37051) 19.5m T628 (TL 83201 37041) 25.4m T548 (TL 85970 37031) 26.5m T551 (TL 85966 37016) 23.6m T613 (TL 83736 36998) 20.7m T363 (TL 90918 36926) 21.2m T596 (TL 84129 36658) 22.2m
If B1 was not practicable due to other site constraints, B2 will apply, **B2 (RPA buffer)**	A minimum buffer equivalent to the extent of the RPA will be maintained between the location of soil excavations and the veteran tree. Appropriate and readily visible demarcation shall be maintained to define the RPA buffer where this extends within the Order Limits and to control access during construction. Installation of the pylon foundations or the cable trench will be kept outside of this RPA buffer. Where temporary access is requiredwithin the RPA buffer, appropriate ground protection measures shall be put in place to mitigate the potential effects on the RPA (see measures in Section 6.2).	N/A

Mitigation Hierarchy	Further Mitigation Principle	Tree Reference, Grid Reference and Buffer
If B2 was not practicable due to other site constraints, B3 will apply **B3 (Specialist techniques)**	Where not practicable to exclude soil excavation from within the RPA of veteran tree, site-specific measures that will be employed to mitigate the effects on the RPA, for example, hand digging/ vacuum excavation under arboricultural supervision (see measures in Section 6.2). These will be recorded in a method statement.	N/A

Approach for Trees with a Preservation Order

6.3.9 Schedule 13 of the draft DCO (**application document 3.1**) contains a list of trees with TPO crossed or within 10m of the Order Limits. Table 6.3 summarises the TPO and the anticipated effect. These are also shown on the Vegetation Retention and Removal Plan in Appendix A (**application document 7.8.1**). As described in Table 6.3, no trees subject to a TPO are anticipated to be removed during construction, but some may require crown lifting or pruning of overhanging branches to avoid damage, for example as a result of passing construction vehicles or machinery.

Table 6.3 – Trees with TPO

TPO Ref and Location	Potential Effect
BT15/T1 and BT15/T2 Two individual TPO, Burstall Bridge	Outside of Order Limits so no loss of trees but may require pruning of overhead branches to avoid damage from passing construction vehicles.
BT13/G1 Group of trees, near Mill house, Chattisham	Within the Order limits along minor road. No loss of trees but may require pruning of overhead branches to avoid damage from passing construction vehicles.
BT386/T1 Individual TPO	Within the Order limits along minor road (Duke Street) and part side garden. No loss of trees but may require pruning of overhead branches to avoid damage from passing construction vehicles.
BT21 (T1, T2, T3, T4, T6, T7 and T8) Individual TPO, Hintlesham	TPO are located along the A1071 within Order Limits in an area where additional planting is proposed to reinforce the hedgerow. No loss of trees but may require pruning of overhead branches to avoid damage from passing construction vehicles.
WS313/W1 Dollops Wood, Polstead	Embedded measure EM-E02 states that construction activities will be confined to the existing operational maintenance swathe at this location. The conductors will be lowered down and pulled out. Light vehicles will use existing tracks within the woodland. This would avoid tree removal. Limited pruning may be required to facilitate the overhead line removal.
WS337/A1 Long Lane, Bures	Within the Order limits. Trees may require pruning of branches to avoid damage during lowering/removing of the 132kV overhead line and from passing construction vehicles.
WS337/A2 Long Lane, Bures	TPO lies along access track. No tree removal anticipated but may require pruning of overhanging branches to avoid damage from passing construction vehicles.

TPO Ref and Location	Potential Effect
WS15/A2 Little Cornard	TPO lies along access track. No tree removal anticipated but may require pruning of overhanging branches to avoid damage from passing construction vehicles.
16/2021 - T1 Draft; 6/2021 - T2 Draft; 16/2021 - T3 Draft Individual TPO Daws Hall	Outside of Order Limits so no loss of trees but may require pruning of overhead branches to avoid damage from passing construction vehicles.

6.4 Protection of Hedgerows

6.4.1 A number of hedgerows lie within the Order Limits. Many of these have been identified as important under the Hedgerow Regulations 1997. Further details can be found in ES Appendix 7.5: Important Hedgerows Assessment (**application document 6.3.7.5**).

6.4.2 Hedgerows that do not require removal during the works would be appropriately protected during construction. This may include suitable fencing to provide a buffer which protect the rootzone from trafficking.

6.5 Protection of Watercourses

6.5.1 A temporary clear span bridge is proposed over the River Brett, Box and Stour as part of the temporary access route. This will involve excavating the banks to install the bridge. The bridge for the River Stour would be set back 8m away from the river edge and will be of a sufficient size and design to allow existing navigation of the river by non-motorised vessels to continue during construction (W17). Following construction, all three bridges will be removed, and the ground levels would be reinstated.

6.5.2 Other minor watercourses, will be crossed by the temporary access route using temporary culverts where water can continue to flow. These may be in place for up to four years (the construction phase) to allow testing to be completed. Bank excavation may be necessary at these locations and, where this is required, bank reinstatement will take place following construction. Once construction is completed, the culvert will be removed and the channel will be reinstated.

6.5.3 Where the underground cable needs to be installed beneath a watercourse (other than the River Stour and River Box, where a trenchless method is proposed), these will be dammed and over-pumped to create a dry working area during installation and maintain downstream flows. The over-pumping will typically last a few weeks in duration, but this would depend on the size of the watercourse and the complexity of the works in any given location. A trench will be cut into the dry channel and the ducts would be installed to be at least 1m below bed level. The cable working area will be up to 85m wide, although works are not expected to take place along the whole length of the watercourse at a single time. Once installation is complete, the banks will be reinstated and the temporary dam removed. Further details on the methodology for works within the channel can be found in the CEMP (**application document 7.5**).

6.5.4 Riverbank and in-channel vegetation will be retained where not directly affected by installation works in accordance with good practice measure W03. Prior to carrying out any works to watercourses, a preconstruction check will be undertaken to check for the presence of otter, water vole and any INNS.

6.5.5 Pylons will not be constructed within 8m of the top of bank of main rivers (Belstead Brook and River Brett), in accordance with requirements for regulated activities set out in the

guidance for environmental permits for flood risk activities (Environment Agency and Defra, 2019). It is anticipated that pylons would also not be located within 3m of an ordinary watercourse. This will also reduce disturbance to river channels, banks and riparian corridors (W14). The works to watercourses will require either a FRAP (for main rivers from the Environment Agency) or an Ordinary Watercourse Consent (for non-main rivers from the relevant Lead Local Flood Authority).

6.5.6 Measures relating to pollution prevention are set out in the CEMP (**application document 7.5**).

6.6 Protection of Soil Resources

6.6.1 All soil resources will be handled (to include trafficking over unstripped soils) in accordance with the soil management measures set out in the CEMP (**application document 7.5**). These measures cover how soils should be stripped, stockpiled and reinstated, the conditions considered suitable for soil handling operations to be undertaken and measures required to so that the soils are reinstated in a condition suitable for their intended end use.

6.6.2 As per good practice measure AS02 in the CoCP (**application document 7.5.1**), where land is being returned to agriculture, the appropriate soil conditions will be recreated to a depth of 1.2m (or the maximum natural soil depth if this is shallower) except over buried cables where the reinstated soil depth will be approximately 0.9m.

6.7 Retention and Protection of Ecological Features

6.7.1 The Vegetation Retention and Removal Plan in Appendix A (**application document 7.8.1**) shows the locations where commitments have been made to avoid or retain specific vegetation. Further measures to retain and protect features specific to protected species are set out in ES Appendix 7.6: Protected and Controlled Species Legislation Compliance Report (**application document 6.3.7.6**) and would be confirmed in the EPS licences.

Designated Sites and Priority Habitats

Hintlesham Woods SSSI

6.7.2 The project involves working in and around Hintlesham Wood SSSI, which is designated for its ancient woodland habitat and its breeding bird assemblage. The proposed 400kV overhead line would use the existing 400kV pylons at Hintlesham Woods SSSI, and the existing 400kV overhead line would be transposed (realigned) onto new pylons located to the north and west of the SSSI (Ramsey Wood). The transposition works (moving of the existing overhead line) will mean that some construction work would need to rely on planned electrical outages. A temporary pylon and temporary diversion will also be required to facilitate the transposition work.

6.7.3 National Grid has identified a number of embedded measures relating the works at Hintlesham Woods, including commitments to only undertake certain activities (e.g. those that require an electrical outage) during bird breeding season (EM-AB09). The embedded measures that will be undertaken are as follows and are shown on the and shown on the Vegetation Retention and Removal Plan in Appendix A:

- EM-AB02: The new 400kV overhead line will reuse the existing pylons (RB12 and RB13) at Hintlesham Woods SSSI;
- EM-AB09: For the construction works in and around Hintlesham Woods (between pylons 4YL011 and 4YL017A) construction works would be undertaken outside of

bird breeding season except for the following activities which need to take place within agreed outages:

  - Install conductors / transposition works;
  - Construction of pylon 4YL12A and removal of the existing 4YL12; and
  - Assembly and removal of temporary pylon RB12T.

- EM-AB10: No intrusive construction activities will take place within 15m of the north and western edge of Hintlesham Woods SSSI (excluding planting proposals and works to the existing 400kV overhead line). This includes tracking of heavy vehicles or material storage and soil excavation. Demarcation fencing will be used to identify the exclusion zone;
- EM-AB11: The temporary access routes used to move between pylons to the north and west of Hintlesham Woods SSSI will be located to the north and west of the proposed overhead line;
- EM-AB12: Vegetation management for works to the existing overhead line within Hintlesham Woods SSSI would comprise coppicing to ground level for a width of 20m along the existing operational maintenance swathe. In addition, the trees would be managed at graduated heights for up to an additional 12.5m on either side of the 20m swathe for construction activities and to allow the conductors to be installed onto the arms of the existing pylons. Vegetation would be permanently managed to achieve operational safety clearances during operation as is currently undertaken with the existing overhead line. No heavy good vehicle access would be undertaken within the woods; and
- EM-AB13: The temporary access route through Hintlesham Woods SSSI will use protective matting (such as trackway) to facilitate works to the existing overhead line and will be microsited using data gathered during the arboricultural and habitat surveys within the 20m coppiced area.

Other Design

6.7.4 Specific commitments relating to ecological designated sites, non-designated sites and Priority Habitats are listed in Table 6.4 and shown on the Vegetation Retention and Removal Plan in Appendix A.

Table 6.4 – Embedded Measures Relevant to the LEMP

Embedded Measure
EM-P09: The following measures would be undertaken at these Habitats of Principal Importance: • Section AB: W1d – Wet woodland (Polygon ID H_A_882) from approximate X,Y 609117, 242911 to 609069, 242902 will be protected and retained; • Section D: G1a6 - Other lowland dry acid grassland (polygon ID HL_26) from approximate X,Y 598853, 239095, 598807, 239079 will be protected and retained; • Section D: W1f - Lowland mixed deciduous woodland (Polygon ID HL_255) from approximate X,Y 599972, 239524 to 599884, 239511 to the south of the 132kV overhead line to be removed will be protected and retained; • Section E: W1f - Lowland mixed deciduous woodland (Polygon ID HL_43a) from approximate X,Y 598887, 239111 to 598856, 239069 will be maintained; • Section F: U1a - Open Mosaic Habitats on Previously Developed Land (HL_137) from approximate X,Y 593804, 237199 to 593679, 237184 will be protected and retained; • Section F: W1f - Lowland mixed deciduous woodland (Polygon ID HL_295) from approximate X,Y 595782, 237791 to 595738, 237814 will be protected and retained (subject to required visibility splays at F-AP4); • Section G: G1a - Lowland dry acid grassland (Polygon ID A_1265) from approximate X,Y 587366 , 236661 to X,Y 587377 , 236629; and • Section H: W1d - Wet woodland (Polygon ID H_A_875) from approximate X,Y 5582150, 236926 to 582114, 236960 will be protected and retained (subject to maintaining operational safety clearance in relation to the existing overhead line).
EM-AB03: No new pylon will be located within Valley Farm Meadows County Wildlife Site (CWS) (Babergh 61). Soil stripping within the CWS would be confined to the construction of the temporary access route. All vehicle access, including the temporary access route, through Valley Farm Meadow CWS will avoid the Priority Habitat w1d - Wet woodland (polygon ID H_A_944) and f2 - Fen marsh and swamp (Polygon ID H_A_809) located near the southern edge of the Order Limits.
EM-AB05: The tree belt to the north of Hintlesham Woods (PoAWS5) will be retained other than at a 5m gap where the proposed temporary access route will cross the tree belt. Soil from the PoAWS5 will be stored separate to general soil storage so that it can be replaced at PoAWS5, where soil is suitable for reuse (for example, not contaminated).
EM-AB06: The works adjacent to Keebles Grove and Wolves Wood are for planting and the temporary access track. The work within these areas would be in accordance with the Vegetation Reinstatement Plan in Appendix B of the Landscape and Ecological Management Plan (LEMP) (**application document 7.8**).
EM-AB07: Construction of the new 400kV overhead line (including pylon foundations) and any ground excavation work (excluding removal of the existing 132kV pylons) would lie a minimum of 15m away from the designated ancient woodland (Toms Wood) boundary.
EM-AB08: No root removal along the temporary access route would be undertaken through w1f – Lowland mixed deciduous woodland (Priority Habitat) (Polygon ID HL_262), located within Section AB: Bramford Substation/Hintlesham, from approximate X, Y 608910, 244710 to 608851, 244685.
EM-C02: At Hadleigh Railway Walk, efforts will be made to reduce the impact on trees however, some vegetation may have to be cut in order to put netting over the scaffold crossing in order to keep access open for users of this walk. No temporary access route will be located within Railway Walk LNR, Hadleigh, located in Section C: Brett Valley (between approximate X, Y 604355, 241072 to 604145, 241135).
EM-D02: Construction of the new 400kV underground cables and any ground excavation work (e.g. associated with the temporary access route or new service connection pursuant to the DCO) will lie a minimum of 15m away from the designated ancient woodland (Millfield Wood north) boundary.

Embedded Measure
EM-D03: The works adjacent to Millfield Wood South are for landscape planting only. The work within this area will be undertaken in accordance with the Vegetation Reinstatement Plan in Appendix B of the LEMP (**application document 7.**8).
EM-E02: The 132kV overhead line will be removed at The Dollops (Babergh 185). At this location, construction activities will be confined to the existing operational maintenance swathe. The conductors will be lowered down and pulled out. Light vehicles will use existing tracks within the woodland.
EM-E04: The Order Limits have been narrowed to avoid removal of trees at Alder Carr. An arboriculturalist and ecologist will be consulted on the detailed design and construction methods to advise on sensitive working within the RPA in accordance with British Standard 5837: 2012 Trees in Relation to Design, Demolition and Construction.
EM-E06: Construction of the new 400kV underground cables and any ground excavation work (e.g. associated with the underground cable temporary access route) will lie a minimum of 15m away from the designated ancient woodland (Broom Hill) boundary. Construction access for the existing 132kV overhead line will use the existing track. Temporary matting/trackway will be used where the temporary access route is located within 15m of the ancient woodland unless advised otherwise by an arboriculturalist.
EM-E07: Works adjacent to Bushy Park Wood are for planting only. The work within this area will be undertaken by a landscape contractor and in accordance with the Vegetation Reinstatement Plan in Appendix B of the LEMP (**application document 7.8**).
EM-E08: The proposed temporary access route between PCB54 and PCB55 in Section E: Dedham Vale AONB will avoid woodland and the pond.
EM-F02: Site specific measures will be employed for the excavation of the trench for the service connection where they are delivered pursuant to the DCO to reduce the effects on the RPA of the Leadenhall ancient woodland. A method statement will be prepared with input from an arboriculturalist. Measures may include but not be limited to hand digging and vacuum excavation under arboricultural supervision
EM-G07: The 132kV overhead line would be removed at Ansell's Grove/Ash Ground LWS (from approximate X,Y: 587022.00, 236075.00 and 587016.00, 236202.00) located in Section G: Stour Valley. At this location, construction activities will be confined to the existing operational maintenance swathe. The conductors will be lowered down and pulled out. Light vehicles will use existing tracks within the woodland.
EM-G08: A trenchless crossing is proposed to avoid habitats to the south of Ansell's Grove including Alphamstone Meadows Local Wildlife Site (LoWS), as shown on the General Arrangement Plans (**application document 2.10**). Existing routes through the woods will be used where practicable by light good vehicles or tracked vehicles. Otherwise, pedestrian access will be maintained over the top of the trenchless crossing. There would be no temporary access route along the trenchless crossing.
EM-G09: Where installation of underground cabling is required across the lowland mixed deciduous woodland (Habitat ID H_A_1029) in Section G: Stour Valley, a reduced working width of 60m will be implemented
EM-G10: Vegetation will be retained where practicable at Twinstead Marsh LoWS (Bra222) in Section G: Stour Valley from approximate X,Y: 586168.00, 237057.00. Vegetation clearance will be limited to the existing access track within the site and only light good vehicles will be used during construction in this area.
EM-G11: The temporary construction works to remove the existing 400kV overhead line at Ansell's Grove (PoAWS10) will be limited to the existing operational maintained swathe within the woodland. There will be no temporary access route installed and no vehicle access will be required within the woodland
EM-G12: Vegetation will be retained where practicable, using gaps in existing hedgerows/trees, at w1d -wet woodland HL_108, located in Section G: Stour Valley from approximate 587186, 236634 and 586972, 236616)

Embedded Measure
EM-H03: The proposed GSP substation has been located away from the southern edge of Butler's Wood. Construction works will not encroach into or beyond the ditch that runs east west along the northern and southern edges of the GSP substation
EM-H05: Priority Habitat w1d - Wet woodland (Polygon ID H_A_875) located within Section H: GSP Substation, from approximate X,Y 582150, 236926 to 582114, 236960 will be retained and protected

6.8 Protected Lanes

6.8.1 The Order Limits include a number of Protected Lanes. These are small, quiet roads protected by local policy with the Local Plan (Braintree District Council, 2022). There are a number of Protected Lanes that would be used as construction routes and would experience increased traffic during construction. The Protected Lanes and proposed temporary works are described in Table 6.5.

6.8.2 The project includes the removal of historic earthworks and hedgerows for temporary bellmouths or access routes. These will be replaced at the end of construction as per the good practice measures set out in the CoCP (**application document 7.5.1**), in particular H05 which states that a topographic survey will be undertaken in advance of construction of each Protected Lane (Essex) and Historic Lane (Suffolk) within the Order Limits where likely to be affected by physical works. The survey will include mapping of any historic earthwork features associated with the lane, including banks and ditches. During construction, the contractor will seek to limit the working area to the narrowest section of lane that is practicable for the works. Any historic features associated with the lane will be reinstated at the end of construction to the pre-work condition, including the replanting of hedgerows and reinstatement of historic earthworks.

Table 6.5 – Protected Lanes

Protected Lane	Proposed Temporary Works
BTELANE87: Moat Lane, Lamarsh	Installation of temporary access points G-AP7 and G-AP8. Crossing point of the temporary access route and opencut installation of the 400kV underground cables.
BTELANE86: Ansells Farm Road/ Henny Back Road, Alphamstone	Installation of temporary access points G-AP11, G-AP12, G-AP14, H-AP10, H-AP11. Opencut installation of the 400kV underground cables, crossing point of the temporary access route and removal of the 400KV overhead line.
BTELANE78: Gentry's Farm Road/Clay Hill, Great Henny	Installation of temporary access point G-YLAP5.
BTELANE79: Tymperley Farm Road, Great Henny	Installation of temporary access point G-YLAP3.
BTELANE81: Loshouse Farm Road, Great Henny	Installation of temporary access points G-AP9 and G-DAP13 and removal of the 132kV overhead line.
BTELANE83: Twinstead Road, Twinstead	Installation of temporary access points G-DAP5, G-DAP6, G-DAP7 and GDAP8 and removal of the 132kV overhead line.
BTELANE84: Old Road, Twinstead	Installation of temporary access points H-AP3, H-AP4. H-AP5 and H-AP6. Temporary access route crossing and opencut installation of the 132kV underground cables.
BTELANE85: Lorkins Lane, Twinstead	Installation of temporary access points GDAP10, H-AP14 and H-AP15. Crossing point of the temporary access route and removal of the 400KV overhead line.

6.9 Biosecurity

6.9.1 Biosecurity is defined as a set of precautions that aim to prevent the introduction and spread of harmful organisms. These may be pests, pathogens or invasive species. Examples include ash dieback (*Hymenoscyphus fraxineus*), which affects the management of individual ash trees and woodlands and oak processionary moth (*Thaumetopoea processionea*), which can be present in oak trees.

6.9.2 Working in or near water introduces a potential pathway to the introduction and distribution of non-native flora and fauna. This may include fully aquatic species, such as signal crayfish and floating pennywort and riparian flora such as Himalayan balsam and giant hogweed.

6.9.3 A framework of good practice in biosecurity policy around trees and woody vegetation is provided by the Arboricultural Association (2018) and will be used by the contractor to inform working methods in areas where biosecurity risks have been identified. National Grid and its contractor will comply with any measures required by Defra or other statutory bodies regarding biosecurity measures for national outbreaks such as bird flu or foot and mouth disease.

6.9.4 Pre-construction surveys will identify areas where biosecurity measures would apply, including invasive species and inspecting trees for the presence of oak processionary moth. Suspected sightings will be reported to the Forestry Commission. This may lead to the issue of a Statutory Plant Health Notice, outlining and requiring appropriate action. The presence of aquatic/riparian non-native flora and fauna will be reported to the Environment Agency. In order to avoid the introduction of pests and diseases, wood chips will only be used where they have been generated as a result of the tree pruning / removal works generated from offcuts within the immediate working area.

6.9.5 Any machinery working and tools used within these areas would be cleaned prior to use in other areas as appropriate to the risk, for example using wheel washing facilities or using proprietary alcohol-based disinfectants on tools. Construction workers leaving the biosecurity areas would also employ measures suitable to the risk, for example boot washing at the egresses to the site boundary and using alcohol-based disinfectants to clean clothes.

6.9.6 Toolbox talks will be undertaken to inform construction workers or applicable biosecurity risks and areas where additional measures would apply. The final reinstatement plan and landscape contract arrangements will be designed based on the findings of preconstruction surveys to avoid further transmission of biosecurity risks.

6.9.7 Construction works around watercourses will follow the Check, Clean, Dry guidelines (https://www.nonnativespecies.org/what-can-i-do/check-clean-dry/). This ensures that pre-works checks are undertaken on equipment being brought onto site prior to use, equipment is appropriately cleaned before moving between sites or on completion of site activities and equipment is then allowed to dry before use elsewhere. Appropriate disinfectants will also be used to ensure microscopic propagules or seeds are rendered unviable and are not transferred between sites.

7. Vegetation and Tree Removal

7.1 General Approach

7.1.1 The Vegetation Retention and Removal Plan in Appendix A, shows the locations where vegetation will be removed. The vegetation clearance will be supervised by an ecologist and supported by an experienced arboriculturalist at locations where tree works are required to Ancient Woodland, PoAW and veteran trees. A record will be made of the species types, approximate age and size to inform the reinstatement plan.

7.1.2 In accordance with good practice measure B02 in the CoCP (**application document 7.5.1**), vegetation with the potential to support breeding birds will be programmed to be removed outside of breeding bird season (March to August inclusive) where practicable. If any vegetation clearance is required during the breeding bird season, vegetation will be checked by an ecologist for nesting birds prior to removal. Appropriate protection measures will be put in place should active nests be found. These will include exclusion zones around active nests until chicks fledge or nests become inactive as determined by monitoring by the ecologist.

7.1.3 The treatment of arisings produced by tree felling or pruning or hedgerow removal will be determined according to a hierarchy of options. The options for treatment will address the resultant amount of arising and the distance arisings are to be moved. The preference will be to reduce both the amount of arisings in the first place and then the distance moved. For example, arisings should be retained on site where there is a clear ecological objective, where the landowner agrees and if it is safe to do so. Larger arisings could be stacked into habitat piles. It is anticipated that any vegetation that cannot be used on site, and therefore highlighted as requiring removal, will be composted as green waste at a recycle facility. Further details on management of waste materials can be found in the MWMP (**application document 7.7**).

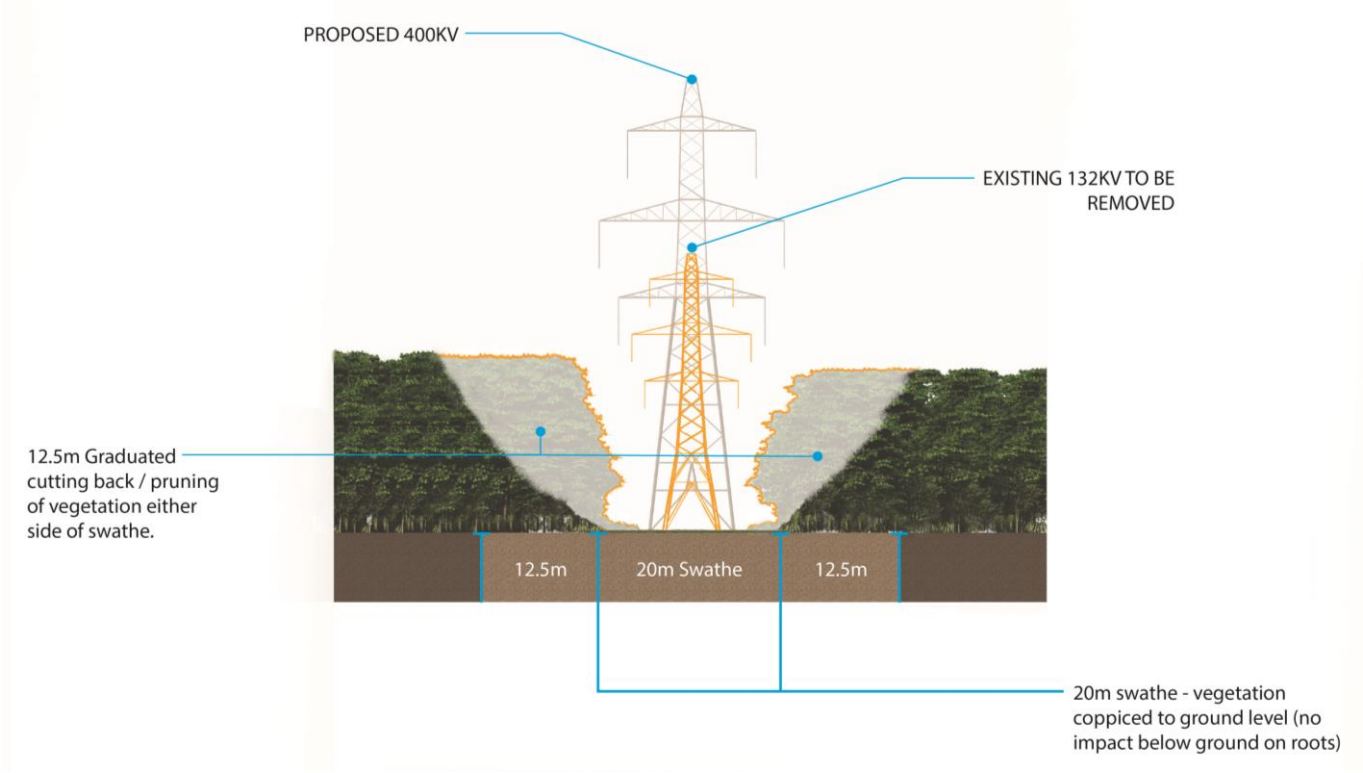
7.2 Woodland and Tree Removal

7.2.1 It has been generally assumed that woodland areas within the new overhead transmission line sections would have a 20m wide swathe felled to ground level (no removal of roots) to facilitate construction activities. The trees would be graduated cut for an additional 12.5m on either side of the 20m swathe to accommodate construction activities. This is shown in Illustration 7.1. It is assumed that there would be no temporary access route, although tractors (or similar) may be used to pull the conductors through woodland areas.

7.2.2 For the removal of the 132kV overhead line, it is anticipated that there would be limited woodland lost and this would lie within the existing area used for maintenance of the 132kV overhead line underneath the current overhead line. As this is within the existing operational maintained swathe, that is currently regularly maintained to trim the height of the trees for operational electrical safety clearances.

7.2.3 For the removal of the 400kV overhead line, it has been assumed that a 20m working area would be required where trees would be cut to ground level (no root disturbance). This would lie within the existing operational maintenance swathe beneath the overhead lines, where the vegetation is currently regularly maintained to trim the height of the trees for operational electrical safety clearances.

Illustration 7.1 – Sketch of 400kV Overhead Line Construction Within Woodland



7.2.4 Only one area of woodland would be crossed by the underground cables using standard installation methods, as others have been avoided through the options appraisal process or through the proposed trenchless crossing methods (e.g. woodland to the south of Ansell's Grove). The woodland to the north of Henny Back Road would use a reduced working width of 60m to reduce loss of woodland (EM-G09).

7.2.5 In is anticipated that all tree works will be carried out by a specialist landscaping or arboricultural contractor. Where trees and shrubs are removed to facilitate construction access but do not lie within the direct route of cable or pylon foundation excavation, it is assumed that these would be coppiced (stumps retained) to allow rapid regeneration. Where trees are removed within the direct route of excavation, stumps shall be grubbed out or excavated where required, using the protective measures outlined in Section 6.2.

7.2.6 Where trees are to be retained but potentially pruned back, an arboriculturalist will be consulted to advise on whether veteranising individual trees is appropriate as part of the management.

Other Ancient Woodland and Woodland Priority Habitat

7.2.7 Tree removal will be kept to a minimum within these habitats and disturbance to the ground will be avoided where possible or reduced from standard working practices. The type of ground protection will be selected, either matting, timber, metal, rubberised or similar, dependent on the ground conditions and the machinery/plant being used (see Section 6.2 for further details). Specific commitments have been made in some locations, as detailed in Table 6.4.

7.3 Hedgerows

7.3.1 For the removal of the 132kV overhead line, it is anticipated that there would be limited hedgerow lost underneath the existing overhead line to be removed. It is assumed that a 5m gap will be required to allow access through the hedgerow by construction vehicles.

Existing hedgerow gaps or accesses will be used where practicable. The hedgerow will be coppiced to ground level (no excavation of the rootzone) with matting placed over the soil to protect the roots.

7.3.2 For the removal of the existing 400kV overhead line, it is anticipated that a temporary 20m gap will be required to allow access through the hedgerow by construction vehicles and for also undertaking the overhead line removal. Existing hedgerow gaps or accesses will be used where practicable. The hedgerow would be coppiced to ground level (no excavation of the rootzone) with matting placed over the soil to protect the roots.

7.3.3 Where the new overhead transmission line would cross a hedgerow, it is generally assumed that a 20m gap would be created to undertake the works (including the temporary access route and working area for the construction of the overhead line). The hedgerow would be coppiced to ground level, with no excavation of the rootzone except along any stone access routes. There may be site features or constraints that mean the gap would need to be wider. Such exceptions are shown on the Vegetation Retention and Removal Plan in Appendix A.

7.3.4 Where the 400kV underground cable crosses existing hedgerows, in general a 60m gap would be created in the hedgerow and the roots would be grubbed out. This is a width required for safe working in accordance with good practice measure B07. This represents the width of the cables without soil storage next to the hedgerow, which explains how a narrower width can be accommodated for a very short stretch of works.

7.4 Protected Species Considerations

7.4.1 The Vegetation Retention and Removal Plan in Appendix A show the locations where commitments have been made to avoid or retain specific vegetation. Further measures to retain and protect features specific to protected species are set out in the EPS licences provided to Natural England (**application documents 6.3.7.7.1, 6.3.7.8.1** and **6.3.7.9.1**).

7.4.2 Habitat features that would be retained and protected are set out in the following good practice measures, as secured in the CoCP (**application document 7.5.1**). Where sensitive features are to be retained within or immediately adjacent to the Order Limits, an appropriate protective area will be established using suitable demarcation and signage and will be inspected, repaired and replaced as necessary (GG08). In addition, and in accordance with good practice measure B03, where there will be a risk of animal entrapment, a means of escape will be installed into all excavations left open overnight.

Additional Measures for Protected Species

Reptiles

7.4.3 In accordance with good practice measure B05 replacement reptile hibernacula and refugia will be provided within suitable retained habitat within the Order Limits.

7.4.4 All habitats suitable for common reptiles will be subject to two-stage habitat manipulation between mid-March and mid-October (with consideration of other protected and notable species potentially present). Firstly, vegetation will be cut to approximately 150mm (with the arisings removed) under the supervision of an ecologist and the site left for a minimum of two days to allow reptiles to move away from the area. Secondly, vegetation will be cleared down to ground level under the supervision of an ecologist. Vegetation clearance will be achieved using appropriate equipment based on the type of vegetation to be removed, the area affected and the risk of killing or injuring reptiles. Construction works could commence immediately after completion of the second stage (B05).

7.4.5 Reptile hibernacula will be retained and protected during construction where practicable. If unavoidable, the removal of vegetation and groundworks at hibernacula will be timed to avoid the hibernation season (late October to early March). Replacement hibernacula and refugia will be provided.

Bats

7.4.6 Alternative roost structures (bat boxes) will be provided on retained trees within the Order Limits or areas outside the Order Limits agreed with landowners. Two artificial bat boxes will be deployed on retained trees to every one tree with high or moderate bat roosting potential felled. Where high potential roosting features are present, the project would seek to soft fell these and attach limbs to retained trees where practicable (good practice measure B06). Soft felling involves lowering any removed tree limbs carefully to the ground and leaving these overnight to allow bats to depart from any crevices. Where it is not practicable to attach limbs with potential roost features from trees with high bat roosting potential suitability to retained trees within the Order Limits, then additional bat boxes will be provided to avoid loss of these roosting opportunities.

7.4.7 Where hedge removals are necessary and the hedgerow is identified as having value for bats, dormouse or other relevant species, then ‘dead hedging’ would be used where practicable, in the interim periods to retain connectivity during construction. Dead hedging can comprise vegetation arisings or artificial provision, such as willow screening panels or Heras fencing covered in camouflage netting (B07).

7.4.8 The Vegetation Retention and Removal Plans in Appendix A show the specific trees that are currently assumed to require felling and this has been used to develop the EPS licences submitted to Natural England. If following the pre-construction surveys and later design work there is a need to remove any additional trees with bat roosts, then these would be included in the final EPS licence prior to construction. Replacement bat boxes would be installed on retained trees within the Order Limits. The locations of these will be detailed in the final bat licence.

Dormouse

7.4.9 As noted in paragraph 7.4.7 above, where hedge removals are necessary and the hedgerow is identified as having value for bats, dormouse or other relevant species, then ‘dead hedging’ would be used where practicable, in the interim periods to retain connectivity during construction (B07).

7.4.10 As part of the requirements detailed in the draft dormouse licence it will be necessary to install dormouse nest boxes in areas of retained woodland and hedgerows within the Order Limits to increase the carrying capacity of these retained habitats. The locations of these will be detailed out within the final dormouse licence.

Otter and Water Vole

7.4.11 Riverbank, ponds and in-channel vegetation will be retained where not directly affected by installation works. Natural substrate will be provided through temporary watercourse crossings culverts (W03).

7.4.12 Pre-construction surveys will be undertaken to update and supplement the baseline information where necessary. If new evidence of otters is found and avoidance of otters and their resting places can no longer be achieved, a detailed written method statement and application for an EPS licence would be necessary.

7.4.13 If additional new water vole burrows are confirmed within the Order Limits during the pre-construction survey, the project would seek to avoid and retain these burrows.

7.4.14 There is a degree of flexibility with respect to where the temporary access routes are positioned within the Limits of Deviation in the overhead line sections. As such, there is a degree of confidence that any additional identified water vole burrows within a large portion of the Order Limits could be avoided and retained once confirmed as present.

7.4.15 Where avoidance of water vole burrows cannot be achieved then discussions would be held with Natural England regarding the need for a licence or any further mitigation measures.

7.5 Invasive Species

7.5.1 Existing survey work has identified the presence of INNS Himalayan balsam (*Impatiens glandulifera*), variegated yellow archangel (*Lamiastrum galeobdolon subsp. argentatum*), giant hogweed (*Heracleum mantegazzianum*), montbretia (*Crocosmia x crocosmiiflora*) and New Zealand pigmyweed (*Crassula helmsii*). Further details can be found in ES Appendix 7.1: Habitats Baseline Report (**application document 6.3.7.1**).

7.5.2 A pre-construction walkover will be undertaken in each section of works at least one month prior to works commencing to identify the presence of Schedule 9 plant species or other invasive species. This will include both terrestrial and aquatic habitats that are likely to be affected by construction.

7.5.3 In areas where Schedule 9 plant species or other INNS are identified, a method statement will be produced. The method statement will set out how identifiable areas with the potential presence of Schedule 9 plant species or other invasive species would be demarcated, and how any affected soils, water or sediment would be appropriately managed throughout the works. It will also include how vegetation would be removed from site in accordance with the CEMP and the MWMP. The method statement would be approved by the EnvCoW and supported by an ecologist.

7.5.4 Where invasive shrub species are removed (such as rhododendron), it is anticipated that the stumps would be treated to prevent regrowth subject to landowner consent. In larger areas away from retained trees, stumps may be excavated, mulched or ground out.

8. Landscape and Ecological Reinstatement

8.1 General Approach

8.1.1 This section sets out the general principles for how reinstatement will be undertaken on the project. It includes the reinstatement of hard landscaping features such as walls and fences. It also covers soft landscaping, including the reinstatement of vegetation that has been removed and reinstatement of habitat areas.

8.1.2 Requirement 10 of the draft DCO (**application document 3.1**) states that:

1) *Unless otherwise agreed with the relevant planning authority, all reinstatement planting works referred to in Requirement 9 must be implemented at the earliest opportunity and no later than by the first available planting season after that part of the authorised development to which the reinstatement planting works apply is first brought into operational use.*

2) *All reinstatement planting works referred to in Requirement 9 must be carried out in accordance with the relevant reinstatement planting plan for that stage of the authorised development, unless otherwise approved by the relevant planning authority.*

3) *Any trees or hedgerows planted as part of an approved reinstatement planting scheme that, within a period of 5 years after planting, are removed, die or become in the opinion of the relevant planning authority seriously damaged or diseased, must be replaced in the first available planting season with a specimen of the same species and size as that originally planted, unless otherwise approved by the relevant planning authority.*

8.1.3 The general principle of reinstatement on the project is that land used temporarily will be reinstated where practicable (bearing in mind any restrictions on planting and land use) to its pre-construction condition and use. Hedgerows, fences and walls (including associated earthworks and boundary features) will be reinstated to a similar style and quality to those that were removed, with landowner agreement (GG07).

8.1.4 In accordance with good practice measure LV03, and as stated in Requirement 10 of the draft DCO (**application document 3.1**), a five-year aftercare period will be established for mitigation planting and reinstatement.

8.2 Landscape and Ecological Reinstatement Plans

8.2.1 The Vegetation Reinstatement Plan in Appendix B (**application document 7.8.2**) shows the location of proposed embedded planting at the GSP substation and around the CSE compounds, reinstatement planting, landscape softening, habitat compensation and additional planting required to mitigate an environmental effect. The plan cross refers to the specification for the planting in Appendix C (**application document 7.8.3**), which sets out the proposed planting and seed mixes.

8.2.2 The planting proposals have followed the following principles:

- Trees and shrubs will be of local provenance (to reduce risks associated with disease when importing stock from overseas sources) and shall be supplied in accordance with BS 8545:2014 Trees: from nursery to independence in the landscape (British Standards Institution, 2014). Exceptions may include urban or park environments,

where ornamental species may be more appropriate. The proposed species and sizes are shown in the Planting Schedules in Appendix C.

- Reinstatement planting, including any subsequent replacement of failed planting, shall be carried out in the first available planting season after that part of the authorised development to which the reinstatement planting works apply is first brought into operational use. For example, tree and scrub planting will typically be undertaken between November and the end of March, avoiding periods of frosts, extreme cold and waterlogged conditions.
- Planting shall be undertaken by an appropriately experienced landscape contractor, in accordance with good horticultural practice and the following current British Standards:
- BS 4428:1989 Code of practice for general landscape operations (British Standards Institution, 1989); and
- BS 8545:2014 Trees: from nursery to independence in the landscape (British Standards Institution, 2014).
- Tree and shrub planting areas will initially be protected to shield young trees from browsing rabbits and deer during establishment, for example using tree/shrub shelters or fencing. Protection, for example fencing will also be considered around planting in fields that are grazed by livestock.

8.2.3 The proposed species mixes and typical stock sizes for the main planting reinstatement types are set out in the table in Appendix C and are cross-referenced on the Vegetation Reinstatement Plan in Appendix B. These generally reflect existing species compositions and habitat types identified within the ecological and arboricultural surveys, where these were considered appropriate.

8.2.4 Alternative mixes have been set out in some locations, as shown on the plans, where alternative species are considered more appropriate. Alternative species mixes have been proposed in areas where the current site conditions (including habitats and drainage) may have changed in recent years; where the existing planting includes INNS that will be inappropriate to reinstate; or where there are existing species at risk of pests and diseases (such as ash dieback).

8.2.5 It may be difficult to purchase proposed species mixes and stock sizes set out within the LEMP. If during implementation, there are difficulties with sourcing the planting species and sizes specified, a discussion will be held with the relevant planning authority regarding alternative species or sizes.

8.2.6 The Vegetation Reinstatement Plan in Appendix B will be discussed with the relevant landowner (and, where appropriate, tenant). This will be to confirm the suitability of proposed planting, the specification of hard landscape features such as fences and walls (based on like-for-like reinstatement). Where there is reinstatement on a private property, the final placement will be agreed with the landowner.

8.2.7 The Vegetation Reinstatement Plan in Appendix B also includes areas identified for compensation of existing habitats lost during construction. Although the loss of these habitats is not resulting in a significant effect within the ES, their loss would result in a negative result using the Biodiversity Metric 3.1 (Natural England, 2022), and therefore proposed locations have been identified on the Vegetation Reinstatement Plan in Appendix B to compensate for the habitat loss that would occur otherwise. Re-running the biodiversity metric on the Final Alignment, may mean that these habitat areas change for example some areas may not be required (should it be determined less vegetation

can be removed during the detailed design), alternatively further habitat creation may be required to offset any increased losses. Further details on the biodiversity metric and the estimated habitats required is set out in the Environmental Gain Report (**application document 7.4**). The proposed habitat areas that are needed to offset any loss are outlined in the following sections where applicable.

8.3 Reinstatement After Construction

8.3.1 On completion of the construction works, all plant, materials and temporary works/structures will be removed. Topsoil will be returned in line with the soil protection and reinstatement measures set out in the CEMP (**application document 7.5**) at the earliest suitable time of year.

8.3.2 Where required, weed suppression measures will be applied to the topsoil heap before topsoil replacement. Topsoil is pulled from the heap using excavator buckets and displaced gradually to the correct grade using either excavators or bulldozers as reinstatement progresses and topographic levels are checked regularly by Global Positioning System (GPS) survey equipment so that reinstatement reflect the existing profile before construction commenced, wherever practicable.

8.3.3 It is assumed that soil excavated from the project will be reused on site through the backfilling of trenches and for landscaping where practicable and where soil is suitable for reuse (for example, not contaminated and giving consideration to land holdings and applicable biosecurity measures). It is intended that all soil will be reused on site, however if it arises that excess spoil cannot be reused on site, this soil will be taken off site in accordance with measures outlined within the MWMP (**application document 7.7**). Further details on soil protection and reinstatement can be found within the CEMP (**application document 7.5**).

8.4 Reinstatement of Woodland and Trees

Reinstatement Planting

8.4.1 Reinstatement tree planting will be, where practicable, in the same location or in close proximity to the tree that has been removed. In some locations existing constraints or the location of the overhead lines and underground cable may preclude planting in close proximity, in which case the planting will be undertaken as close as possible to the original location (and still within the Order Limits). Proposed reinstatement planting is shown on the Vegetation Reinstatement Plan in Appendix B.

8.4.2 Following construction, areas of woodland that were removed will be reinstated using the same or other locally appropriate species to those removed, subject to suitability in relation to tree pests and diseases. There are 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. Where tree species cannot be used due to the restrictions from the overhead line and underground cables, it is anticipated that native shrub understorey/edge planting will be used. Reinstatement woodland and tree planting will typically be undertaken between November and the end of March, avoiding periods of frosts, extreme cold and waterlogged conditions.

8.4.3 Where individual mature trees may need to be removed they will be replaced with a mix of trees with the type of planting stock and planting density to match the existing site conditions to best achieve establishment and as set out in the Planting Schedules in Appendix C.

8.4.4 Woodland areas and hedgerows that previously were within the area of either the removed 132kV overhead line and would not lie beneath the new overhead transmission line or areas within the area of the removed 400kV overhead line (to the south of Twinstead), will be replanted with new woodland / hedgerow planting, as shown on the Vegetation Reinstatement Plan in Appendix B.

8.4.5 The planting methods shall be appropriate to the stock size of tree to be planted and in accordance with BS 8545:2014 Trees: from nursery to independence in the landscape (British Standards Institution, 2014).

8.4.6 In addition, the National Policy Statement for Electricity Networks (EN-5) identifies additional planting that can be taken by projects. Paragraph 2.8.11 describes more specific measures comprising:

- *'Landscape schemes, comprising off-site tree and hedgerow planting are sometimes used for larger new overhead line projects to mitigate potential landscape and visual impacts, softening the effect of a new above ground line whilst providing some screening from important visual receptors. These can only be implemented with the agreement of the relevant landowner(s) and advice from the relevant statutory advisor may also be needed; and*
- *Screening, comprising localised planting in the immediate vicinity of residential properties and principal viewpoints can also help to screen or soften the effect of the line, reducing the visual impact from a particular receptor.'*

8.4.7 The Vegetation Reinstatement Plan in Appendix B identifies areas for potential 'landscape softening' which would provide screening from visual receptors. Although these softening areas are not required to offset a significant effect within the ES, the planting could soften the views of the project from specific properties identified in the community assessment. As noted in EN-5, the landscape softening would be discussed with the relevant landowners, who may choose to decline the landscape softening proposals.

Natural Regeneration of Woodland

8.4.8 Natural regeneration of woodland is proposed at some locations as shown on the reinstatement plans in Appendix B. This would allow for trees to develop naturally using the local seed bank already present. It is assumed that this will follow natural regeneration guidance from Flora Locale (2022). In areas immediately adjacent to existing woodland, the soil is already likely to contain seeds that have fallen from the adjacent trees. These seeds will be used and supplemented where necessary with seeds collected from the trees within nearby woodland areas (subject to landowner permission).

8.4.9 To prepare the site, the soil should be ploughed or subsoiled to break up any compacted soil. The site should be disced and repeatedly harrowed during the spring and summer to reduce successive flushes of weeds and to produce an even seedbed.

8.5 Reinstatement of Hedgerows

8.5.1 Following construction, hedgerows and tree belt that were removed will be reinstated using species-rich or other locally appropriate species to those removed, subject to suitability in relation to tree pests and diseases. In addition, although not required for a significant effect, hedgerow planting and reinforcement of hedgerow at MM06 and MM15 is provided to compensate for those hedgerows permanently lost to the project at the permanent access routes. Where new hedgerows are to be planted, consideration will be given to reinstatement of historic field boundaries or estate routes.

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

8.5.3 It is anticipated that a proportion of tree species within hedgerows will be planted as feathered stock to help establish hedgerow tree forms where appropriate for the landscape. The proportion of feathered tree species within reinstatement hedgerow planting is set out within the specification in Appendix C.

8.6 Reinstatement of Grassland

Grass Seeding

8.6.1 Areas of grassland and verges disturbed by construction activities outside of the areas identified for natural regeneration, will be reinstated by seeding of an appropriate grass mix suited to the existing soil conditions and site use. Seed will 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 Vegetation Reinstatement Plan in Appendix B shows the locations of grassland reinstatement and should be read with the Planting Schedules in Appendix C for the proposed species mix composition.

8.6.2 As noted in paragraph 8.2.7, the Vegetation Reinstatement Plan in Appendix B also includes areas identified for compensation of existing habitats lost during construction. Although the loss of these habitats is not resulting in a significant effect within the ES, their loss would result in a negative result using the biodiversity metric and therefore proposed locations have been identified on the Vegetation Reinstatement Plan in Appendix B to offset this loss. MM05, MM16 and MM18 would provide compensatory habitat for scrub and species rich grassland lost on the project.

Natural Regeneration of Grassland

8.6.3 In some specific locations, there may be benefit in leaving an area of grassland to regenerate naturally, for example where there are already anticipated to be seeds within the soil. Natural regeneration of grassland would follow guidance on how to create and restore species-rich grassland (Defra, 2022). Additional locally derived seeds may be collected from existing meadow habitats (subject to landowner permission) to supplement the establishment of the habitat.

8.6.4 The target site will be prepared by cutting or grazing the existing grassland very short to create 50% bare ground in June to mid-July. Any cuttings should be removed. The best time to spread seed is from late July to mid-September, when most grassland plants shed. The seeds germinate best when scattered on the surface and the ground should be rolled after sowing to keep in moisture and ensure good seed-to-soil contact. The grassland will 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.

8.7 Reinstatement of Watercourses

8.7.1 Watercourses will be reinstated to at least the same condition as prior to construction. This includes reinstatement of the bank profile, bed levels and gradients. It will also include replacing any channel substrate that was temporarily removed during the works, seeking advice from a geomorphologist where relevant.

8.8 Reinstatement of Other Habitats

8.8.1 As noted in paragraph 8.2.7 the Vegetation Reinstatement Plan in Appendix B also includes areas identified for compensation of existing habitats lost during construction. Although the loss of these habitats is not resulting in a significant effect within the ES, their loss would result in a negative result using the biodiversity metric and therefore proposed locations have been identified on the Vegetation Reinstatement Plan in Appendix B to offset this loss. The existing arable field margin habitat at MM23 would be retained and enhanced to compensate for arable field margin losses on the project.

8.9 Reinstatement of Hard Landscape Features

8.9.1 Good practice measure GG07 states that land used temporarily will be reinstated, where practicable, to an appropriate condition relevant to its pre-construction condition and use. This assumes that in general, hard landscaping features, such as footpaths, walls or bank features will be reinstated or replaced on a like-for-like basis. This includes earth banks and hibernacula that were temporarily dismantled during construction. Like-for-like reinstatement has been assumed when developing the Vegetation Reinstatement Plan in Appendix B, and therefore only features where the project has made a specific commitment are shown on the plan.

9. Aftercare

9.1 General Aftercare

9.1.1 As a general principle, at the end of construction, land used temporarily will be reinstated to an appropriate condition relevant to its pre-construction condition and its previous use' (GG07). In many locations, the land will be handed back to the relevant landowner at the end of reinstatement. Where vegetation including woodland, hedgerows and trees have been planted as part of the reinstatement, these will have a five-year aftercare period in accordance with good practice measure LV03 and Requirement 10(3) of the draft DCO (**application document 3.1**).

9.1.2 Periodic checks will be undertaken by a suitably experienced professional to check reinstatement and to replace species that have not taken. The landscape contractor will prepare inspection reports as part of these visits.

9.1.3 Checks will also be made to identify the success of protective measures to avoid browsing by deer and rabbits to see if additional management measures are required to encourage growth and development of the reinstatement planting. Checks will also be made of vegetation coppiced during construction and areas identified for natural regeneration to make sure that these are establishing. These checks will identify whether additional measures need to be undertaken so that vegetation re-establishes in these areas. This could include additional planting.

9.1.4 Prior to the end of the five-year aftercare period, a final inspection shall be undertaken at which any final replacement planting required shall be communicated to the landowner. Following the completion of any agreed replacement planting, a final inspection shall then be held as part of the completion of the aftercare, whereupon National Grid shall cease to have any further maintenance obligation.

9.2 Woodland, Trees and Hedgerows

9.2.1 The five-year aftercare includes inspections by a suitably experienced professional for all reinstated woodland, hedgerows, tree belts and individual trees to:

- Check and record failing, dead or defective plants and replace failed planting each year, between November and end of March, until the target stocking density is achieved;
- Re-firm plants and inspect, adjust or remove stakes, guards and ties as required;
- Apply herbicide to maintain weed-free plant circles around base of transplants and spot-treat undesirable species, having regard to any restrictions on use of herbicides in certain locations, for example, in proximity to watercourses or other sensitive habitats. Selective hand weeding may be required where there are no suitable alternative methods;
- Check and treat any invasive species that may be identified through the routine inspections; and
- Water individual larger specimen trees that have been planted, as required, during the five-year aftercare.

9.2.2 Inspections will also be undertaken to any areas that were coppiced during construction to check that the coppicing is re-establishing. This will confirm that these areas are regenerating as planned or will identify the need for further measures, such as additional

planting where the coppicing is not leading to successful regrowth. In addition, an arboriculturalist will also be consulted to advise on whether veteranising of existing individual trees is appropriate as part of the aftercare and management.

9.3 Grassland

9.3.1 Grassland will be reinstated at the end of construction and will generally be handed back to the landowner once the grass sward has re-established. The exception will be in areas where there are ecological objectives to restore the former habitats or to further enhance the site as part of the proposals. In these locations, National Grid may continue to maintain the habitat as part of the five year landscape contract to check that the habitat is achieving the ecological objectives. Once the objectives are achieved, it is anticipated that the maintenance regime would be handed back to the relevant landowner. This may be earlier than the five years maintenance required for trees and hedgerows should the reinstatement objective be achieved sooner.

9.4 Pests and Diseases

9.4.1 The periodic checks of reinstatement planting will include a check for any obvious signs of pests or diseases, including ash dieback or reoccurrence of INNS. Any instances will be recorded and appropriate action taken.

10. Implementation

10.1 Implementation of the LEMP

10.1.1 National Grid will put in place robust procedures to inform and supervise all those working on the project including its contractor, to make sure the control measures set out in the LEMP are adopted when undertaking the construction of works authorised by the DCO. The main responsibility for implementing these control measures will fall to the contractor.

10.1.2 The contractor will brief all operatives on the specific details within the LEMP prior to the commencement of works. The briefings will be delivered by a suitably trained member of the team such as the site supervisor, Construction Manager or Environmental Manager.

10.2 Site Checks and Reporting

10.2.1 The contractor will undertake pre-construction site condition surveys as part of the site setup. This will include making a record of the condition of existing features such as tracks and roads. Post construction site condition surveys will be undertaken by the contractor after reinstatement and the results of these will be discussed with the landowner prior to handover.

10.2.2 Regular site checks will be carried out to monitor compliance with the LEMP. The programme of site inspections will be managed by the Environmental Manager who will draw on appropriate suitably experienced specialists for specific tasks. The overarching inspections are summarised below in Table 10.1. Immediate action including, if necessary 'stopping a job', will be taken should any incidents or non-conformance with the LEMP be found during inspection.

10.2.3 Site checks and inspections will include checks against compliance with good practice measures and other commitments made by the project.

Table 10.1 – Anticipated Site Checks Relevant to the LEMP

Inspection Type	Purpose	Who	Frequency
General Site Inspections			
Environmental Inspections	To monitor compliance with project commitments and the environmental standards. To record adherence to good practice commitments and raise actions where concerns are identified. To check mitigation measures for sensitive features are in place.	Environmental Manager EnvCoW	Weekly
Audits (External/Internal)	Formal audit process for internal Management System.	External Auditor Environmental Manager	Annual
Site Checks	To ensure that working practices are carried out in accordance with approved methods, standards and good practice commitments.	Works Supervisor	Daily visual check in working area

Inspection Type	Purpose	Who	Frequency
Environmental Observations	Allows all staff to raise concerns or good practice ideas to safeguard continual improvement and innovation.	All staff	As required

10.2.4 The results of inspections will be recorded in an Environmental Log. Findings will be disseminated to the wider construction team as appropriate and additional procedures put in place if required.

10.3 Monitoring at Designated Sites

10.3.1 Monitoring will be undertaken at local wildlife sites directly impacted as part of the project by a suitably qualified and licensed (where required) person. These are likely to comprise Valley Farm Meadow CWS, Hadleigh Railway Walk LNR and CWS, Valley Farm Wood CWS, Layham Pit Woodland and Meadow CWS, The Dollops CWS, Ansell's Grove/Ash Ground LoWS, Alphamstone Complex LoWS and Loshes Meadow LoWS and Wildlife Trust Reserve and Twinstead Marsh LoWS.

10.3.2 Site inspections would be undertaken to check whether habitats are returning to their pre-construction condition. The baseline habitat surveys would provide the evidence of the pre-construction conditions and would be used to establish site specific targets for the habitat reinstatement. The aim of the site inspections is to identify whether adaptive measures need to be taken so that these sites achieve the habitat conditions required (i.e. pre-construction quality and value).

10.4 Monitoring in Relation to Protected Species

10.4.1 Further measures may be required by the conditions of species licensing. The scope of the protected species monitoring has been set out in the draft EPS licence applications and will be agreed with Natural England as part of final EPS licence applications. This may include site checks to monitor the presence/absence of a species or population-monitoring of a species. The monitoring will be used to determine the success of the mitigation undertaken.

10.4.2 The monitoring requirements, including locations and frequency of inspections, will be set out within the finalised EPS licence applications and will be agreed with Natural England. Any corrective actions that may be required will be agreed with Natural England and implemented as required.

10.5 Change Process

Introduction

10.5.1 The LEMP is one of the plans listed in sub-paragraph (2) of Requirement 4 of the draft DCO (**application document 3.1**) which states: *'All construction works forming part of the authorised development must be carried out in accordance with the plans listed in sub-paragraph (2) below, unless otherwise agreed with the relevant planning authority or other discharging authority as may be appropriate to the relevant plan concerned.'*

10.5.2 Requirement 1(4) of the draft DCO (**application document 3.1**) states: '*Where an approval or agreement is required under the terms of any Requirement or a document referred to in a Requirement, or any Requirement specifies "unless otherwise approved"*

or "unless otherwise agreed" by the relevant highway authority or the relevant planning authority, such approval or agreement may only be given in relation to minor or immaterial changes and where it has been demonstrated to the satisfaction of the relevant highway authority or the relevant planning authority that the subject matter of the approval or agreement sought is unlikely to give rise to any materially new or materially different environmental effects from those assessed in the Environmental Statement.'

10.5.3 Where there is a need to update the LEMP beyond derogations addressed pursuant to the above, the below text addresses the process for changing the LEMP itself. This does not cover changes to the DCO (material or non-material) which would be managed through the process set out in Schedule 6 of the Planning Act 2008.

10.5.4 Therefore, the below process is limited to changes to the LEMP.

LEMP Changes

10.5.5 It may be necessary to amend the details contained in the LEMP as a result of the iterative discussion and engagement that will continue after the LEMP has been approved. The resulting changes would not alter any of the underlying commitments, mitigations and methodologies set out in the LEMP. An example may be where a preconstruction survey identifies that a measure already committed to is no longer required in the LEMP. In every case, consideration will be given to any changes to the outcome of the assessment of environmental effects.

10.5.6 Where there is a proposed change to the LEMP, National Grid will provide details to the relevant planning authority together with evidence of relevant stakeholder engagement, where upon, the relevant planning authority will, acting reasonably, endeavour to respond within 28 days to either confirm its consent to the change to the LEMP or provide its reasons why the change is not accepted.

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