

Hornsea Project Three
Offshore Wind Farm



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Appendix 33 to Deadline 9 submission
Outline Landscape Plan

APFP Regulation 5(2)(a)

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Acronyms

Acronyms	Description
DCO	Development Consent Order
EMP	Ecological Management Plan
HDD	Horizontal Directional Drilling
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
LP	Landscape Plan

Units

Unit	Description
km	Kilometre (distance)
m	Metre (distance)

Glossary

Term	Definition
Code of Construction Practice	Code to ensure that best practice construction work is undertaken with minimal impacts upon local people and the environment.
Development Consent Order as made	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Projects.
Horizontal Directional Drilling	Method for the installation of pipes, conduits and cables using a surface launched drilling rig. This is used as a proxy for trenchless technology.
Onshore elements of Hornsea Three	Hornsea Three landfall area, onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation.

1. Introduction

- 1.1.1.1 This Outline Landscape Plan (Outline LP) has been prepared on behalf of Ørsted in support of the application for a Development Consent Order (DCO) for Hornsea Three.
- 1.1.1.2 This Outline LP sets out the framework for the detailed written Landscape Plan (LP) to be agreed under Requirement 8 of the DCO. The detailed LP may be provided as a single document or as a number of detailed LPs to cover different elements of Hornsea Three. Each detailed LP will be submitted to and agreed with the relevant planning authorities prior to commencement of the element it relates to in a given phase or any onshore site preparation works relating to each phase. The detailed LP must be implemented as agreed.
- 1.1.1.3 The purpose of the detailed LP(s) is to provide proportionate mitigation in order to minimise impacts to heritage, landscape and ecological receptors which may result from the construction and operation of Hornsea Three.
- 1.1.1.4 The detailed LP shall therefore comprise the following elements:
- Details of surveys, assessments and method statements as guided by BS 5837 and the Hedgerows Regulations 1997;
 - Detailed soft landscape design proposals for mitigation planting (i.e. reinstatement and new planting) to include the details set out in Section 3 of this Outline LP;
 - Detailed soft landscape design proposals for additional planting within the 100m enhancement corridor (i.e. hedgerow gap filling and hedgerow tree planting), where practicable and as agreed with the land owner;
 - An implementation timetable for all soft landscaping works;
 - An establishment method for all planting including cultivation and importing of materials (cross-referencing to Appendix D: Biosecurity of the Outline CoCP as appropriate); and
 - Detailed management proposals (including maintenance and monitoring) to be carried out during the first five years following planting or seeding at the onshore HVAC booster station and onshore HVDC converter/HVAC substation, as well as in the longer term (up to the full operational lifetime of Hornsea Three).
- 1.1.1.5 The Outline LP includes a framework for the soft landscape proposals for the following elements of Hornsea Three:
- The onshore HVAC booster station;
 - The onshore HVDC converter/HVAC substation; and
 - The onshore cable corridor.
- 1.1.1.6 Unless otherwise clearly specified, the measures set out within this Outline LP apply to all land temporarily and permanently impacted or acquired for the purpose of Hornsea Three.
- 1.1.1.7 This Outline LP should be read in conjunction with the Outline Ecological Management Plan (Outline EMP) and the Outline Code of Construction Practice (Outline CoCP). The Outline EMP describes the ecology and nature conservation mitigation measures that will be implemented prior to (including pre-construction survey and recording of vegetation and establishment of protection zones around retained trees and hedgerows as well as any pre-planted soft landscaping), during and post construction of the onshore elements of Hornsea Three, and the long-term management measures to be set in place for reinstated and enhanced habitats. The Outline CoCP sets out the mitigation measures that the Applicant and its construction contractors will be required to adopt and implement for all construction activities associated with Hornsea Three.

2. Existing Landscape Context

- 2.1.1.1 Onshore export cables will be buried underground in up to 6 trenches, running in a south / south westerly direction from the proposed landfall area at Weybourne in north Norfolk within the Norfolk Coast AONB for approximately 55 km (6km of which is within the AONB), before connecting into the national grid at the Norwich main substation, south of Norwich. The final corridor will typically be up to 80 m in width, of which up to 20 m will be used for temporary working areas. It runs across a primarily rural landscape incorporating farmland with fields and roads frequently enclosed by hedgerows, areas of woodland, river valleys and frequent small settlements.
- 2.1.1.2 The site of the onshore HVAC booster station is east of the village of Edgefield, adjacent to an area of woodland to the east and arable fields enclosed by hedgerows to the west. The landscape within 5 km of the onshore HVAC booster station encompasses the village of Edgefield and a largely rural area primarily given over to agriculture with frequent small blocks of woodland and contains a number of small settlements. The landform is undulating with some shallow valleys.
- 2.1.1.3 The site of the onshore HVDC converter/HVAC substation lies south of Norwich south of the A47 and east of the B1113. Arable fields enclosed by hedgerows lie to the west and south of the site, and a sand and gravel quarry under restoration lies to the east. Two lines of pylons and overhead electricity cables cross the landscape immediately south west of the site. North of the A47 lies the southern edge of Norwich and its suburbs which are cut through by the River Yare valley and surrounded by wetlands and parkland. To the south of the A47 the landscape becomes more rural and primarily in agricultural use. There are numerous settlements within this rural landscape ranging from hamlets to large villages and the area is scattered with small woodlands. Landform within 5 km of the site of the onshore HVDC converter/HVAC substation gently undulates with two distinct river valleys, those of the Yare and the Tas, cutting through it.
- 2.1.1.4 The purpose of this Outline LP is to minimise impacts to heritage, landscape and ecological receptors which may result from the construction and operation of Hornsea Three, and thus seeks to provide proportionate mitigation by maintaining and reinstating the prevailing landscape character as described above.

3. Pre-Construction Surveys and Design Refinements

- 3.1.1.1 The principle behind hedgerow and tree mitigation, as detailed in the Outline LP, CoCP and EMP, is to minimise vegetation removal during each phase.
- 3.1.1.2 As set out in section 4.2.3 of the Outline Ecological Management Plan, protection zones for hedgerows and trees will be informed by a pre-construction survey and record of all trees and hedges along the onshore cable corridor, including trees and hedges affected by the onshore booster station and onshore HVDC converter / HVAC substation. Features included this survey will include width, height, condition, presence of standard trees and the location of any gaps. The following detailed surveys will be undertaken:
- Where a hedgerow has not been surveyed due to access restrictions, a full survey (incorporating ecological, landscape and heritage considerations) according to the importance criteria within the Hedgerow Regulations 1997 will be carried out and the results included in the detailed ecological constraints plan to be provided within the detailed EMP;
 - Where trees within the onshore cable corridor have not been identified for retention through the use of HDD or avoidance, a full arboriculture survey of those trees will be carried out in accordance with BS 5837:2012 and any trees found to be veteran, ancient or notable will be added to the Ancient Tree Inventory (ATI) and the detailed ecological constraints plan to be provided within the detailed EMP.
- 3.1.1.3 Veteran trees and important hedgerows to be retained will be clearly indicated on the schedule of trees, hedgerows and other significant areas of vegetation to be retained (which will accompany the detailed LP(s)).
- 3.1.1.4 Veteran trees and important hedgerows to be removed will be clearly indicated on the schedule of trees, hedgerows and other significant areas of vegetation to be removed (which will accompany the detailed LP(s)).
- 3.1.1.5 Important hedgerows which meet the criteria for importance due to the presence of standard trees (according to the Hedgerow Regulations 1997) will be clearly indicated as such on the schedules outlined in paragraphs 3.1.1.2 and 3.1.1.3.
- 3.1.1.6 Where veteran trees are identified within the onshore cable corridor, the Applicant will aim to preferentially protect these features either through micro-siting of the cable trenches or using an alternative construction methodology (such as HDD) to cross the feature. Where retention is not possible for these features, removal will be justified as part of the detailed LP(s). The same approach would be applied to important hedgerows which are classified as such due to the presence of standard trees (as replacement trees cannot be planted above the cables).

- 3.1.1.7 All protection zones associated with trees and/or hedgerows will be marked out in line with BS 5837:2012 (for example using heras fencing where practicable) with signs describing the prohibitive requirements of the zones. Additional details of the protection zones to be implemented and adhered to for the protection of hedgerows and trees are set out in section 4.2.2 of the Outline EMP.

4. Detailed Soft Landscape Design Proposals

- 4.1.1.1 The detailed LP(s) will include detailed soft landscape design proposals which are in broad accordance with principles set out in the illustrative landscape proposals presented within this Outline LP (section 4).
- 4.1.1.2 The detailed soft landscape proposals to be provided within the detailed LP(s) shall include the following:
- Precise location and canopy spread of all trees, hedgerows and other significant areas of vegetation to be removed;
 - Precise location and canopy spread of all trees, hedgerows and other significant areas of vegetation to be retained (including species), together with measures for their protection during the construction phase in accordance with BS 5837:2012;
 - Details of all new planting including (though not necessarily limited to) species, seed mixes, location, size, planting density, number and protection measures during establishment;
 - Earthworks and ground profiling (including proposed finish levels and contours) if they are to be different to the existing;
 - Full details of the management activities that will be undertaken at any location with proposed planting to ensure successful establishment of the new planting, including but not limited to ground preparation, planting methods, irrigation, weed control, monitoring, replacement and removal of sundries. The detail will include reference to BS 8545 in respect of new trees;
 - Full details of the management activities that will be undertaken during the operational lifetime of the HVAC booster station and HVDC converter / HVAC substation. The details are to include, but are not necessarily limited to: height and width parameters for hedges, thinning and coppicing regimes, frequency of activities, removal and appropriate reuse/recycling/disposal of redundant planting sundries; and
 - Details of the implementation timetable for all soft landscape works, including any mitigation planting that is to be undertaken prior to and/or during the construction works at the HVAC booster and HVDC converter / HVAC substation.

5. Illustrative Landscape Proposals for the Onshore HVAC Booster Station and Onshore HVDC Converter/HVAC Substation

5.1 Concept and Design Justification

5.1.1.1 The landscape proposals for the proposed onshore HVAC booster station and onshore HVDC converter/HVAC substation are both based upon the generic objectives below. Proposals are designed to:

- Reduce the landscape and visual impacts of Hornsea Three as well as impacts on the setting of historical assets during operation by filtering and screening views of the developments and integrating them into their landscape contexts;
- Retain and protect all existing trees, hedgerows and other vegetation except where removal is necessary to construct and maintain Hornsea Three;
- Enhance existing landscape features such as hedgerows by planting gaps with hedgerow plants and trees along field edges adjacent to the onshore HVAC booster station and onshore HVDC converter/HVAC substation;
- Compliment, extend and join existing landscape elements and habitats including hedgerows, trees and woodlands; and
- Utilise native species that are present locally.

5.1.1.2 The onshore HVAC booster station and onshore HVDC converter/HVAC substation lie within different landscapes and are different in terms of, inter alia, scale and appearance. Furthermore, the proximity and relationship of each development to historical assets are different. Thus, in addition to the generic objectives listed above, the design principles followed are specifically designed to respond to the proposals and contexts for each development as described below.

5.1.2 Onshore HVAC Booster Station

5.1.2.1 The illustrative landscape proposals for the onshore HVAC booster station are shown on the following drawings in Appendix A:

Drawing number	Drawing title
6117_499	Onshore HVAC Booster Station Illustrative Landscape Proposals
6117_500	Onshore HVAC Booster Station Illustrative Planting and Seeding Proposals Sheet 1 of 2

Drawing number	Drawing title
6117_501	Onshore HVAC Booster Station Illustrative Planting and Seeding Proposals Sheet 2 of 2

5.1.2.2 Key principles followed during the design process were as follows and would be maintained during the preparation of the detailed LP:

- The onshore HVAC booster station would be located close to existing woodlands and in local low point in the landscape so that it would be largely screened in views from the east, and seen with a woodland backdrop in views from the west.
- Create a HVAC booster station enclosed by a mixed wood which appears as an extension to the existing woods to the east. This would be appropriate to local landscape character and also help to screen and filter views of the onshore HVAC booster station infrastructure from surrounding landscape and visual receptors, and integrate it into its landscape context.
- Along the line of the onshore cable corridor, a strip of mature trees and scrub along the field boundary immediately north of the onshore HVAC booster station, and hedgerows bounding fields further to the north and to the south, would be retained by installation of cables by trenchless techniques (e.g. Horizontal Directional Drilling, HDD).
- Create areas of new woodland and scrub, and new and strengthened hedgerows with hedgerow trees that would provide further screening and filtering of views, enhance landscape character and provide enhanced habitats for wildlife.

5.1.2.3 Hornsea Three has committed to implementing sections of the mitigation planting at the commencement of works at the onshore HVAC booster station, which could be up to two years ahead of the planned completion of construction works, in order to maximise the screening provided during construction and in the early years of operation. Areas which will not be pre-planted comprise planting to the immediate north and south of the permanent HVAC booster station site (where it connects to the onshore cable corridor), a 5 m buffer around the permanent site and between the permanent footprint and temporary construction site. These areas will not be pre-planted to facilitate the construction works at the site. Further details of the pre-planting to be undertaken at the onshore HVAC booster station will be provided in the detailed LP which will be submitted and agreed with the relevant local planning authorities.

5.1.2.4 In a two-phase construction programme the remainder of the proposed mitigation planting (i.e. that is not implemented at the commencement of construction works of the first phase), would be implemented during the first available planting season following completion of the first construction phase, unless otherwise agreed with the local planning authority. Some of these areas may subsequently need to be removed to allow construction of the second phase although they would be reinstated again following completion of the second phase. The need for such works will be determined as part of the detailed LP.

5.1.3 Onshore HVDC Converter/HVAC Substation

5.1.3.1 Illustrative landscape proposals for the onshore HVDC converter/HVAC substation are shown on the following drawings in Appendix A:

Drawing number	Drawing title
6117_509	Onshore HVDC Converter/HVAC Substation Illustrative Landscape Proposals
6117_510	Onshore HVDC Converter/HVAC Substation Illustrative Planting and Seeding Proposals Sheet 1 of 2
6117_511	Onshore HVDC Converter/HVAC Substation Illustrative Planting and Seeding Proposals Sheet 2 of 2
6117_512	Onshore HVDC Converter/HVAC Substation Indicative Areas of Vegetation to be Removed

5.1.3.2 Key principles followed during the design process were as follows and would be maintained during the preparation of the detailed landscape plans:

- v. The onshore HVDC converter/HVAC substation would be contained within existing hedged field boundaries, two lines of pylons and overhead lines to the south west, the B1113 to the west and the A47 to the north. These features and associated vegetation would help to limit the spread of effects on landscape character beyond the site and provide some filtering and screening of views.
- vi. Existing hedgerows and hedgerow trees along the route of the onshore cable corridor would be retained at the site boundaries of the onshore HVDC converter/HVAC substation by use of trenchless techniques (e.g. HDD) except where removal is necessary to allow construction and operation access. There would be some locations where hedges and trees would need to be removed such as at the proposed site entrance (to provide safe access and egress) and where cables are to be installed; the locations for this removal would be confirmed post consent / pre-commencement of the onshore HVDC converter/HVAC substation. Indicative areas of vegetation which may potentially be removed are shown on drawing 6117_512 in Appendix A.
- vii. New woodland and scrub planting is proposed around the onshore HVDC converter/HVAC substation. This would be appropriate to local landscape character and also help to screen and filter views of the onshore HVDC converter/HVAC substation from surrounding landscape and visual receptors, as well as historic assets, and integrate it into its landscape context.
- viii. Strengthen existing hedgerows by planting gaps with new hedge plants and hedgerow trees that would provide further screening and filtering of views, enhance landscape character and provide enhanced habitats for wildlife.

- ix. Minimise harm to the Norwich Southern Bypass Landscape Protection Zone (NSBLPZ). Policy DM4.6 Landscape Setting of Norwich of the South Norfolk Development Management Policies Document (2015) aims to protect the openness of the NSBLPZ around the southern bypass (A47) and, where possible, enhance the landscape setting of the southern bypass. There are existing open views of countryside looking south across the site from the A47 and these would be obscured by the onshore HVDC converter/HVAC substation. A short distance west and east of the site existing southern views from the A47 are obscured by roadside vegetation or embankments, restricting views of open countryside (see the Environmental Statement chapter 6, annex 4.5: Photograph Panels, Wirelines and Photomontages, section 4: Views from the A47).
- x. The proposed onshore HVDC converter/HVAC substation would be set back from the A47 with woodland and woodland edge planting proposed between the substation and the road. This would, as planting matures, create a view of woodland in the foreground with the onshore HVDC converter/HVAC substation beyond. This would create a longer section of A47 with views of open countryside obscured, but views of the onshore HVDC converter/HVAC substation would be filtered by proposed and existing vegetation and existing landform.
- xi. Minimise harm to the Undeveloped Approaches to Norwich. Policy DM4.6 Landscape Setting of Norwich of the South Norfolk Development Management Policies Document (2015) aims to protect Undeveloped Approaches to Norwich, including the B1113. The policy states that all development proposals within the visual zone of influence viewed from the identified Undeveloped Approaches to Norwich should reinforce and avoid undermining the rural character of the Undeveloped Approaches to Norwich.
- xii. The onshore HVDC converter/HVAC substation would be set back from the B1113 with woodland and woodland edge planting proposed between the substation and this road. Existing trees and hedges along the B1113 would be retained and protected except where it is necessary for them to be removed for construction and operation of the onshore HVDC converter/HVAC substation. A permanent gap would be required at the site entrance on the B1113, but its width would be the minimum required for construction and operation in order to maximise screening of the onshore HVDC converter/HVAC substation.

5.1.3.3 The illustrative landscape proposals on drawings 6117_509 and 6117_511 in Appendix A also show potential tree planting within the edges of fields adjacent to residential properties to the south west (House on the Hill) and south east (Pond Cottage, Holly View Cottage, Park View Cottage, Mangreen Cottage) to provide additional screening. This would be offered as optional mitigation, to be taken forward should residents wish this, and it is not essential to mitigate the effects. Some residents may prefer to retain the openness of views (including some visibility of the onshore HVDC converter/HVAC substation) rather than having a tree belt close to their house.

- 5.1.3.4 Hornsea Three has committed to implementing sections of the mitigation planting at the commencement of works at the onshore HVDC converter/HVAC substation, which could be up to three years ahead of the planned completion of construction works, in order to maximise the screening provided during construction and in the early years of operation. Areas which will not be pre-planted comprise planting to the north-west and south-east of the permanent HVDC converter/HVAC substation (where it connects to the onshore cable corridor), the area required to provide safe access and egress from the B1113, a 5 m buffer around the permanent site and between the permanent footprint and temporary construction site. These areas will not be pre-planted to facilitate the construction works at the site. The above would apply to the optional mitigation offered at paragraph 3.1.3.3. Further details of the pre-planting to be undertaken at the onshore HVDC converter/HVAC substation will be provided in the detailed LP which will be submitted and agreed with the relevant local planning authorities.
- 5.1.3.5 In a two-phase construction programme the remainder of the proposed mitigation planting (i.e. that is not implemented at the commencement of construction works of the first phase), would be implemented during the first available planting season following completion of the first construction phase, unless otherwise agreed with the local planning authority. Some of these areas may subsequently need to be removed to allow construction of the second phase although they would be reinstated again following completion of the second phase. The need for such works will be determined as part of the detailed LP.

6. Onshore Cable Corridor Trees and Hedges

- 6.1.1.1 Section 2.2.7 of the Outline EMP describes that approximately 14.35 km of hedgerows occur within the Hornsea Three onshore cable corridor, many of these would be retained by methods including crossing using trenchless techniques such as HDD and, in total, up to approximately 7.39 km of existing hedgerows would be removed to allow construction of Hornsea Three. Some of these hedges contain trees which will also be removed.
- 6.1.1.2 Protection and re-planting of hedgerows will be implemented to minimise adverse landscape, visual and other potential effects arising as a result of Hornsea Three. Furthermore, enhancement of hedgerows that are retained, currently in poor condition, provides an opportunity to achieve long term benefits.
- 6.1.1.3 Section 2.2.7 of the Outline EMP states that all sections of hedgerow removed to enable construction of the onshore cable corridor (or construction accesses) will be replanted in the first available planting season after each phase of cable installation (or as a construction access is no longer required). Replacement planting will comprise native shallow-rooting hedgerow species typical of the area, planted as 40 – 60 cm high whips, protected with spiral rabbit guards or other forms of protection from grazing. To prevent future root damage to cables, no trees will be planted above the cables (within the land permanently impacted by the Hornsea Three onshore cable corridor). Where a hedgerow with trees is removed, replacement broadleaved native trees will be planted as part of the replacement hedgerow within the land temporarily impacted by the onshore cable corridor, in keeping with the local landscape. Where practicable and as agreed with the land owner, individual trees removed will be replaced in the area temporarily impacted by the onshore cable corridor, in close proximity to its original location. In addition to the reinstatement of hedgerows severed by the onshore cable corridor, where practicable and as agreed with the land owner, hedgerow enhancement will be undertaken within a 100 m wide corridor that will contain the working corridor. This enhancement corridor could, with the example of a 80 m working corridor, extend 20 m to one side of the working corridor, 10 m to either side of the working corridor, or any combination up to a maximum total width of 100 m. The aim of enhancement will be to increase native species diversity and / or improve habitat structure and connectivity across the landscape. Where practicable and as agreed with the land owner, broadleaved native trees will be planted along hedgerows in the enhancement corridor.

- 6.1.1.4 Where hedgerows and tree lines are crossed using open cut trenching techniques, measures will be taken to minimise vegetation removal and damage. These measures are likely to include reducing the length of hedgerow removed at crossing points, where this is possible. This is particularly relevant should Hornsea Three be delivered in two phases. Under this scenario, the contractor would seek to minimise the area which would be disturbed twice, once during the construction of each phase. In practice, only the area which is required to construct both phases (e.g. the haul road) would be disturbed during the construction of both phases. Thus, the majority of hedgerows across the onshore cable corridor would only be removed and replaced once regardless of whether Hornsea Three is delivered in one or two phases.

7. Management

- 7.1.1.1 This section sets out the management prescriptions (regimes) for proposed vegetation. Management, including measures to promote successful establishment for new and replacement hedgerow planting along the onshore cable corridor, will be carried out during the first five years immediately following the completion of planting for each phase, and then returned to the relevant landowner. Woodland, woodland edge planting and hedges associated with the HVAC booster station or HVDC converter/HVAC substation will be managed for the operational life of Hornsea Three, commencing immediately following the completion of planting (or pre-planting as appropriate).
- 7.1.1.2 The Applicant will inform the relevant LPA when replacement and/or new planting for a phase is complete within their local authority boundary (i.e. NNDC would be informed of completion of planting at the HVAC Booster Station and along the cable corridor) and the management period would commence immediately following this notification.
- 7.1.1.3 The landscape proposals are to be managed in accordance with the approved details, with the aims of:
- Maintaining the mitigation (as approved) to minimise the effects of Hornsea Three; and
 - Maximising opportunities for biodiversity enhancement.

7.2 Health & Safety

- 7.2.1.1 At all times it is a requirement that the relevant British Standards, Statutory Regulations and Codes of Practice are complied with. Particular attention should be paid to the latest issues of the following:
- The Food and Environment Protection Act;
 - The Control of Pesticides Regulations;
 - The Control of Substances Hazardous to Health Regulations;
 - The Code of Practice for using Plant Protection Products; and
 - The Health and Safety Work etc. Act.

- 7.2.1.2 The work should be undertaken using appropriate and well-maintained equipment operated by qualified and supervised staff.
- 7.2.1.3 Work should be planned and carried out in a manner and at times to minimise unnecessary disturbance to local residents, as well as taking into account the correct timing of seasonal works such as pruning and hedge cutting to comply with good horticultural practice and any restrictions imposed by ecological constraints.

7.3 Woodland and Woodland Edges

7.3.1.1 Woodland is a key component of the landscape proposals for the onshore HVAC booster station and onshore HVDC converter/HVAC substation. The aim of the management prescriptions is to guide the creation of a well-balanced, naturalistic woodland, with a dense and varied woodland edge and a dense canopy to provide screening. For the first five years, management activities associated with the woodland and woodland edges are designed to encourage establishment, whilst subsequent activities seek to manage the planting during the operational life of Hornsea Three.

- xiii. Adjust stakes and ties at the end of each growing season or at any other time as necessary to maintain support and avoid chafing damage and thus minimise the possibility of infection taking hold within any wounds.
- xiv. Inspect and if necessary repair deer, livestock and rabbit protection fencing regularly to ensure that it is effective at preventing browsing of plants by deer, livestock and rabbits.
- xv. Maintain the ground around each plant weed free for the first five years to minimise competition allowing plants to grow unimpeded.
- xvi. Replace mitigation planting (all trees or plants) that is removed, uprooted, destroyed or dies (or in the opinion of the relevant planning authority, is seriously damaged or defective) annually at the end of each growing season during the first five years, or when it is agreed with the relevant local planning authority that the woodland has established effectively, and individual plant replacement is unnecessary. The detailed LP(s) will include a set of criteria (to be agreed with the relevant local planning authorities) against which effective establishment is determined.
- xvii. Any replacement tree or plant (in accordance with xiv.) will be of the same species and size and in the same location as the original tree or plant, unless otherwise agreed in writing with the relevant planning authority.
- xviii. By year 3 woodland may need to be thinned. When choosing the specimens to be retained, it should be remembered that the primary functions of the woodland are to lessen landscape and visual impacts of Hornsea Three and help to integrate it into its setting. Some specimens with interesting form, windswept habit etc. should be retained alongside more conventional specimens.
- xix. Remove stakes and ties in year 5, or when each plant is deemed firm and self-supporting.
- xx. If used, plant shelters and guards should be removed once the trees/shrubs reach a level of maturity where they can withstand browsing wildlife and livestock.

- xxi. If the thinned specimens are intended to grow back as coppice the cut needs to be angled to ensure water will not pool on the cut.
- xxii. Brushwood and other vegetative arisings, will be stacked within the woodland as small habitat piles, or disposed of off site as instructed.
- xxiii. Deadwood is a particularly important woodland habitat and is of value to bats, birds, invertebrates and fungi. To ensure the woodland has the requisite deadwood habitat, dead and dying trees, where they do not present a significant safety risk, should be retained in a variety of situations. This may include creating eco-stick monoliths, a process of severe pollarding that removes all but the trunk of the tree to create standing deadwood
- xxiv. Plants that pose a health and safety risk will be managed appropriately.

7.3.2 Longer Term Management

- xxv. Beyond the first five years the woodland will require thinning, starting a coppicing process. Cuts will be made on a cyclical rotation to ensure that the screening benefits are not compromised. Coppice cuts should be made to the same level as the previous cut, without stumps proud of the knob. Cuts should be made at an angle, to direct water away from the knob and stop it pooling.
- xxvi. As the woodland matures it is important to identify and develop a plan of succession. The age structure should to be diversified to benefit the widest range of wildlife, the highest level of resilience, and long term effectiveness of screening.
- xxvii. Historic England have requested to view the longer term effects of screening at the HVDC converter/HVAC substation with regard to heritage mitigation and will be granted access to the site providing they give reasonable notice.

7.4 Hedges

7.4.1.1 New and replacement hedges, and existing hedges with gaps planted with new hedge plants and trees, will be managed as described below for five years.

7.4.1.2 The objective is to increase the habitat potential of the hedges, some of which may also have mature trees in them, whilst maintaining them as key features of the surrounding landscape, and to provide screening of Hornsea Three.

- xxviii. Adjust stakes and ties of hedgerow trees at the end of each growing season or at any other time as necessary to maintain support and avoid chafing damage and thus minimise the possibility of infection taking hold within any wounds.
- xxix. Maintain the ground around each plant weed free for the first five years to minimise competition allowing plants to grow unimpeded.
- xxx. Replace mitigation planting (all plants) that is removed, uprooted, destroyed or dies (or becomes in the opinion of the relevant planning authority seriously damaged or defective) annually at the end of each growing season during the first five years, with a plant of the same species and size and in the same location, unless otherwise agreed in writing with the relevant planning authority.

- xxxi. Remove stakes and ties in year 5, or when the trees are deemed firm and self-supporting.
- xxxii. If used, plant shelters and guards should be removed once the trees/shrubs reach a level of maturity where they can withstand browsing wildlife.
- xxxiii. Cut hedges annually between September and February to approximately 2m height, or the height of existing hedges as appropriate. The hedgerows should be managed to create a thick base with a good density of stems.
- xxxiv. Plants that pose a health and safety risk will be managed appropriately.

7.4.1.3 Existing mature hedgerows within the permanent land take at the HVDC converter/HVAC substation site would be subject to paragraph 6.4.1.2 part xxxi and xxxii for the operational life of Hornsea Three.

7.5 Meadow Grass

7.5.1.1 A strip of meadow grass is proposed along the north side of the onshore HVDC converter/HVAC substation to retain a gap between an existing French drain and proposed woodland and woodland edge planting, to allow access for maintenance of the French drain.

7.5.1.2 Meadow grass will be cut every 6 to 8 weeks during the first year following seeding. From the second year onwards it will be cut twice per year, in early spring and late summer for the operational life of Hornsea Three. All cuttings will be removed and unwanted weed species (e.g. creeping thistle and spear thistle) will be removed, either by topping before flowering or using spot treatment with an appropriate herbicide.

7.6 Trees

7.6.1.1 New and replacement trees planted within replacement hedges and potentially within the enhancement corridor, as described in 6.1.1.3, will be managed as described below for five years:

7.6.1.2 The species and other specifications for new tree planting will be agreed in the detailed LP:

- xxxv. Adjust stakes and ties at the end of each growing season or at any other time as necessary to maintain support and avoid chafing damage and thus minimise the possibility of infection taking hold within any wounds.
- xxxvi. Inspect and if necessary repair deer, livestock and rabbit protection fencing regularly to ensure that it is effective at preventing browsing of new trees by deer, livestock and rabbits.
- xxxvii. Maintain the ground around each tree weed free for the first five years to minimise competition allowing trees to grow unimpeded.
- xxxviii. Replace trees that are removed, uprooted, destroyed or die (or in the opinion of the relevant planning authority, become seriously damaged or defective) annually at the end of each growing season during the first five years.

xxxix. Any replacement tree (in accordance with xiv.) will be of the same species and size and in the same location as the original tree or plant, unless otherwise agreed in writing with the relevant planning authority.

- xl. Remove stakes and ties in year 5 or when the trees are deemed firm and self-supporting.
- xli. If used, plant shelters and guards should be removed once the trees/shrubs reach a level of maturity where they can withstand browsing wildlife and livestock.
- xlii. Plants that pose a health and safety risk will be managed appropriately.

8. References

Department for Environment, Food and Rural Affairs (2006). The Code of Practice for using Plant Protection Products 2006;

South Norfolk Council (2015). South Norfolk Local Plan Development Management Policies Document Adoption Version.

The Control of Pesticides Regulations 1986. London, The Stationary Office;

The Control of Substances Hazardous to Health Regulations 2002. London, The Stationary Office;

The Food and Environment Protection Act 1985. London, The Stationary Office; and




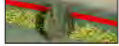

The Health and Safety Work etc. Act 1974. London, The Stationary Office.

Appendix A Drawings

Drawing number	Drawing title
6117_499	Onshore HVAC Booster Station Illustrative Landscape Proposals
6117_500	Onshore HVAC Booster Station Illustrative Planting and Seeding Proposals Sheet 1 of 2
6117_501	Onshore HVAC Booster Station Illustrative Planting and Seeding Proposals Sheet 2 of 2
6117_509	Onshore HVDC Converter/HVAC Substation Illustrative Landscape Proposals
6117_510	Onshore HVDC Converter/HVAC Substation Illustrative Planting and Seeding Proposals Sheet 1 of 2
6117_511	Onshore HVDC Converter/HVAC Substation Illustrative Planting and Seeding Proposals Sheet 2 of 2
6117_512	Onshore HVDC Converter/HVAC Substation Indicative Areas of Vegetation to be Removed



LEGEND

-  Order limits
-  Proposed Woodland
-  Proposed woodland edge and planting over cables
-  Existing hedgerows. Gaps planted with hedgerow plants and oak trees
-  Illustrative HVAC booster station layout. Design including potential additional planting and seeding areas will be determined post consent / pre commencement of the booster station.

REV.	DESCRIPTION	APP.	DATE

LDĀ DESIGN

PROJECT TITLE
HORNSEA PROJECT THREE

DRAWING TITLE
Onshore HVAC Booster Station
Illustrative Landscape Proposals

ISSUED BY	Peterborough	T: 01733 310471	
DATE	Feb 2018	DRAWN	SH
SCALE@A3	1:1,500	CHECKED	PB
STATUS	Planning	APPROVED	PB

DWG. NO. 6117_499

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

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Sources: Esri



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LEGEND

- Order limits
- Minimum area of planting
- Proposed woodland edge
- Proposed woodland
- Proposed cable run planting
- Additional landscape areas
- Additional potential landscape area within indicative scheme. See note 2 below.

- Notes:**
- Indicative onshore HVAC booster station layout is taken from Kelvin drawing number J00299-C-100-B and will change post consent / pre commencement of the onshore HVAC booster station. The detailed design will be informed by the project phasing and project capacity being taken forward.
 - This drawing shows the minimum area of planting around the onshore HVAC booster station. Planting may be extended into the 'additional landscape area' or into the area identified as 'additional landscape area' depending on the final detailed design of the onshore HVAC booster station which will be determined at post consent / pre commencement of the onshore HVAC booster station. The area of 'additional landscape area' or area identified as 'additional landscape area' if not required to accommodate the onshore HVAC booster station will be subject to detailed design using the plant species and mixes outlined above in the 'minimum area of planting'.
 - Within the Order Limits, the cable locations are illustrative and will be confirmed during the post consent / pre commencement of the onshore HVAC booster station. Cables may enter and leave the booster station anywhere along the northern and southern boundaries. A five metre offset between proposed woodland and cables is shown. It is proposed that the land within this offset is planted with a native shrub mix that excludes trees. Both the offset distance and species selection will be confirmed post consent / pre commencement of the onshore HVAC booster station.
 - Extent of vegetation removal will be confirmed post consent / pre commencement of the onshore HVAC booster station. This indicative scheme does not propose removal of any existing trees, shrubs or hedges within the extents of this plan.
 - The proposed planting will be enclosed and protected by 1.8m high deer fence with 800mm high rabbit proof mesh. The detailed design of the fencing will be confirmed post consent / pre commencement of the onshore HVAC booster station.
 - Refer to drawing 6117_501 (Sheet 2 of 2) for proposed planting within wider landscape.

Plant Schedule

Species Name	Height	Specification	No. Plants
Acer campestre	150-175cm	Feathered: 3 brks; 2x: B	155 No.
Betula pendula	150-175cm	Feathered: 3 brks; 2x: B	71 No.
Quercus robur	150-175cm	Feathered: 3 brks; 2x: B	71 No.

Species Name	Height	Pot Size	Specification	No. Plants
Pinus sylvestris	40-60cm	2L	Leader with Laterals: C	171 No.

Species	Height	Specification	No. Plants
Acer campestre	40-60cm	1+1: Transplant - seed raised: B	320 No.
Cornus sanguinea	40-60cm	1+1: Transplant - seed raised: Branched: 2 brks: B	224 No.
Corylus avellana	40-60cm	1+1: Transplant - seed raised: Branched: 2 brks: B	693 No.
Crataegus monogyna	40-60cm	1+1: Transplant - seed raised: B	560 No.
Prunus spinosa	40-60cm	1+1: Transplant - seed raised: Branched: 2 brks: B	466 No.
Rosa canina	40-50cm	1+0: Seedlings: Branched: B	168 No.
Crataegus monogyna	40-60cm	1+1: Transplant - seed raised: B	431 No.
Betula pendula	40-60cm	1+1: Transplant - seed raised: B	408 No.
Castanea sativa	40-60cm	1+1: Transplant - seed raised: B	87 No.
Fagus sylvatica	40-60cm	1+1: Transplant - seed raised: B	87 No.
Quercus robur	40-60cm	1+1: Transplant - seed raised: B	171 No.

Species	Height	Pot Size	Specification	No. Plants
Cytisus scoparius	40-60cm	2L	Bushy: 5 brks: C	111 No.
Ulex europaeus	20-30cm	2L	Bushy: 3 brks: C	111 No.
Ilex aquifolium	30-40cm	2L	Bushy: 2 brks: C	171 No.

Seeding:
Planting may be extended into the 'additional landscape area' or into the area identified as 'additional landscape area' depending on the final detailed design of the onshore HVAC booster station. Proposals within this area may include meadow grassland. Areas of meadow grassland would be seeded with EM3 Special General Purpose Meadow seed at a rate of 4g / sq m.

Woodland edge mix

<p>Mix A1</p> <p>28 No. Acer campestre 40-60cm 15%</p> <p>13 No. Cornus sanguinea 40-60cm 10%</p> <p>19 No. Corylus avellana 40-60cm 10%</p> <p>64 No. Crataegus monogyna 40-60cm 34%</p> <p>6 No. Cytisus scoparius 40-60cm 3%</p> <p>28 No. Prunus spinosa 40-60cm 15%</p> <p>19 No. Rosa canina 40-50cm 10%</p> <p>6 No. Ulex europaeus 20-30cm 3%</p> <p>Density: 1m centres</p>	<p>Mix A2</p> <p>21 No. Acer campestre 40-60cm 15%</p> <p>14 No. Cornus sanguinea 40-60cm 10%</p> <p>14 No. Corylus avellana 40-60cm 10%</p> <p>48 No. Crataegus monogyna 40-60cm 34%</p> <p>5 No. Cytisus scoparius 40-60cm 3%</p> <p>21 No. Prunus spinosa 40-60cm 15%</p> <p>14 No. Rosa canina 40-50cm 10%</p> <p>5 No. Ulex europaeus 20-30cm 3%</p> <p>Density: 1m centres</p>	<p>Mix A3</p> <p>11 No. Acer campestre 40-60cm 15%</p> <p>7 No. Cornus sanguinea 40-60cm 10%</p> <p>7 No. Corylus avellana 40-60cm 10%</p> <p>24 No. Crataegus monogyna 40-60cm 34%</p> <p>3 No. Cytisus scoparius 40-60cm 3%</p> <p>11 No. Prunus spinosa 40-60cm 15%</p> <p>7 No. Rosa canina 40-50cm 10%</p> <p>3 No. Ulex europaeus 20-30cm 3%</p> <p>Density: 1m centres</p>	<p>Mix A4</p> <p>71 No. Acer campestre 40-60cm 15%</p> <p>48 No. Cornus sanguinea 40-60cm 10%</p> <p>48 No. Corylus avellana 40-60cm 10%</p> <p>160 No. Crataegus monogyna 40-60cm 34%</p> <p>15 No. Cytisus scoparius 40-60cm 3%</p> <p>71 No. Prunus spinosa 40-60cm 15%</p> <p>48 No. Rosa canina 40-50cm 10%</p> <p>15 No. Ulex europaeus 20-30cm 3%</p> <p>Density: 1m centres</p>	<p>Mix A5</p> <p>37 No. Acer campestre 40-60cm 15%</p> <p>25 No. Cornus sanguinea 40-60cm 10%</p> <p>25 No. Corylus avellana 40-60cm 10%</p> <p>82 No. Crataegus monogyna 40-60cm 34%</p> <p>8 No. Cytisus scoparius 40-60cm 3%</p> <p>37 No. Prunus spinosa 40-60cm 15%</p> <p>25 No. Rosa canina 40-50cm 10%</p> <p>8 No. Ulex europaeus 20-30cm 3%</p> <p>Density: 1m centres</p>
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Woodland mix

<p>Mix B1</p> <p>8 No. Acer campestre 150-175cm 9%</p> <p>4 No. Acer campestre 40-60cm 4%</p> <p>20 No. Betula pendula 40-60cm 24%</p> <p>4 No. Betula pendula 150-175cm 4%</p> <p>4 No. Castanea sativa 40-60cm 5%</p> <p>12 No. Corylus avellana 40-60cm 15%</p> <p>4 No. Fagus sylvatica 40-60cm 5%</p> <p>8 No. Ilex aquifolium 30-40cm 10%</p> <p>8 No. Pinus sylvestris 40-60cm 10%</p> <p>4 No. Quercus robur 150-175cm 4%</p> <p>8 No. Quercus robur 40-60cm 10%</p> <p>Density: 2m centres</p>	<p>Mix B2</p> <p>22 No. Acer campestre 150-175cm 9%</p> <p>10 No. Acer campestre 40-60cm 4%</p> <p>26 No. Betula pendula 40-60cm 24%</p> <p>10 No. Betula pendula 150-175cm 4%</p> <p>12 No. Castanea sativa 40-60cm 5%</p> <p>36 No. Corylus avellana 40-60cm 15%</p> <p>12 No. Fagus sylvatica 40-60cm 5%</p> <p>24 No. Ilex aquifolium 30-40cm 10%</p> <p>24 No. Pinus sylvestris 40-60cm 10%</p> <p>10 No. Quercus robur 150-175cm 4%</p> <p>24 No. Quercus robur 40-60cm 10%</p> <p>Density: 2m centres</p>	<p>Mix B3</p> <p>100 No. Acer campestre 150-175cm 9%</p> <p>45 No. Acer campestre 40-60cm 4%</p> <p>26 No. Betula pendula 40-60cm 24%</p> <p>46 No. Betula pendula 150-175cm 4%</p> <p>56 No. Castanea sativa 40-60cm 5%</p> <p>166 No. Corylus avellana 40-60cm 15%</p> <p>56 No. Fagus sylvatica 40-60cm 5%</p> <p>111 No. Ilex aquifolium 30-40cm 10%</p> <p>111 No. Pinus sylvestris 40-60cm 10%</p> <p>45 No. Quercus robur 150-175cm 4%</p> <p>111 No. Quercus robur 40-60cm 10%</p> <p>Density: 2m centres</p>	<p>Mix B4</p> <p>8 No. Acer campestre 150-175cm 9%</p> <p>4 No. Acer campestre 40-60cm 4%</p> <p>44 No. Betula pendula 40-60cm 24%</p> <p>4 No. Betula pendula 150-175cm 4%</p> <p>5 No. Castanea sativa 40-60cm 5%</p> <p>13 No. Corylus avellana 40-60cm 15%</p> <p>5 No. Fagus sylvatica 40-60cm 5%</p> <p>9 No. Ilex aquifolium 30-40cm 10%</p> <p>9 No. Pinus sylvestris 40-60cm 10%</p> <p>4 No. Quercus robur 150-175cm 4%</p> <p>9 No. Quercus robur 40-60cm 10%</p> <p>Density: 2m centres</p>	<p>Mix B5</p> <p>17 No. Acer campestre 150-175cm 9%</p> <p>8 No. Acer campestre 40-60cm 4%</p> <p>21 No. Betula pendula 40-60cm 24%</p> <p>8 No. Betula pendula 150-175cm 4%</p> <p>10 No. Castanea sativa 40-60cm 5%</p> <p>28 No. Corylus avellana 40-60cm 15%</p> <p>10 No. Fagus sylvatica 40-60cm 5%</p> <p>19 No. Ilex aquifolium 30-40cm 10%</p> <p>19 No. Pinus sylvestris 40-60cm 10%</p> <p>8 No. Quercus robur 150-175cm 4%</p> <p>19 No. Quercus robur 40-60cm 10%</p> <p>Density: 2m centres</p>
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Cable run planting mix

<p>Mix C1</p> <p>12 No. Cornus sanguinea 40-60cm 5%</p> <p>57 No. Corylus avellana 40-60cm 25%</p> <p>91 No. Crataegus monogyna 40-60cm 40%</p> <p>12 No. Cytisus scoparius 40-60cm 5%</p> <p>46 No. Prunus spinosa 40-60cm 20%</p> <p>12 No. Ulex europaeus 20-30cm 5%</p> <p>Density: 1m centres</p>	<p>Mix C2</p> <p>20 No. Cornus sanguinea 40-60cm 5%</p> <p>98 No. Corylus avellana 40-60cm 25%</p> <p>157 No. Crataegus monogyna 40-60cm 40%</p> <p>20 No. Cytisus scoparius 40-60cm 5%</p> <p>79 No. Prunus spinosa 40-60cm 20%</p> <p>20 No. Ulex europaeus 20-30cm 5%</p> <p>Density: 1m centres</p>	<p>Mix C3</p> <p>11 No. Cornus sanguinea 40-60cm 5%</p> <p>53 No. Corylus avellana 40-60cm 25%</p> <p>84 No. Crataegus monogyna 40-60cm 40%</p> <p>11 No. Cytisus scoparius 40-60cm 5%</p> <p>42 No. Prunus spinosa 40-60cm 20%</p> <p>11 No. Ulex europaeus 20-30cm 5%</p> <p>Density: 1m centres</p>	<p>Mix C4</p> <p>13 No. Cornus sanguinea 40-60cm 5%</p> <p>62 No. Corylus avellana 40-60cm 25%</p> <p>89 No. Crataegus monogyna 40-60cm 40%</p> <p>13 No. Cytisus scoparius 40-60cm 5%</p> <p>50 No. Prunus spinosa 40-60cm 20%</p> <p>13 No. Ulex europaeus 20-30cm 5%</p> <p>Density: 1m centres</p>
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REV. DESCRIPTION APP. DATE

LDĀDESIGN

PROJECT TITLE
HORNSEA PROJECT THREE

DRAWING TITLE
Onshore HVAC Booster Station
Illustrative Planting and Seeding Proposals
Sheet 1 of 2

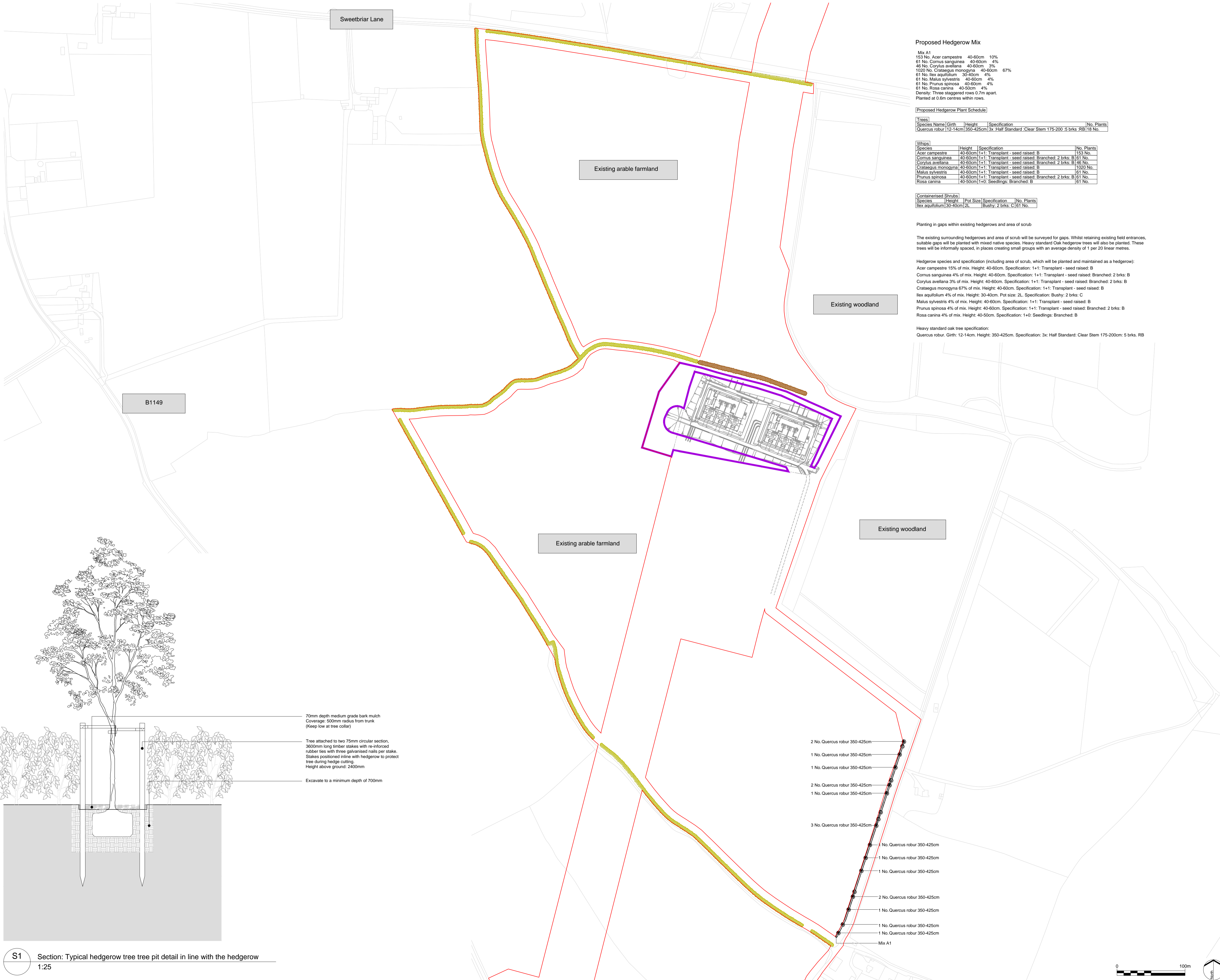
ISSUED BY: Peterborough T: 01733 310 471
 DATE: Jan 18 DRAWN: SH
 SCALE: A1 1:500 CHECKED: PB
 STATUS: Planning APPROVED: PB

DWG. NO 6117_500

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 All dimensions are to be checked on site.
 Area measurements for indicative purposes only.

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 Sources: Esri





Proposed Hedgerow Mix

Mix A1
 153 No. Acer campestre 40-60cm 10%
 61 No. Cornus sanguinea 40-60cm 4%
 48 No. Corylus avellana 40-60cm 3%
 1020 No. Crataegus monogyna 40-60cm 67%
 61 No. Ilex aquifolium 30-40cm 4%
 61 No. Malus sylvestris 40-60cm 4%
 61 No. Prunus spinosa 40-60cm 4%
 61 No. Rosa canina 40-50cm 4%
 Density: Three staggered rows 0.7m apart.
 Planted at 0.6m centres within rows.

Proposed Hedgerow Plant Schedule

Species Name	Girth	Height	Specification	No. Plants
Quercus robur	12-14cm	350-425cm	3x Half Standard Clear Stem 175-200 5 brks RB18 No.	

Species	Height	Specification	No. Plants
Acer campestre	40-60cm	1+1 Transplant - seed raised: B	153 No.
Cornus sanguinea	40-60cm	1+1 Transplant - seed raised: Branched: 2 brks: B	61 No.
Corylus avellana	40-60cm	1+1 Transplant - seed raised: Branched: 2 brks: B	48 No.
Crataegus monogyna	40-60cm	1+1 Transplant - seed raised: B	1020 No.
Malus sylvestris	40-60cm	1+1 Transplant - seed raised: B	61 No.
Prunus spinosa	40-60cm	1+1 Transplant - seed raised: Branched: 2 brks: B	61 No.
Rosa canina	40-50cm	1+0 Seedlings: Branched: B	61 No.

Species	Height	Pot Size	Specification	No. Plants
Ilex aquifolium	30-40cm	2L	Bushy; 2 brks: C	61 No.

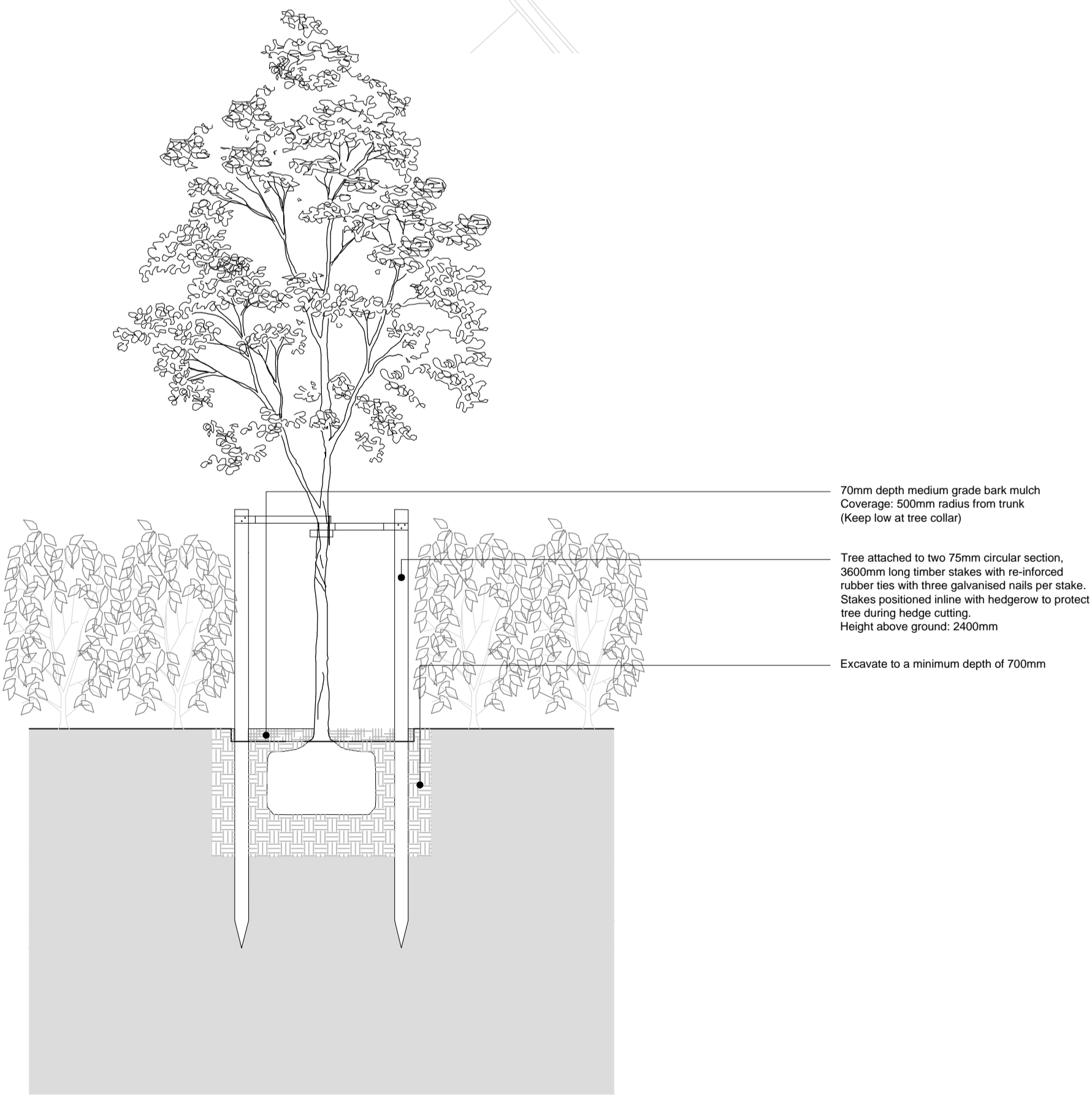
Planting in gaps within existing hedgerows and area of scrub
 The existing surrounding hedgerows and area of scrub will be surveyed for gaps. Whilst retaining existing field entrances, suitable gaps will be planted with mixed native species. Heavy standard Oak hedgerow trees will also be planted. These trees will be informally spaced, in places creating small groups with an average density of 1 per 20 linear metres.

Hedgerow species and specification (including area of scrub, which will be planted and maintained as a hedgerow):
 Acer campestre 15% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: B
 Cornus sanguinea 4% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: Branched: 2 brks: B
 Corylus avellana 3% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: Branched: 2 brks: B
 Crataegus monogyna 67% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: B
 Ilex aquifolium 4% of mix. Height: 30-40cm. Pot size: 2L. Specification: Bushy; 2 brks: C
 Malus sylvestris 4% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: B
 Prunus spinosa 4% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: Branched: 2 brks: B
 Rosa canina 4% of mix. Height: 40-50cm. Specification: 1+0: Seedlings: Branched: B

Heavy standard oak tree specification:
 Quercus robur. Girth: 12-14cm. Height: 350-425cm. Specification: 3x: Half Standard Clear Stem 175-200cm: 5 brks. RB

LEGEND

- Order limits
- Refer to 6117_500 (Sheet 1 of 2) for detailed proposals
- Proposed hedgerow
- Hedgerow to be surveyed and gaps planted.
- Area of scrub to be surveyed and gaps planted and maintained as hedgerow.



70mm depth medium grade bark mulch
 Coverage: 500mm radius from trunk
 (Keep low at tree collar)

Tree attached to two 75mm circular section,
 3600mm long timber stakes with re-inforced
 rubber ties with three galvanised nails per stake.
 Stakes positioned inline with hedgerow to protect
 tree during hedge cutting.
 Height above ground: 2400mm

Excavate to a minimum depth of 700mm

- 2 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 2 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 3 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 2 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- 1 No. Quercus robur 350-425cm
- Mix A1

S1 Section: Typical hedgerow tree tree pit detail in line with the hedgerow
 1:25

REV. DESCRIPTION APP. DATE

LDĀDESIGN

PROJECT TITLE
HORNSEA PROJECT THREE

DRAWING TITLE
**Onshore HVAC Booster Station
 Illustrative Planting and Seeding Proposals
 Sheet 2 of 2**

ISSUED BY Peterborough T: 01733 310 471
 DATE Jan '18 DRAWN SH
 SCALE@A1 1:2,500 CHECKED PB
 STATUS Planning APPROVED PB

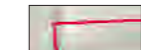


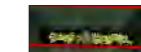


DWG. NO 6117_501

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 Sources Ordnance Survey





LEGEND

-  Order limits
-  Proposed woodland
-  Proposed woodland edge and planting over cables
-  Existing hedgerows. Gaps planted with hedgerow plants and oak trees.
-  Potential woodland planting subject to agreement with residents of adjacent properties
-  Illustrative HVDC converter/HVAC substation layout Design including potential additional planting and seeding areas will be determined post consent / pre commencement of the substation.

REV.	DESCRIPTION	APP.	DATE

LD A DESIGN

PROJECT TITLE
HORNSEA PROJECT THREE

DRAWING TITLE
Onshore HVAC Converter/HVAC Substation
Illustrative Landscape Proposals

ISSUED BY	Peterborough	T: 01733 310471	
DATE	Feb 2018	DRAWN	SH
SCALE@A3	1:3,000	CHECKED	PB
STATUS	Planning	APPROVED	PB

DWG. NO. 6117_509

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Sources: Esri





LEGEND

- Order limits
- Minimum area of planting and seeding
- Proposed woodland edge
- Proposed woodland
- Proposed cable run planting
- Proposed meadow grass
- Additional landscape areas
- Additional potential landscape area within indicative scheme. See note 2 below.

- Notes:**
- Indicative onshore HVDC converter/HVAC substation layout is taken from Kelvin drawing number J00299-C-300 and will change post consent / pre commencement of the HVDC converter/HVAC substation. The detailed design will be informed by the project phasing and project capacity being taken forward.
 - This drawing shows the minimum area of planting around the onshore HVDC converter/HVAC substation. Planting may be extended into the 'additional landscape area' or into the area identified as indicative substation layout depending on the final detailed design of the onshore HVDC converter/HVAC substation which will be determined post consent / pre commencement of the HVDC converter/HVAC substation. The area of additional landscape area or area identified as indicative substation layout if not required to accommodate the HVDC converter/HVAC substation will be subject to detailed design using the plant species and mixes outlined above in the 'minimum area of planting and seeding'. If the onshore HVDC converter/HVAC substation is constructed in two phases with a gap between phases, landscape proposals outside 'minimum area of planting and seeding' will be subject to a potentially temporary landscape scheme during the gap between phases.
 - Within the Order Limits, the cable locations are illustrative and will be confirmed during post consent / pre commencement of the HVDC converter/HVAC substation. Cables may enter and leave the substation anywhere along the northern and southern boundaries. A five metre offset between proposed woodland and cables is shown. It is proposed that the land within this offset is planted with a native shrub mix that excludes trees. Both the offset distance and species selection will be confirmed by post consent / pre commencement of the HVDC converter/HVAC substation.
 - The proposed planting will be enclosed and protected by 1.8m high deer fence with 800mm high rabbit proof mesh. The detailed design of the fencing will be confirmed post consent / pre commencement of the HVDC converter/HVAC substation. Existing hedges and trees are to be retained and protected, except where access and cable routes require their removal. Indicative extent of removal of existing trees, shrubs or hedges within the extents of this plan to allow for the construction of the onshore HVDC converter/HVAC substation is shown on drawing 6117_512.
 - Extent of vegetation removal will be confirmed post consent / pre commencement of the HVDC converter/HVAC substation. A French drain exists along the northern boundary of the landscape proposals south of the A47. The proposals include 5m wide strip free of planting between the drain and woodland edge. The offset between planting and the French drain will be confirmed post consent / pre commencement of the HVDC converter/HVAC substation.
 - A landscape scheme for replacement of hedgerows removed and new tree, woodland and woodland edge planting at the site entrance will be confirmed post consent / pre commencement of the HVDC converter/HVAC substation. This will need to address construction and operation requirements and constraints including sightlines, easements and access. The key landscape principles along the B1113 are:
 - Retain all existing hedgerows, trees and scrub along the site boundary with the B1113 except where removal is necessary to allow construction and operation access.
 - The import cables will be installed across the B1113 using trenchless installation techniques (i.e. Horizontal Directional Drilling) which will not require removal of roadside hedgerows.
 - On completion of construction, replace hedges removed during the construction phase, and extend the woodland and woodland edge planting that is proposed to the north and south of the site entrance, to minimise the gap in roadside vegetation and maximise screening of the onshore HVDC converter/HVAC substation.
 - Planting alongside existing pylons and overhead lines is to be maintained in accordance with the requirements of National Grid, to ensure no interference with power lines.
 - Refer to drawing 6117_511 (Sheet 2 of 2) for proposed planting within wider landscape.

Plant Schedule

Species Name	Height	Specification	No. Plants
Acer campestre	150-175cm	Feathered: 3 brks: 2x: B	193 No.
Betula pendula	150-175cm	Feathered: 3 brks: 2x: B	322 No.
Prunus avium	150-175cm	Feathered: 5 brks: 2x: B	193 No.
Quercus robur	150-175cm	Feathered: 3 brks: 2x: B	322 No.

Whips

Species	Height	Specification	No. Plants
Acer campestre	40-60cm	1+1: Transplant - seed raised: B	1028 No.
Betula pendula	40-60cm	1+1: Transplant - seed raised: B	1601 No.
Castanea sativa	40-60cm	1+1: Transplant - seed raised: B	322 No.
Cornus sanguinea	40-60cm	1+1: Transplant - seed raised: Branched: 2 brks: B	784 No.
Corylus avellana	40-60cm	1+1: Transplant - seed raised: Branched: 2 brks: B	2170 No.
Crataegus monogyna	40-60cm	1+1: Transplant - seed raised: B	1344 No.
Crataegus monogyna	40-60cm	1+1: Transplant - seed raised: B	1637 No.
Fagus sylvatica	40-60cm	1+1: Transplant - seed raised: B	322 No.
Malus sylvestris	40-60cm	1+1: Transplant - seed raised: B	195 No.
Prunus avium	40-60cm	1+0: Seedlings: B	517 No.
Prunus spinosa	40-60cm	1+1: Transplant - seed raised: Branched: 2 brks: B	1398 No.
Quercus robur	40-60cm	1+1: Transplant - seed raised: B	897 No.
Rosa canina	40-60cm	1+0: Seedlings: Branched: B	195 No.

Containerised Shrubs

Species	Height	Pot Size	Specification	No. Plants
Cytisus scoparius	40-60cm	2L	Bushy: 3 brks: C	205 No.
Ilex aquifolium	30-40cm	2L	Bushy: 2 brks: C	514 No.
Ulex europaeus	20-30cm	2L	Bushy: 3 brks: C	205 No.

Seeding

Meadow grassland
Area to be seeded with EM3 Meadow seed 1.750m²
Seed at a rate of 4g / sq m
EM3 Special General Purpose Meadow seed required 7.0kg

Woodland edge mix

Mix A.1
90 No. Acer campestre 40-60cm 10%
135 No. Cornus sanguinea 40-60cm 15%
30 No. Corylus avellana 40-60cm 10%
314 No. Crataegus monogyna 40-60cm 35%
45 No. Malus sylvestris 40-60cm 5%
45 No. Prunus avium 40-60cm 5%
135 No. Prunus spinosa 40-60cm 15%
45 No. Rosa canina 40-60cm 5%
Density: 1m centres

Mix A.2
59 No. Acer campestre 40-60cm 10%
88 No. Cornus sanguinea 40-60cm 15%
59 No. Corylus avellana 40-60cm 10%
204 No. Crataegus monogyna 40-60cm 35%
30 No. Malus sylvestris 40-60cm 5%
30 No. Prunus avium 40-60cm 5%
88 No. Prunus spinosa 40-60cm 15%
30 No. Rosa canina 40-60cm 5%
Density: 1m centres

Mix A.3
16 No. Acer campestre 40-60cm 10%
20 No. Cornus sanguinea 40-60cm 15%
16 No. Corylus avellana 40-60cm 10%
56 No. Crataegus monogyna 40-60cm 35%
8 No. Malus sylvestris 40-60cm 5%
8 No. Prunus avium 40-60cm 5%
24 No. Prunus spinosa 40-60cm 15%
8 No. Rosa canina 40-60cm 5%
Density: 1m centres

Mix A.4
51 No. Acer campestre 40-60cm 10%
76 No. Cornus sanguinea 40-60cm 15%
51 No. Corylus avellana 40-60cm 10%
175 No. Crataegus monogyna 40-60cm 35%
26 No. Malus sylvestris 40-60cm 5%
26 No. Prunus avium 40-60cm 5%
76 No. Prunus spinosa 40-60cm 15%
26 No. Rosa canina 40-60cm 5%
Density: 1m centres

Mix A.5
157 No. Acer campestre 40-60cm 10%
236 No. Cornus sanguinea 40-60cm 15%
157 No. Corylus avellana 40-60cm 10%
548 No. Crataegus monogyna 40-60cm 35%
79 No. Malus sylvestris 40-60cm 5%
79 No. Prunus avium 40-60cm 5%
236 No. Prunus spinosa 40-60cm 15%
79 No. Rosa canina 40-60cm 5%
Density: 1m centres

Mix A.6
13 No. Acer campestre 40-60cm 10%
20 No. Cornus sanguinea 40-60cm 15%
13 No. Corylus avellana 40-60cm 10%
45 No. Crataegus monogyna 40-60cm 35%
7 No. Malus sylvestris 40-60cm 5%
7 No. Prunus avium 40-60cm 5%
20 No. Prunus spinosa 40-60cm 15%
7 No. Rosa canina 40-60cm 5%
Density: 1m centres

Woodland Mix

Mix B.1
16 No. Acer campestre 150-175cm 3%
174 No. Acer campestre 40-60cm 10%
434 No. Betula pendula 40-60cm 25%
87 No. Betula pendula 150-175cm 5%
87 No. Castanea sativa 40-60cm 5%
208 No. Corylus avellana 40-60cm 12%
87 No. Fagus sylvatica 40-60cm 5%
139 No. Ilex aquifolium 30-40cm 8%
52 No. Prunus avium 150-175cm 3%
87 No. Prunus avium 40-60cm 5%
243 No. Quercus robur 40-60cm 14%
87 No. Quercus robur 150-175cm 5%
Density: 2m centres

Mix B.2
16 No. Acer campestre 150-175cm 3%
53 No. Acer campestre 40-60cm 10%
132 No. Betula pendula 40-60cm 25%
27 No. Betula pendula 150-175cm 5%
27 No. Castanea sativa 40-60cm 5%
64 No. Corylus avellana 40-60cm 12%
87 No. Fagus sylvatica 40-60cm 5%
43 No. Ilex aquifolium 30-40cm 8%
16 No. Prunus avium 150-175cm 3%
27 No. Prunus avium 40-60cm 5%
74 No. Quercus robur 40-60cm 14%
27 No. Quercus robur 150-175cm 5%
Density: 2m centres

Mix B.3
117 No. Acer campestre 150-175cm 3%
389 No. Acer campestre 40-60cm 10%
971 No. Betula pendula 40-60cm 25%
195 No. Betula pendula 150-175cm 5%
195 No. Castanea sativa 40-60cm 5%
466 No. Corylus avellana 40-60cm 12%
195 No. Fagus sylvatica 40-60cm 5%
311 No. Ilex aquifolium 30-40cm 8%
117 No. Prunus avium 150-175cm 3%
195 No. Prunus avium 40-60cm 5%
544 No. Quercus robur 40-60cm 14%
195 No. Quercus robur 150-175cm 5%
Density: 2m centres

Mix B.4
8 No. Acer campestre 150-175cm 3%
26 No. Acer campestre 40-60cm 10%
64 No. Betula pendula 40-60cm 25%
13 No. Betula pendula 150-175cm 5%
13 No. Castanea sativa 40-60cm 5%
31 No. Corylus avellana 40-60cm 12%
13 No. Fagus sylvatica 40-60cm 5%
21 No. Ilex aquifolium 30-40cm 8%
8 No. Prunus avium 150-175cm 3%
13 No. Prunus avium 40-60cm 5%
36 No. Quercus robur 40-60cm 14%
13 No. Quercus robur 150-175cm 5%
Density: 2m centres

Cable run planting mix

Mix C1
70 No. Cornus sanguinea 40-60cm 5%
350 No. Corylus avellana 40-60cm 25%
560 No. Crataegus monogyna 40-60cm 40%
8 No. Cytisus scoparius 40-60cm 5%
280 No. Prunus spinosa 40-60cm 20%
70 No. Ulex europaeus 20-30cm 5%
Density: 1m centres

Mix C1
117 No. Cornus sanguinea 40-60cm 5%
38 No. Corylus avellana 40-60cm 25%
62 No. Crataegus monogyna 40-60cm 40%
8 No. Cytisus scoparius 40-60cm 5%
31 No. Prunus spinosa 40-60cm 20%
70 No. Ulex europaeus 20-30cm 5%
Density: 1m centres

Mix C1
127 No. Cornus sanguinea 40-60cm 5%
634 No. Corylus avellana 40-60cm 25%
1015 No. Crataegus monogyna 40-60cm 40%
127 No. Cytisus scoparius 40-60cm 5%
508 No. Prunus spinosa 40-60cm 20%
127 No. Ulex europaeus 20-30cm 5%
Density: 1m centres

REV. DESCRIPTION APP. DATE

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PROJECT TITLE
HORNSEA PROJECT THREE

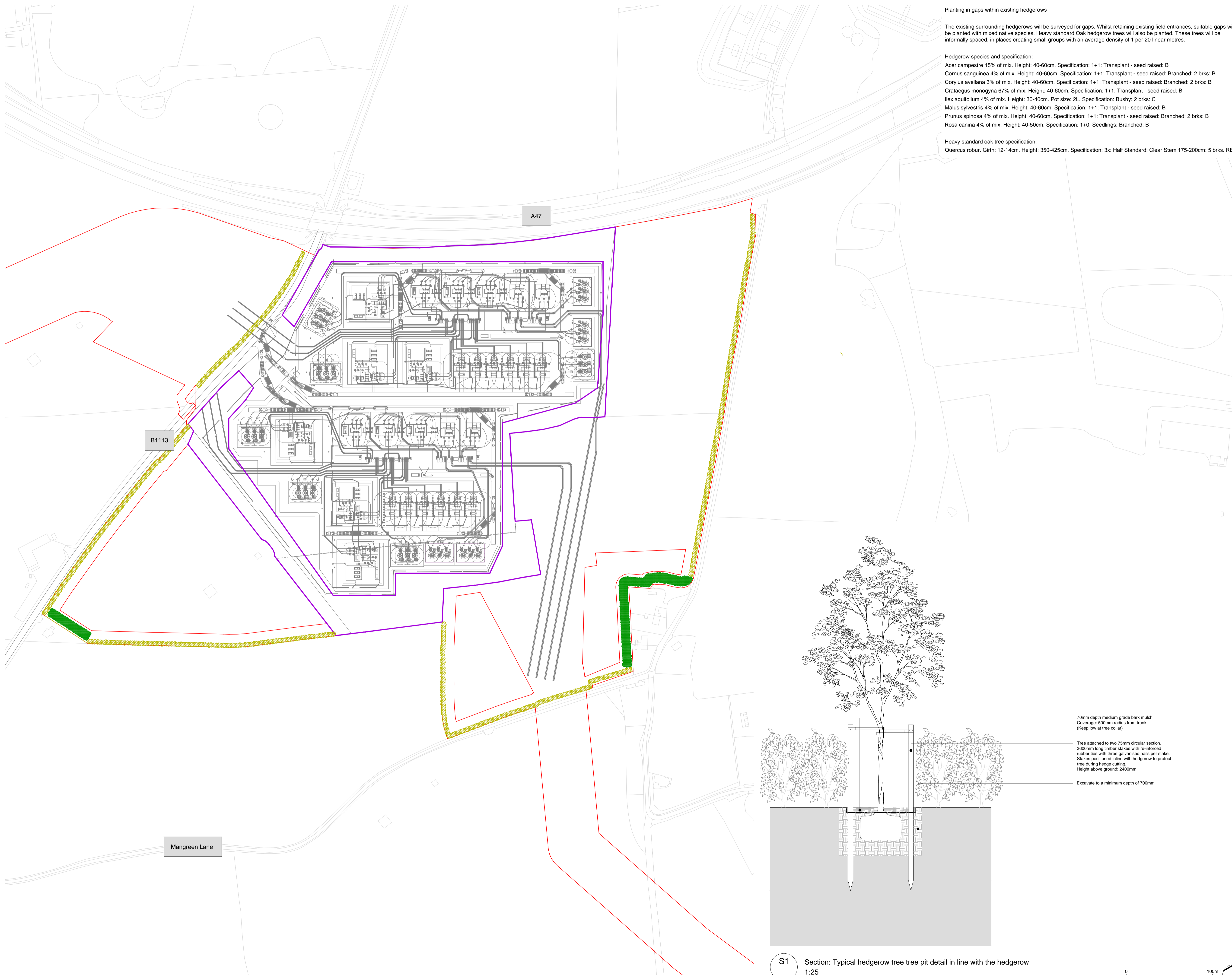
DRAWING TITLE
Onshore HVDC Converter/HVAC Substation
Illustrative Planting and Seeding Proposals
Sheet 1 of 2

ISSUED BY Peterborough T: 01733 310 471
DATE Jan '18 DRAWN SH
SCALE 1:1,000 CHECKED PB
STATUS Planning APPROVED PB

DWG. NO 6117_510

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

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Sources: Esri



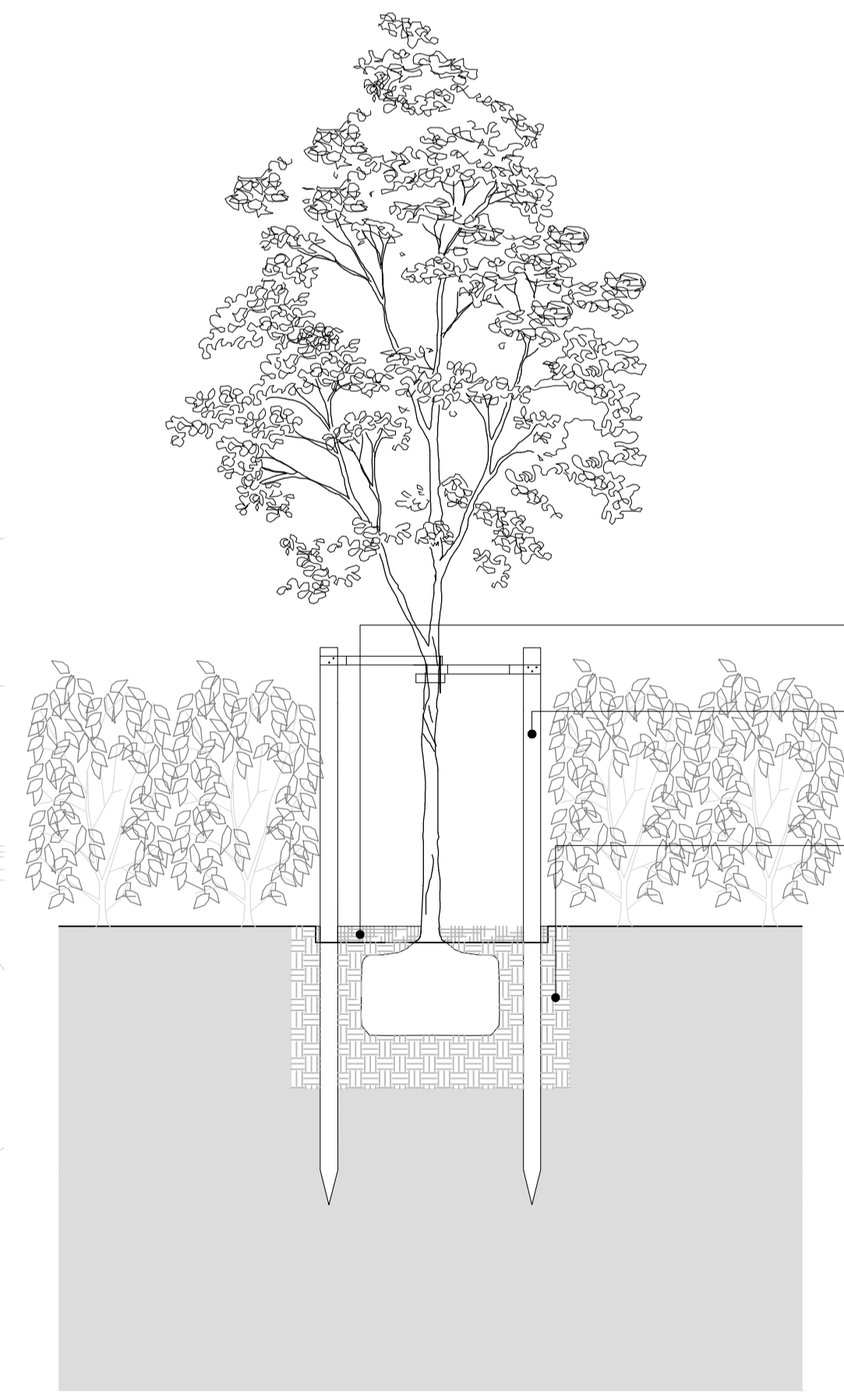
Planting in gaps within existing hedgerows
 The existing surrounding hedgerows will be surveyed for gaps. Whilst retaining existing field entrances, suitable gaps will be planted with mixed native species. Heavy standard Oak hedgerow trees will also be planted. These trees will be informally spaced, in places creating small groups with an average density of 1 per 20 linear metres.

Hedgerow species and specification:
 Acer campestre 15% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: B
 Cornus sanguinea 4% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: Branched: 2 brks: B
 Corylus avellana 3% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: Branched: 2 brks: B
 Crataegus monogyna 67% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: B
 Ilex aquifolium 4% of mix. Height: 30-40cm. Pot size: 2L. Specification: Bushy: 2 brks: C
 Malus sylvestris 4% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: B
 Prunus spinosa 4% of mix. Height: 40-60cm. Specification: 1+1: Transplant - seed raised: Branched: 2 brks: B
 Rosa canina 4% of mix. Height: 40-50cm. Specification: 1+0: Seedlings: Branched: B

Heavy standard oak tree specification:
 Quercus robur. Girth: 12-14cm. Height: 350-425cm. Specification: 3x: Half Standard: Clear Stem 175-200cm: 5 brks. RB

LEGEND

	Order limits
	Refer to 6117_510 (Sheet 1 of 2) for detailed proposals
	Hedgerow to be surveyed and gaps planted.
	Potential woodland planting area, subject to consultation with adjacent residential land owners



70mm depth medium grade bark mulch
 Coverage: 500mm radius from trunk
 (Keep low at tree collar)

Tree attached to two 75mm circular section,
 3600mm long timber stakes with re-inforced
 rubber ties with three galvanised nails per stake.
 Stakes positioned inline with hedgerow to protect
 tree during hedge cutting.
 Height above ground: 2400mm

Excavate to a minimum depth of 700mm

S1 Section: Typical hedgerow tree tree pit detail in line with the hedgerow
 1:25

REV.	DESCRIPTION	APP.	DATE

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PROJECT TITLE
HORNSEA PROJECT THREE

DRAWING TITLE
**Onshore HVDC Converter/HVAC Substation
 Illustrative Planting and Seeding Proposals
 Sheet 2 of 2**

ISSUED BY	Peterborough	T: 01733 310 471
DATE	Jan. '18	DRAWN SH
SCALE@A1	1:2,000	CHECKED PB
STATUS	Planning	APPROVED PB

DWG. NO 6117_511

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 Sources: Ordnance Survey





LEGEND

Order limits

Indicative extent of removal of existing trees, shrubs or hedges within the extents of this plan to allow for the construction of the indicative onshore HVDC converter/HVAC substation. Extent of vegetation removal will be confirmed post consent / pre commencement of the HVDC converter/HVAC substation.

REV. DESCRIPTION APP. DATE

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PROJECT TITLE
HORNSEA PROJECT THREE

DRAWING TITLE
Onshore HVDC Converter/HVAC Substation
Indicative Areas of Vegetation to be Removed

ISSUED BY	Peterborough	T: 01733 310 471
DATE	March '18	DRAWN DaM
SCALE@A1	1:1,000	CHECKED PB
STATUS	Planning	APPROVED PB

DWG. NO 6117_512

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