Onshore Converter Station

Landscape Management Scheme

DCO Requirement 14 (1) & (2)

(Applicable to Works Numbers 62 to 69)

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Revision Summary				
Rev	**Date**	**Prepared by**	**Checked by**	**Approved by**
1	15/04/2021	Kay Griffin	Phil Rew-Williamson	David Boyd
2	28/01/22	John Dawkins	Phil Rew-Williamson	Gareth Mills
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Description of Revisions			
Rev	**Page**	**Section**	**Description**
1	All	All	New Document
2	All	All	Amended following comments from MSDC and input of design information from Converter Station Principal Contractor
3	All	All	Amended following comments from MSDC (17/02/22) on Final Draft document

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1. INTRODUCTION AND SCOPE

1.1. Project Overview

1. East Anglia Three Limited (EATL) was awarded a Development Consent Order (DCO) by the Secretary of State, Department of Business, Energy and Industrial Strategy (DBEIS) on 7 August 2017 for the East Anglia THREE Offshore Windfarm (EA THREE). The DCO granted consent for the development of a 1200MW offshore windfarm and associated infrastructure and is live until 28 August 2022.

2. The DCO has now been subject to three non-material variations:

- In March 2019 EATL submitted a non-material change application to DBEIS to amend the consent to increase the maximum generating capacity from 1,200MW to 1,400MW and to limit the maximum number of gravity base foundations to 100. In June 2019 DBEIS authorised the proposed change application and issued an Amendments Order.
- In July 2020 EATL submitted a second non-material change application to DBEIS to amend the parameters of its offshore substations (reducing the number of these to one) and wind turbines (a decrease in the number of turbines and an increase in their hub height and rotor radius). On 15 April 2021 DBEIS authorised this proposed change application and issued an Amendments Order.
- In August 2021 EATL submitted a third non-material change application to DBEIS to amend the consent to remove the maximum generating capacity of 1,400MW and to amend the parameters of its wind turbines (a decrease in the number of turbines and an increase in their hub height and rotor radius). The application is currently in the consultation phase.

3. The onshore construction works associated with EA THREE will have a capacity of 1400MW and transmission connection of 1320MW. The construction works will be spread across a 37km corridor between the Suffolk coast at Bawdsey and the Converter Station at Bramford, passing the northern side of Ipswich. As a result of the strategic approach taken, the cables will be pulled through pre-installed ducts laid during the onshore works for East Anglia ONE Offshore Windfarm (EA ONE), thereby substantially reducing the impacts of connecting to the National Grid (NG) at the same location. The infrastructure to be installed for EA THREE, therefore, comprises:

- The landfall site with one associated transition bay location with two transition bays containing the connection between the offshore and onshore cables;
- Two onshore electrical cables (single core);
- Up to 62 jointing bay locations each with up to two jointing bays;
- One onshore Converter Station, adjacent to the EA ONE Substation;
- Three cables to link the Converter Station to the National Grid Bramford Substation;
- Up to three onshore fibre optic cables; and
- Landscaping and tree planting around the onshore Converter Station location.

4. Since the granting of the DCO, the decision has been made that the electrical connection for EA THREE will comprise a high voltage direct current (HVDC) cable rather than a high voltage alternating current cable and, therefore, the type of substation that will be required is a HVDC converter station. The substation will, therefore, be referred to here as a 'converter station' and this amended terminology has been agreed with the relevant authorities on 15 October 2020. It has also been determined that only one converter station will be constructed rather than two and that the Converter Station will be installed in a single construction phase.

1.2. Purpose and Scope

5. This Landscape Management Scheme describes the landscape proposals and the general maintenance requirements for the landscape proposals for the EA THREE onshore Converter Station Stage. This document has been produced to fulfil DCO Requirement 14 (1) & (2) which states:

> ***Provision of landscaping***
>
> *14.—(1) No stage of the connection works may commence until for that stage a written landscaping management scheme and associated work programme (which accords with the outline landscape and ecological management strategy) has been submitted to and approved by the relevant planning authority in consultation with Natural England.*
>
> *(2) The landscaping management scheme must include details of all proposed hard and soft landscaping works, including—*

(a) location, number, species, size and planting density of any proposed planting, including any trees;

(b) cultivation, importing of materials and other operations to ensure plant establishment;

(c) proposed finished ground levels;

(d) hard surfacing materials;

(e) vehicular and pedestrian access, parking and circulation areas;

(f) minor structures, such as furniture, refuse or other storage units, signs and lighting;

(g) proposed and existing functional services above and below, ground, including drainage, power and communications cables and pipelines, manholes and supports;

(h) details of existing trees to be retained with measures for their protection during the construction period;

(i) retained historic landscape features and proposals for restoration, where relevant;

(j) implementation timetables for all landscaping works;

(k) proposed finished heights, form and gradient of earthworks in relation to Work No. 64, Work No. 68 and/or Work No 69;

(l) maintenance of the landscaping, including irrigation arrangements in relation to Work No. 64, Work No. 65, Work No. 68 and/or Work No. 69; and

(m) soil retention, handling and protection.

6. The scope of this document relates to the Converter Station Stage located near Bramford, Suffolk. The works in this stage comprise Work No.s 62 to 69 in the DCO and are located to the north of the existing NG substation and adjacent to the EA ONE Substation (Figure 1 Site Context Plan). Landscape Management Schemes have been produced for each stage of the onshore connection works and are provided under separate cover.

7. Construction works at the Converter Station will be some of the first onshore connection works to commence. The access track and temporary laydown will be constructed in Summer 2022 with the remaining works being undertaken from Q2 2023.

8. This document has been prepared in accordance with the Outline Landscape and Ecology Management Strategy (November 2016, Document Reference – Deadline 6 / OLEMS V2/ Applicant).

9. The information contained herein shall be adhered to by the Principal Contractor and implementation and compliance will be monitored by the Construction Management Team. These measures will only be revised with the agreement of Mid Suffolk District Council (MSDC).

1.3. Background

10. A landscape master plan was developed for land in the vicinity of the Converter Station, including the EA ONE Substation for the discharge of the relevant requirement of the EA ONE DCO. This has now been further developed into the EA THREE Converter Station Master Plan (see Appendix 1).

11. The landscape proposals for the Converter Station are designed to meet a key requirement: to provide visual screening of the Converter Station in views from the surrounding area in so far as is reasonably possible. This requirement formed part of the mitigation proposals which were recommended as part of the Environmental Statement for this development. In this respect a significant element of the landscape proposals are the new woodland and hedgerow planting, supplemented with earthwork bunds.

12. The local landscape character, predominately agricultural and rural is influenced by the presence of the existing NG substation complex and also, since 2019, the EA ONE Substation. The Landscape Master Plan for the Converter Station has, therefore, needed to respond to the landscaping created for the EA ONE Substation, that in place for the NG substation, the rural character of the site and also the presence of the two existing substations. This is in order to ensure there is a degree of continuity between the separate proposals and that collectively a comprehensive approach to screening this area of development is achieved.

13. The NG development mitigation planting has been implemented on site and comprises hedgerow planting along Public Right of Way W 155/001/0, earth mounding and structural woodland planting. Screening along the western and south western boundaries of both the NG substation and East Anglia ONE Substation have been designed to maximise the screening potential of both developments from Burstall village and residential properties to the west in acknowledgement of their status as sensitive visual receptors.

14. The key elements and approaches in the landscape proposals, as illustrated in the Soft Landscape General Arrangement (Appendix 2), therefore include:

- Hedgerows and woodland blocks provide required mitigation and visual screening.
- Hedgerows and woodland relate to local landscape context.
- The size and shape of woodland blocks respond to technical constraints (e.g. overhead and underground cable routes).
- Northern bund planted with trees to provide additional visual screening
- Species rich grassland areas will be established to provide a low maintenance ground cover which also enhances the local biodiversity in areas that are not to be returned to agricultural use or planted as woodland.
- Existing agricultural land use will be retained in other areas with arable fields, such as to the east between Bullenhall Farm and the Bramford NG substation.
- Amenity grasses used immediately next to perimeter foot track and along access track verge.
- Sustainable Drainage System (SuDS) attenuation basin to include a permanent water pond which will have ecological benefits through habitat creation on the site.
- Additional ecological mitigation where deemed appropriate and necessary.

2. ABBREVIATIONS

BS	British Standard
CIRIA	Construction Industry Research and Information Association
CLO	Community Liaison Officer
DBEIS	Department of Business, Energy and Industrial Strategy
DC	Direct Current
DCO	Development Consent Order
EA ONE	East Anglia ONE Offshore Windfarm
EA THREE	East Anglia THREE Offshore Windfarm
EATL	East Anglia THREE Limited
EcoW	Ecological Clerk of Works
ES	Environmental Statement
HVDC	High Voltage Direct Current
MW	Megawatt
NBS	National Building Specification
NG	National Grid
RPA	Root Protection Area
SuDS	Sustainable Drainage System

3. LANDSCAPE MANAGEMENT SCHEME PLAN GOVERNANCE

15. Prior to the commencement of construction of the onshore Converter Station Stage, a Landscape Management Officer will be appointed by the contractor to manage the implementation of this scheme. Contact details for the Landscape Management Officer will be submitted to stakeholders for their records prior to commencement of construction.

4. LOCAL COMMUNITY LIAISON

16. EATL is committed to providing clear communication to local residents and will manage public relations with local residents and businesses. Proactive community liaison will be maintained, keeping local residents informed of the type and timing of the works involved. As outlined in the Code of Construction Practice (EA3-OND-CNS-REP-IBR-00005), a combination of communication mechanisms such as posters, notices, exhibitions, letters, newsletters, website updates and parish council meetings will be employed to keep local residents and businesses informed.

17. A designated EA THREE Community Liaison Officer (CLO) will manage and respond to any public concerns, queries or complaints in a professional and diligent manner as set out in the Community Liaison and Public Relations Procedure contained within the Code of Construction Practice (EA3-LDC-CNS-REP-IBR-00005). The Complaints Procedure will be publicised and complaints will be directed to the EATL Community Liaison Officer. All enquiries will be logged, investigated and rectifying actions taken when deemed appropriate. Enquiries will be dealt with in an expedient and courteous manner. Details of complaints will be reported to MSDC and SCC within 48 hours.

18. Parish Councils, District Councillors and County Councillors, including Ward Members and Portfolio Holders, in the area and the local liaison group will be contacted (in writing) in advance of the proposed works and ahead of key milestones in order to advise them of the ongoing works. The information provided will include a timetable of works, a schedule of working hours, the extent of the works, and a contact name, address and telephone number in case of complaint or query.

5. RELEVANT STANDARDS AND LEGISLATION

5.1. Applicable Standards and Good Practice

19. The soft landscape works will meet the following British Standards (BS) and guidance:

5.1.1. Tree and Hedgerow Protection during Construction

- BS 5837:2012 - Trees in relation to design, demolition and construction.

5.1.2. Tree Work by Arboriculturists

- BS 3998:2010: Tree Work – Recommendations.

5.1.3. Woodland Creation

- The UK Forestry Standard, Forestry Commission (2017).

5.1.4. Topsoil Handling, Stripping and Storage

- BS ISO 15799:2019 Soil quality - guidance on eco-toxicological characterisation of soils and soil materials.
- BS 3882:2015 Specification for topsoil.
- BS 6031:2009 Code of practice for earthworks.
- BS 7562-4:1992 Planning, design and installation of irrigation schemes guide to water resources.
- BS 4428:1989 Guide of practice for general landscape operations (excluding hard surfaces) AMD 6784.
- BS 3882:2015 Specification for topsoil and AMD 9938.
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, DEFRA

5.1.5. Quality of Trees and Shrubs

- BS 3936-1:1992 Nursery stock specification for trees and shrubs.
- BS 3936-5:1985 Nursery stock specification for poplars and willows.
- BS 5236:1975 Recommendations for cultivation and planting of trees in the advanced nursery stock category.
- BS 8545:2014 Trees: from nursery to independence in the landscape.

5.1.6. Maintenance of gardens/ Landscapes

- BS 7370-3:1991 Grounds maintenance recommendations for maintenance of amenity and functional turf (other than sports turf).
- BS 3998:2010 Tree work. Recommendations.

5.1.7. Horticulture

- BS EN 12579:2013 Soil improvers and growing media – sampling.
- BS EN 13037:2011 Soil improvers and growing media - determination of pH.
- PAS 100:2018 – Specification for composted materials.

5.1.8. Turf (if substituted for grass seeding)

- BS 3969:+A1:2013 Recommendations for turf for general purposes
- BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces).

5.1.9. Sustainable Drainage

- CIRIA The SuDS Manual (C753). The SuDS Manual-v6 Guidance for the design & management of SuDS systems (CIRIA, 2015).

5.2. Relevant Legislation

- The soft landscape works will meet the following legislation:
- The Hedgerows Regulations 1997.
- Wildlife and Countryside Act 1981 (as amended).
- The Construction (Design and Management) Regulations 2015.
- Natural Environment and Rural Communities Act 2006.
- Countryside and Rights of Way Act 2000.
- Environmental Protection Act 1990.
- Control of Pollution Act 1974.
- The Waste (England and Wales) Regulations 2011.
- Health and Safety at Work Act 1974

6. DESIGN AND MANAGEMENT OBJECTIVES

6.1. Context

20. The design and management objectives for the landscape proposals for the Converter Station Stage are:

- To provide appropriate visual screening of the Converter Station building, compound, fencing and other elements of the onshore Converter Station.
- To create a robust and resilient soft landscape proposals which are in accordance with the Landscape Management Plan for EA ONE, the Outline Landscape and Ecological Management Strategy for EA THREE and the mitigation planting associated with the National Grid Substation.
- To create a landscape that is easily maintained by future landowners and is also sustainable.
- To provide elements of enhanced habitat opportunities in selected and appropriate locations.
- To detail how ecological, landscape and Sustainable Drainage System (SuDS) requirements are integrated at the Converter Station site, considering (as appropriate) the Design and Access Statement.

6.2. Baseline Conditions and Landscape Character Areas

21. The site is well screened with surrounding woodlands and interlocking hedges and hedgerow trees that intervene to provide effective screening from views into the site. The topography in the surrounding area of the site is gently undulating which, in combination with existing mature vegetation, further restricts views into the site.

22. The area surrounding the site is predominantly rural in nature. However, areas adjacent to the site do exhibit some urban characteristics due to the existing EA ONE Substation, the National Grid substation, transmission lines and pylons. These industrial energy infrastructure features significantly intrude upon the predominately rural character of the site and surrounding area.

23. Most of the roads and public footpaths in the surrounding area are lined with mature hedgerows. As a result, sweeping views of the landscape from vantage locations are limited and where available provide views of established woods, mature hedgerows and open spaces interspersed with farm houses and residential areas.

24. It is noted that the local woodlands have a high proportion of ash trees (*Fraxinus excelsior*) which are susceptible to ash dieback. This is a disease of ash trees caused by a fungus, *Chalara fraxinea*. It causes leaf loss, lesions on the bark and dieback of the crown of the tree. It is anticipated that many of the ash trees in the area will be prematurely lost in the near future. This would potentially reduce the amount of vegetation available to provide visual screening of the Converter Station.

25. The UK Government introduced legislation in 2012 that restricts imports of ash plants and seeds to those originating in pest-free areas. Because no country has declared a pest-free area for *Chalara fraxinea*, this effectively means a total ban on imports and

movement of ash trees and seed for planting within Britain, until a pest-free area is declared. Therefore, at the moment of writing the specifications and schedules, woodland tree mixes do not include ash trees .

26. Additionally, with *Chalara fraxinea* in mind as well as other potential pests and diseases which may affect trees, the intention is to create a resilient soft landscape by increasing the species numbers used within woodland plant mixes. Therefore, where possible, the specification includes a variety of woodland to achieve a strong ecological resilience for the long-term future of the woodlands.

7. LANDSCAPE SCHEME

7.1. General Overview

27. The location, shape and internal arrangement of the Converter Station are defined by strict technical constraints and health and safety requirements. These aspects of the Converter Station are being developed by the Converter Station Principal Contractor with architectural input as described in Onshore Converter Station Detailed Design Report (EA3-OND-CNS-REP-IBR-000001). These aspects of the proposal are, therefore, beyond the scope of the landscape design proposals, which are more concerned with how the Converter Station is contained within the surrounding landscape.

28. During design development, three approaches to the landscape design were considered – 'hidden', 'integrated' and 'exposed'. These options are described as follows:

- The 'hidden approach' - focuses on reducing the impact of the Converter Station on the existing space. The hidden approach has extensive landscape screening to hide the Converter Station, which limits the recognisability of the function of the Converter Station while pylons and power lines remain visible, and has a lower change on the rural character. However, the scale of the Converter Station is often hard to completely hide, and power lines and pylons approaching the Converter Station often remain clearly visible. The hidden approach can be achieved with vegetation/woodland planting all around the Converter Station, or on the side of the main observers.
- The 'integrated approach' - focuses on reducing the impact of the Converter Station on the existing space, without completely hiding the Converter Station. The strength of this approach is to use the existing landscape structure to embed the Converter Station, and still show the function of the Converter Station as part of the electricity grid. The integrated approach has some landscape screening, but expands existing electrical characteristics, enabling the observer to understand the function of the Converter Station, with a more moderate change to the rural character. The integrated approach can be achieved using woodland clumps/shelterbelts and/or hedgerows.
- The 'exposed approach' - focuses less on the spatial impact and more on the recognisability of the function. The functional relationship between Converter Station and grid clearly shows the nature of the electricity grid. The exposed approach has limited/no landscape screening, with high recognisability of the function of the development, but also a high change to the rural character. The 'exposed approach' concentrates on emphasizing the Converter Station e.g. through new architectural elements/installations, combined with specifically coloured elements of the Converter Station, or emphasis through planting and management of vegetation in a specific form.

29. The landscape design approach selected for the Converter Station combines the approaches of hiding and integrating the development into the landscape to meet the agreed mitigation requirements and also as a response to the local landscape character. This approach results in the Converter Station having a relatively low landscape and visual impact (as opposed to an approach where the Converter Station is even more emphasised). Specifically placed woodland blocks/shelterbelts and hedgerows are to hide and integrate the Converter Station, reducing the visual impact in specific views towards the Converter Station experienced by people from residential areas, roads and public rights of way, while allowing the function of the Converter Station to be recognised when in closer proximity.

30. This approach acknowledges the key requirement for visual screening of the Converter Station, which has been a clear preference expressed during public and stakeholder consultations. Due to technical constraints, it would be unrealistic to completely screen the entirety of the Converter Station, therefore some element of integration is required and is considered suitable to allow some recognisability of the function of the grid connection developments, when viewed in the context of the existing National Grid infrastructure nearby.

31. This landscape management plan proposes both screening earthworks and woodland planting to address the main aim of providing visual screening of the Converter Station. New hedgerows are also to be planted to supplement the woodland framework around the Converter Station. The landscape plan also provides areas of species rich grassland and SuDS ponds, providing enhanced habitat benefits in their own right, while also providing further visual contrast with the 'technological' appearance of the Converter Station.

32. This landscape management plan seeks to ensure early establishment of tree and hedgerow planting, in order to deliver mitigation as early as possible.

33. The landscape scheme that will be delivered is illustrated in the Landscape General Arrangement Drawings presented in Appendix 1 to 3 and an illustrative plan of the landscape scheme is presented in Appendix 13. The key proposals illustrated in these drawings are summarised as follows:

- Consideration of the landscaping installed for EA ONE Substation which provides some screening for EA THREE Converter Station.
- Hedgerows and woodland blocks to provide visual screening which relate to local landscape context.
- In order to integrate the new woodland blocks within the landscape, mixed native species will be used, with some areas defined to be 'core' or 'edge' woodland areas.
- Some areas of woodland will be planted with faster growing native woodland species (for quicker visual screening and to act as a "nursery" crop).
- The size and location of woodland blocks respond to technical constraints.
- New hedgerows will be planted to supplement the woodland framework around the Converter Station.
- Earthworks bund to the north of the Converter Station will be planted with trees to provide additional screening.
- The access road is framed by hedges and woodland blocks to create visual separation from the existing bridleway and the access road into the National Grid substation.
- Species rich grassland areas will be established to provide a low maintenance ground cover which also enhances the local biodiversity in areas that are not to be returned to agricultural use or planted as woodland.
- Existing agricultural land use will be retained in other areas with arable fields, such as to the east between Bullenhall Farm and the Bramford NG substation.
- A SuDS attenuation basin with permanent pond and associated open swales where technical and visual mitigation constraints allow.
- Amenity grasses will be used immediately next to the access road and perimeter foot track around the converter station.
- Ecological mitigation where possible and deemed appropriate and necessary. As a minimum EATL will install 5 bat boxes, 5 bird boxes, 5 log piles/hibernacula with a minimum two of these being located around the SUDS basin. The final locations and numbers will be confirmed by the ecologist to ensure the greatest enhancement throughout the landscaping scheme. Refer to the EcoMP EA1-CON-F-IBR-021237 for more details.

34. Throughout the following paragraphs please refer to the three Landscape General Arrangement (GA) drawings that illustrate these proposals:

- Appendix 1 Hard Landscape General Arrangement (EA3-OND-CNS-DRG-IBR-000002).
- Appendix 2 Soft Landscape General Arrangement (EA3-OND-CNS-DRG-IBR-000003.
- Appendix 3 Earthworks General Arrangement (EA3-OND-CNS-DRG-IBR-000004).

35. In addition, further details of the proposals are shown in the following Typical Construction Detail plans:

- Appendix 4 Typical Construction Detail: Surfaces (EA3-OND-CNS-DRG-IBR-000005).
- Appendix 5 Typical Construction Detail: Fencing (EA3-OND-CNS-DRG-IBR-000006).
- Appendix 6 Typical Construction Detail: Planting (EA3-OND-CNS-DRG-IBR-000007).
- Appendix 7 Typical Construction Detail: Planting Schedules – Trees (EA3-OND-CNS-BOM-IBR-000001).
- Appendix 8 Typical Construction Detail: Planting Schedules – Grasses & Hedges (EA3-OND-CNS-BOM-IBR-000002).
- Appendix 14 Sustainable Drainage System Detail (EA3-OND-CNS-DRG-IBR-000011).
- Appendix 15 Tree Planting and Cultivation (EA3-OND-CNS-DRG-IBR-000012).

7.2. Tree Planting and Cultivation

36. A woodland and hedgerow framework will be established around the Converter Station, with the key elements of these landscape proposals summarised as follows:

- Plant species will be mixed native, ideally sourced from local suppliers and nurseries, if possible. Limited numbers of non-native tree species will be planted as part of the mix for quicker visual screening.
- Transplant sizes vary in height, being in the range of 60-80cm to 175-200cm, depending on species and typical availability.

- Ground cultivation and preparation of the existing agricultural fields to receive the tree planting; this will include cross-ripping the fields to thoroughly break up any clay pans and may require to go up to 600mm deep depending upon site conditions and how deep any existing clay pan is located.
- As the soil within the receiving site is predominately clay based, species have been chosen that thrive or are tolerant of clay soils.
- The tree species are also a mixture to create, where possible, variety of woodland and strong ecological resilience for the long-term future of the woodlands.
- Tree guards with stakes will be specified to protect the young trees against pests.
- Deer proof fencing with rabbit proof mesh has also been specified in places as it would be cost effective and less visually intrusive to fence and protect an entire new woodland area instead of using individual tree guards (see Converter Station Fencing and Enclosures Plan (EA3-GRD-CON-PLN-IBR-000106).
- Replacement individual tree planting will be undertaken on a 2 for 1 basis, and where possible with like for like species. This is for distinct standalone trees that felled as part of the construction works (identified in Appendix 15). Individual replacement tree planting stock will be 3.5-4.25m, Heavy Standard stock and be of the same species where appropriate.
- Planting will be carried out while weather and soil conditions are suitable for the relevant operations, avoiding periods of frost, strong winds or heavy rainfall taking place during the periods defined in Section 8.1.1.

37. The woodland and hedgerow species that will be planted are listed in Tables 7-1 to 7-4, showing the species name and the proportion of each species for each type of planting. The Soft Landscape General Arrangement (Appendix 2) shows the locations of all woodland and hedgerow planting. Full schedules including numbers of individual tree and hedge species, are provided in Appendix 7 & Appendix 8 (Planting Schedules).

38. Woodland planting will extend the existing Fore Grove and Bushey Grove woodlands to the immediate north of the Converter Station, in order to reinforce (Area D) and extend (Area E) the visual screening provided by these existing woodlands in views from the north, such as Tye Lane and settlements beyond at Somersham and Little Blakenham.

39. Areas of woodland will also be located to the east of the Converter Station, extending Gobert's Grove woodland (Area F) in the area between the existing high-voltage overhead power lines and the Bramford National Grid substation. These areas of woodland will provide visual screening of the Converter Station in views from the east, such as the public right of way, Bullen Lane and Bramford.

40. Further smaller areas of woodland planting have been installed as part of the EA ONE landscaping to supplement the areas of NG mitigation planting to the south-east of the Converter Station (along the northern side of the NG substation) and provide visual separation between the access track to the Converter Station and the existing access track along the northern edge of the NG substation.

41. Planting will be established early in the construction of the Converter Station, where possible, to allow trees and planting additional growth time and allow mitigation to occur at the earliest opportunity.

42. There are three types of woodland planting, as shown in the Soft Landscape General Arrangement (Appendix 2), consisting of a core woodland mix (WM1), woodland edge mix (WM2) and wet woodland mix (WM4). The species mixes for these areas of woodland are shown in Tables 7-1 to 7-4.

Table 7-1 Core Woodland Tree Mix

WM1 Core Woodland Tree Mix				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
A ca	Sapindaceae	*Acer campestre*	Common Maple	10
A ps	Sapindaceae	*Acer pseudoplatanus*	Sycamore	10
A gl	Betulaceae	*Alnus glutinosa*	Native Alder	5
B pub	Betulaceae	*Betula pubescens*	Downy Birch	15
C be	Betulaceae	Carpinus betulus	Common Hornbeam	5
P sy	Pinaceae	*Pinus sylvestris*	Scots Pine	5
P tre	Salicaceae	*Populus tremula*	Aspen	12
P pad	Rosaceae	*Prunus avium*	Wild Cherry	8

WM1 Core Woodland Tree Mix				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
Q r	Fagaceae	*Quercus robur*	Common Oak	10
T co	Tiliaceae	*Tilia cordata*	Small-leaved Lime	20
				100

Table 7-2 Edge Woodland Tree Mix

WM2 Edge Woodland Tree Mix				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
C san	*Cornaceae*	*Cornus sanguinea*	Common Dogwood	10
C av	*Betulaceae*	*Corylus avellana*	Common Hazel	10
C mon	*Rosaceae*	*Crataegus monogyna*	Common Hawthorn	20
E e	*Celastraceae*	*Euonymus europaeus*	Common Spindle Tree	5
I a	*Aquifoliaceae*	*Ilex aquifolium*	Common Holly	5
M sy	*Rosaceae*	*Malus sylvestris*	Common Crab Apple	10
P sp	*Rosaceae*	*Prunus spinosa*	Blackthorn	10
S c	*Salicaceae*	*Salix caprea*	Goat Willow	10
S ni	*Adoxaceae*	*Sambucus nigra*	Common Elder	10
V op	*Adoxaceae V*	*iburnum opulus*	Guelder Rose	10
				100

Table 7-3 Wet Woodland Mix

WM4 Wetland Woodland Tree Mix				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
A ca	*Sapindaceae*	*Acer campestre*	Common Maple	10
A ps	*Sapindaceae*	*Acer pseudoplatanus*	Sycamore	10
B pub	*Betulaceae*	*Betula pubescens*	Downy Birch	15
C be	*Betulaceae*	*Carpinus betulus*	Common Hornbeam	5
S al	*Salicaceae*	*Salix alba*	White Willow	10
P tre	*Salicaceae*	*Populus tremula*	Aspen	12
P pad	*Rosaceae*	*Prunus avium*	Wild Cherry	8
Q r	*Fagaceae*	*Quercus robur*	Common Oak	10
A gl	*Betulaceae*	*Alnus glutinosa*	Common Alder	20

43. The soft landscape general arrangement drawing (Appendix 2) shows the hedgerow planting for the Converter Station Stage. The hedgerows will consist of mixed native species hedge (including hedges of hawthorn, with oak, ash and field maple as hedgerow trees), which will combine with the woodland planting areas to integrate the Converter Station into the landscape, both in terms of providing screening of the infrastructure and as an extension of an element that is characteristic in the local landscape. The species mixes for the native hedgerow (H1) planting is shown in Table 7-4.

Table 7-4 Native Hedgerow Mix

H1 Native Hedgerow Mix				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
A ca	*Sapindaceae*	*Acer campestre*	Common Maple	20
C be	*Betulaceae*	*Carpinus betulus*	Common Hornbeam	5
C av	*Betulaceae*	*Corylus avellana*	Common Hazel	2
C mon	*Rosaceae*	*Crataegus monogyna*	Common Hawthorn	60
C san	*Cornaceae*	*Cornus sanguinea*	Common Dogwood	5
L vu	*Oleaceae*	*Ligustrum vulgare*	Common Privet	2
P sp	*Rosaceae*	*Prunus spinosa*	Blackthorn	2
R c	*Rhamnaceae*	*Rhamnus catharticus*	Common Buckthorn	2
R can	*Rosaceae*	*Rosa canina*	Dog Rose	2
				100

7.3. Grassland Planting

44. The types of grassland species that will be planted are summarised in Table 7-5. The Soft Landscape General Arrangement (Appendix 2) shows the locations of all grassland areas and full schedules including species mixes are provided in Appendix 8 (Planting Schedules – Grasses & Hedges).

Table 7-5 Grass Planting Types

Code	Grass/Plant mix type	Purpose
G1	Amenity Grass Mix	General purpose amenity grass mix, used for verges, embankments, filter strip, swale sides
G2	Wetland Grass mix	Grass mix appropriate for areas that are either wetland (primarily along the Cable route but included here for completeness) as identified by the ecologist or for areas that are expected to be frequently and regularly inundated, such as the SuDS detention basin.
G3	Species rich grass mix	To provide a low maintenance ground cover which also enhances the local biodiversity in areas that are not to be returned to agricultural use or planted as woodland.
G4	Topsoil Storage	Low maintenance grass mix to stabilise long term topsoil storage mounds. Where agreed with the landowner, this may be a legume-rich mix to fix nitrogen into the soil.

7.4. Marginal Aquatics Planting

45. The types of marginal aquatic species that will be planted include mixes for the permanent pond (G6) and Forebay area (G7). G6 is for the margins of the permanent pond area, to stabilise the soils against erosion but also to enhance local biodiversity. G7 is for the SuDS detention basin Forebay area and base of the swales, to help stabilise the soils, reduce the velocity of the water coming in from the inlet and to enhance the local biodiversity of the area. The planting mixes are summarised in Table 7-6 (G6 - Permanent Pond) and Table 7-7 (G7 – Basin Forebay). The Soft Landscape General Arrangement (Appendix 2) shows the locations of all marginal aquatic planted areas and full schedules including species mixes are provided in Appendix 8 (Planting Schedules – Grasses & Hedges).

Table 7-6 Marginal Aquatics Mix – Permanent Pond

G6 Marginal Aquatics Mix – Permanent Pond				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
As	*Poaceae*	*Agrostis stolonifera*	*Creeping Bent*	10
An	*Apiaceae*	*Apium nodiflorum*	*Fool's Watercress*	10

G6 Marginal Aquatics Mix – Permanent Pond				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
Fu	*Rosaceae*	*Filipendula ulmaria*	*Meadowsweet*	20
Gf	*Poaceae*	*Glyceria fluitans*	*Floating Sweet Grass*	10
Ma	*Lamiaceae*	*Mentha aquatica*	*Water Mint*	10
Ms	*Boraginaceae*	*Myosotis scorpioides*	*Water Forget-me-not*	10
Na	*Brassicaceae*	*Nasturtium aquaticum*	*Watercress*	10
Pa	*Polygonaceae*	*Persicaria amphibia*	*Amphibious Bistort*	10
Vb	*Plantaginaceae*	*Veronica beccabunga*	*Brooklime*	10
				100

Table 7-7 Marginal Aquatics Mix – Basin Forebay

G7 Marginal Aquatics Mix – Basin Forebay				
Abbrev.	**Family Name**	**Botanical Name**	**Common Name**	**Mix %**
Ca	*Cyperaceae*	*Carex acutiformis*	*Lesser Pond Sedge*	10
Cn	*Cyperaceae*	*Carex nigra*	*Common Sedge*	10
Cr	*Cyperaceae*	*Carex riparia*	*Greater Pond Sedge*	10
Ips	*Iridaceae*	*Iris pseudacorus*	*Yellow Flag Iris*	10
Se	*Typhaceae*	*Sparganium erectum*	*Branched Bur-reed*	50
Ls	*Lythraceae*	*Lythrum salicaria*	*Purple Loostrife*	10
				100

46. The soft landscape proposals that will be undertaken are set out in the drawings in the appendices to this report as follows:

- Appendix 2 - Soft Landscape General Arrangement (EA3-OND-CNS-DRG-IBR-000003).
- Appendix 6 – Typical Construction Detail: Planting (EA3-OND-CNS-DRG-IBR-000007).
- Appendix 7 & 8 – Typical Construction Details: Planting Schedules (EA3-OND-CNS-BOM-IBR-000001 and EA3-OND-CNS-BOM-IBR-000002) (details the species and total numbers for each planting area identified on Soft Landscape General Arrangement).
- Appendix 9 – Plant Schedule Illustrative Notes presenting sample photographs of the tree species and additional descriptive text.
- Appendix 9 - NBS Landscape Specification which includes clauses on both planting and maintenance.

7.5. Ground Levels

47. The finished ground level within the Converter Station compound will be 54.55m AOD. This will require an amount of re-grading and movement of topsoil and subsoil from within the Converter Station area. It is proposed to use and retain this material on-site to create the earthwork bundings to form part of the visual screening strategy.

48. The top of the bund on the northern side of the Converter Station will be 3.35m higher than the internal converter station level, at 57.9m AOD. The intention is to grade the ground up to these levels from the Converter Station at a maximum grade of 1:3. This grade of slope also allows for safe maintenance access.

49. Additionally, the creation and location of SuDS attenuation basins will also influence the earthwork shaping strategy. There is one permanent basin with a permanent pond. Slopes into the basin vary at 1:10 to 1:20. The following drawings illustrate these earthworks proposals:

- Appendix 3 - Earthworks General Arrangement (EA3-OND-CNS-DRG-IBR-000004).
- Appendix 14 – Typical Construction Details: SuDS Details (EA3-OND-CNS-DRG-IBR-000011).

7.6. Hard Surface Materials

50. The hard landscape proposals for the Converter Station consist of a limited number of elements, creating a relatively simple hard landscape scheme. The following drawings illustrates these hard landscape elements, which are described below:

- Appendix 1 - Hard Landscape General Arrangement (EA3-OND-CNS-DRG-IBR-000002).
- Appendix 4 – Typical Construction Details: Surfaces (EA3-OND-CNS-DRG-IBR-000005).
- Appendix 5 – Typical Construction Details: Fencing (EA3-OND-CNS-DRG-IBR-000006).
- Appendix 9 - NBS Landscape Specification.

7.6.1. Maintenance Track

51. A grasscrete maintenance track to allow access to the main SuDS attenuation basin will be constructed.

7.6.2. Internal Service Road

52. An asphalt internal access and service road and car parking area will be constructed within the Converter Station compound. This will be a 6m wide circulation road designed to meet the load bearing capacity of the vehicles delivering the electrical components.

7.6.3. Gravel Surfaces

53. There will be no vegetation within the Converter Station compound as this would risk cross-over shorting and fouling of the equipment. Likewise, it is best practice to reduce the maintenance required within the Converter Station for Health and Safety reasons. In order to provide a neutral, conductive free ground surface, an inert gravel ground dressing will be used within the Converter Station, consisting of a locally sourced flint gravel where possible.

7.6.4. Gravel Path

54. A 1m wide path will be located around the outside of the Converter Station compound perimeter fence and will be used for maintenance purposes. This footpath will be a gravel path, using an angular gravel, free from clay with sufficient grit to enable compaction.

7.7. Minor Structures and Services

55. Minor structures within the proposal include:

- 2.4m high perimeter fence, comprising a mesh fence configuration (Hi SEC Super 6 or similar solution) and corresponding double access gates.
- Deer proof fencing with rabbit mesh to delineate boundaries and protect new woodland planting.
- Lighting within Converter Station is to be low-level with occasional task lighting.

56. The following drawings within this landscape management plan illustrate these proposals:

- Appendix 1 - Hard Landscape General Arrangement (EA3-OND-CNS-DRG-IBR-000002).
- Appendix 5 – Typical Construction Details: Fencing (EA3-OND-CNS-DRG-IBR-000006).
- Appendix 10 - NBS Landscape Specification (Section Q40 on fencing).

7.8. Tree Protection

57. Trees that are to be retained and are within the construction area will be protected by Heras fencing braced with scaffold poles (as per BS 5837:2012) as shown in the Tree Protection Plan (Appendix 12). Protective fencing to BS 5837:2012 is braced to protect from failure from impacts. The fencing will be installed at a specified distance from the tree defined by the Root Protection Area (RPA) as calculated by an Arboricultural Clerk of Works, in accordance with guidance from BS5837: 2012.

58. The location of pre- and post-construction land drains would also be adjusted to avoid or minimise damage to tree roots.

59. Trees and hedges outside the construction area, but within the DCO Boundary, will not generally be protected as it is assumed they will be at a distance far enough not to incur unnecessary or accidental construction damage. Where deemed necessary by the Arboricultural Clerk of Works, for example if roots or branches came into the working area or at access points, tree protection will be installed.

60. The storage of materials, spoil, vehicles, welfare facilities etc. will not be permitted within the protective fencing (i.e. within the RPA).

61. An Arboricultural Clerk of Works will be appointed during construction to oversee the erection of protective fencing, the protection of trees to be retained and to ensure that all tree works are undertaken to the required standards. All tree works during construction, for example felling, to be undertaken by qualified tree surgeons to BS 3988:2012: Tree Work – Recommendations.

62. Appendix 12 – Tree Protection Plan (EA3-OND-CNS-DRG-IBR-000009) illustrates the tree and hedgerow removal required, together with tree protection areas.

7.9. Soil Clerk of Works

63. Prior to the implementation of the works the contractor will appoint a soil specialist to work with the Landscape Management Officer to undertake soil analysis and survey work during the project development and to monitor the works to ensure compliance with the Landscape Management Scheme. This includes monitoring soil movement and storage. The soil analysis is required to understand the degree of compaction, soil depth and conditions.

64. A soil resource survey will inform the constraints for the re-use, spreading of soils post construction and use in earthworks mounding within the site, which is dependent on the soil resource. The soil specialist input is important to ensure that, where applicable, the soils can successfully be returned to arable farmland and used for successful plant establishment on the site where it is imperative that the trees grow and establish well to provide the necessary mitigation.

65. The specifications for the scraping, movement, storage, care, spreading and amelioration will also be informed by the soil specialist's input via a Soil Resource Plan and liaison with the Landscape Management Officer and Contractor. The soil specialist will also inform any potential soil remedial works and ground preparation that may be needed for successful plant establishment.

7.10. Topsoil Storage Strategy

66. Topsoil will be stored as advised by the soil specialist and as per the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, published by DEFRA; the key points of which are listed as follows:

- Maximum storage heights of mounds: 2m for topsoil 3m subsoil.
- Topsoil will be stripped in the driest condition possible.
- Topsoil and subsoils will be stored separately.
- Materials will be stored like upon like i.e. topsoil will be stripped from beneath subsoil bunds, and subsoil from beneath overburden bunds. Bunds will be sealed.
- All soil bunds will be placed 3m from any hedgerows and advance planting areas to protect rootzones and to allow for maintenance access. Tracked equipment will be used wherever possible to reduce compaction.
- Movement of trucks or dumpers will be confined to designated temporary haul routes.
- Vegetation will not be incorporated into topsoil to be stored.
- Soils will not be stripped during or after heavy rainfall or when there are pools if water on the surface.
- Topsoil will not be stripped too deeply so that subsoil becomes incorporated, thereby reducing fertility.
- Topsoil will not be removed from below the spread of trees and hedgerows to be retained.
- Duration of top soil and subsoil storage will generally be short term (1-2 weeks) for open cable trenches before backfilling (specific to work no.s 63, 64 and 66).
- Duration of the subsoil and topsoil storage will generally be of the order of 24 months for the temporary laydown area.
- A low maintenance grass mix (G4) will be sown as soon as possible after creation of any soil storage mounds which are intended to remain in situ for more than 6 months or over the winter period. Where agreed with the landowner, this may be a legume-rich mix to fix nitrogen into the soil. The optimum months for sowing grass seed are April or September to October.

8. IMPLEMENTATION

67. The soft landscape scheme that will be delivered is illustrated in the Soft Landscape General Arrangement (Appendix 2) and an illustrative plan of the landscape scheme is presented in Appendix 13. Details of the implementation can be found in the NBS Landscape Specification presented as Appendix 10. The following is an overview of the soft landscape works implementation.

8.1. General

8.1.1. Seasonal and Climatic Conditions

68. The work will be carried out while weather and soil conditions are suitable for the relevant operations, avoiding periods of frost, strong winds or heavy rainfall. Planting will only take place during the following periods:

- Late October to late March – planting of bare root feathered deciduous hedgerows and trees.
- March to April or August to September for sowing of wildflower, fine grasses, nectar flower mix and bird seed mix.
- Container grown plants can be planted at any time as long as ground and climatic conditions are appropriate.
- Any variation from these seasonal dates would be agreed with the MSDC, SCC and Natural England.
- Ensure adequate watering and weed control is provided.
- Any tree removal or coppicing works will not be undertaken during bird nesting and breeding season or will be approved by a suitably trained ecologist prior to works. Where bats are suspected to be present, advice will be provided from a licensed bat specialist and if appropriate, relevant licences obtained before any major tree works or hedge cutting is undertaken.
- Planting will take place in cultivated and moist friable soils, that that are not waterlogged.
- Planting will not take place into frost or snow-covered soil.

8.1.2. Machines and Tools

69. Only machines and tools suitable for the site conditions and works will be used for carrying out the works. Hand tools will be used around trees, hedgerows and in confined spaces where it is impractical to use machinery.

8.1.3. Underground Service

70. The appointed landscape contractor will be responsible for the following:

- Familiarising themselves with the location of the underground services and taking all precautions to avoid any damage occurring to them.
- Immediately informing the appropriate body should any damage occur.
- Any claims arising from damage caused by the Contractor occurring to underground services.

8.2. Plant Material

8.2.1. Plant Quality in General

71. Plant material will be sourced from local nurseries, where possible, or contract grown to ensure suitability to local conditions. The project contract administrator will be notified before substitutions or should there be difficulty sourcing plant material with local provenance. and any substitutions agreed with MSDC. Plant material will comply with the following:

- Plant quality will be in compliance with the relevant parts of BS3936 and BS5236 for any advanced nursery stock, where applicable.
- Plants will be materially undamaged, sturdy, healthy, vigorous and of good shape and without elongated shoots.
- Plants will have been grown in a suitable environment and hardened off.
- Plants will be free from pests, diseases, discoloration, weeds and physiological disorders.
- Plants will have a balanced root and branch system.
- Plants will be true to the plant names and sizes on the schedule.

8.2.2. Bare Root Plants

72. The majority of woodland and hedgerow plants will be planted as bare root feathered plants, as specified in the plant schedules in Appendix 7. All bare root plants will have vigorous and fibrous root systems which are reasonably equally developed in all directions and of adequate extents to support the growth of the plants root system and shall be kept moist and protected at all times up to the moment of planting. All plants will be protected by tree guards and supported with a single timber stake when planted. All tree guards will be biodegradable and/or removed when no longer required.

8.2.3. Root-balled Plants

73. A relatively small proportion of coniferous trees within the defined woodland planting areas will be planted as root balled plants, since conifers (such as Scots Pine, and Holly) are best planted with some soil around their roots. Root balls will be well filled with

fibrous roots and consist of reasonably cohesive natural soil which has been carefully lifted at the nursery so that it remains fully attached to the roots of the plant. Plants which have bare roots that have been "bagged up" with soil or containerised are not acceptable. All plants will be protected by tree guards and supported with a single timber stake when planted. All tree guards will be biodegradable and/or removed when no longer required.

8.2.1. Seeds

74. All seed will be supplied to site in bags sealed by the supplier and clearly labelled with the percentage composition by weight mix of the seed mixture contained. Seed will not be dirty or damaged by vermin.

8.2.2. Native Hedgerow and Tree Species

75. All hedgerow and tree species will comply with the following:

- Plant age will be a minimum of 2 years.
- Plants will have been transplanted at least once in the nursery (1+1).
- Bare root species will have a minimum of two substantial stems (breaks) from the lower third of the plant and a well branched form.
- Native hedgerow plants, 80-100cm high, planted at 300mm centres in a double staggered row, 300mm between rows.
- Woodland tree planting, trees centres to vary between minimum 1m and maximum 2m centres (average 1.5m plants centres, 0.44 plants per square metre). Plant in sinuous rows - do not plant in a straight-line matrix. Plant in species groups of minimum 5, maximum 9 plants, with the species randomly placed.
- All plants to be protected by transparent spiral tree guards and supported with a single timber stake when planted.

8.2.3. Marginal and Aquatic Plants – SUDS Detention Basins, Pond and Swales

76. All plant species will comply with the following:

- Plant stock should be sourced from local approved nurseries where possible, or contract grown that only grow native species of local provenance to ensure suitability to local conditions.
- Topsoil will not to be placed within 300mm of the permanent water level in the wetland area, wetland plants will be directly planted into the subsoil.
- Swale planting along base to use specific swale plant mix, swale edges and edge of forebay area will be seeded with normal amenity grass and/or species rich grass.
- Forebay area and wetland area will be planted with appropriate native plug mix.

8.2.4. Labelling

77. When supplied to the site all plants will be labelled in accordance with the relevant part of BS 3936 in order that they can be easily identified.

8.2.5. Substitutes

78. If specified plants are unobtainable or if it is known that they are likely to be unobtainable then suitable substitutions can be made following approval from the Project contract administrator and MSDC.

8.3. Preparation for Planting

8.3.1. Site Clearance

79. Prior to cultivation all rubbish will be removed from the site, recycled where possible or taken offsite. All weeds, grass, residual crops and erroneous materials will be cleared from planting areas, whilst ensuring adherence to ecological mitigation such as checks for nesting birds etc. allowing for appropriate naturalised plants to be retained.

8.3.2. Soil Restoration

80. Topsoil and subsoil will be removed, stored and replaced in accordance with the advice provided by the soil specialist and Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra 2009). This guidance will be used as a reference and will be assessed against current legislation and controls. In order to ensure that the physical condition of the entire

soil profile (topsoil and subsoil) will promote sufficient aeration, drainage and root growth, the following measures will be implemented as far as is practicable:

- Topsoil will be handled only when dry or slightly moist and using suitable machinery in an appropriate way;
- Tracked equipment will be used wherever possible to avoid compaction. Construction machinery will not be moved over topsoil or subsoil that has been replaced for planting.
- Multiple handling of soil materials will be minimised;
- Prior to spreading soil, the substrate shall be properly de-compacted to break up any panning to reduce flood risk and to promote deeper root growth. Decompaction shall be undertaken only when the soil is sufficiently dry to the full working depth. Toothed excavator buckets will not be used.
- The 'loose tipping' method, using dump trucks and hydraulic excavators to move and spread the topsoil will be utilised;
- Topsoil placement thickness will be appropriate to the anticipated rooting depth of the plants to be established and the quality of the underlying subsoil.
- After respreading topsoil, any large, compacted lumps should be broken down by appropriate cultivation to produce a fine tilth suitable for planting (<50mm maximum aggregate size), turfing and seeding (<10mm maximum aggregate size). The topsoil will be cultivated to its full depth using appropriate tillage equipment to de-compact and fully re-aerate. More than one cultivation may be required. Undesirable material (e.g. stones, fill materials and vegetation larger than 100mm in any dimension) brought to the surface during cultivation will be removed by picking or raking.
- If sustained heavy rainfall (e.g. >10mm in 24 hours) occurs during soil handling operations, work will be suspended and not restarted until the ground has had at least a full dry day or agreed moisture criteria (such as 'drier than the plastic limit') can be met. Lighter soil can generally be moved at a higher moisture content without damage than a heavy soil.

8.3.3. Cultivation

81. No digging will take place within the root spread of trees or hedgerows to be retained. Compacted topsoil will be broken up to its full depth.

8.3.4. Hedgerow and Woodland Area Cultivation

82. Cultivation will comply with the following:

- Topsoil will be cultivated to the depth of topsoil at each location using suitable tools or machinery to ensure a firm friable tilth suitable for pit planting.
- Topsoil will be cultivated in two perpendicular directions to 'cross-rip' through any clay pans present.
- Topsoil surface will be left regular and even.
- All weeds, perennial weed roots, turfs of grass, roots and other material will be removed, including stones and clods of earth greater than 100mm in any direction, which have been brought to the surface.

8.3.5. Sowing Grasses

83. Sowing grasses will comply with the following:

- Weeds and grass will be cleared from site.
- Soil will be cultivated to a depth of 30mm using suitable tools or machinery, burying remaining vegetation.
- Soil will be harrowed and rolled to produce fine tilth and firm surface.
- The sowing area will be free from large ruts and stones or erroneous materials to allow for mowing later.

8.4. Planting and Seeding

8.4.1. Plant Handling, Storage and Transportation

84. The following will be undertaken during planting handling, storage and transportation of plants:

- Comply with CPSE 'Handling and establishing landscape plants' (obtainable form the Horticultural Trades Association) Part I, Part II and Part III.
- Protect plants from frost and predation.
- Handle plants with care, protect from mechanical damage and do not subject to shock, e.g. dropping from a vehicle.
- Plants shall be kept moist and protected at all times up to the moment of planting.

- Careful and appropriate seed storage (e.g. labelled appropriately, stored out of direct light, in dry conditions, checked for damage/spoiling).

8.4.2. Planting Hedgerows and Tree Transplants

85. The following will be undertaken during planting of hedgerows and trees:

- All plants will be pit planted.
- Root dip will be used where considered necessary.
- Pits will be excavated to sufficient extents to allow roots of bare roots plants to be spread out or the root ball of container grown plants to be accommodated without distortion to their shape and size.
- Excavated topsoil will be retained and appropriately stored for back-filling.
- Hedgerow plants will be spaced out evenly to create double staggered row following spacings specified on the plant schedule.
- Plants will be placed in the centre of the planting pit with their main stem vertical and at such a depth that after planting firmed down soil is at the same level as the existing ground level.
- Back-fill will be carefully and thoroughly packed around plant roots or root ball and firmed in by heeling around the base of the stem.
- Individual protection will be installed around each plant unless otherwise protected by appropriate fencing.
- Where required, individual plants will be supported using canes or stakes as appropriate to ensure these are held upright during establishment.
- Fine grade bark mulch to be applied to either side of hedgerows and around newly planted trees.

8.4.3. Sowing Grasses

86. The following will be undertaken during sowing of grasses:

- Sowing will take place into seed bed clear of all large stones, unwanted materials, weeds or vegetation.
- Seed mixture will be sown evenly onto prepared surface – either through hand broadcast or use of mechanical distribution (seed spreader).
- To get even distribution, seed mixture will be split in half and entire area sown twice at half rate. The first half will be sown in one direction and second in other direction.
- Seed will be bulked out with carrier such as sand or sawdust to get more even coverage.
- Seed will not be incorporated by drilling/harrowing – just broadcasted onto surface. Wildflower seeds are very fine and will not germinate if they are buried.
- Roll once or twice after sowing to ensure good contact between seed and soil. Very important in dry weather. Do not roll if site is very wet.

8.4.4. Watering

87. Watering of newly planting trees, hedges and seeded grasses will be undertaken as required by the contractor to ensure the successful establishment and growth of trees and hedgerows and germination and growth of seed mixes. The contractor is to provide water bowser to enable watering works.

88. The merits of a self-watering system using greywater from the site have been considered. However, watering would only be necessary during the first few months after planting. The self-watering system would require regular maintenance and inspection and would then need to be dismantled after just a few months. It is not, therefore, considered to be a viable option.

9. MAINTENANCE OF PLANTING

9.1. Aims

89. The design aspirations for the landscape proposals for Converter Station are:

- To create a robust and easily maintained landscape framework.
- To provide elements of visual screening towards the Converter Station.
- To provide enhanced habitat opportunities in selected locations.

90. To achieve the landscape objectives and ensure the success of the landscape setting, an ongoing regime of landscape maintenance and management will be necessary. The overarching management and maintenance objectives are:

- To ensure full woodland and hedgerow establishment to provide visual screening and landscape structure.
- To ensure vegetation is kept healthy and vigorous, promoting good form, stem colour, flowering and structure of vegetation as appropriate.
- To ensure appropriate maintenance operations are undertaken as necessary to ensure public safety.
- To promote the creation of rich and ecologically diverse interconnected habitats where appropriate.
- To ensure planting within the SuDS basins and swales are successfully established.
- To ensure pathways and access roads are kept free and clear of overhanging or nuisance vegetation.
- To allow the introduction of self-seeding of flowering species to encourage insects, which in turn may provide food sources for birds and bats to enhance local biodiversity.

91. MSDC to be notified in writing of when the planting is complete and hence the five-year maintenance period will begin.

92. Woodland and hedgerow maintenance will be undertaken for a period of 10 years within woodland and hedgerow planted areas (WM1 - WM4 and H1). Any tree or shrub planted as part of the landscaping scheme that, within a period of 10 years after planting, is removed, dies or becomes, in the opinion of MSDC, seriously damaged or diseased, will be replaced in the first available planting season, with a specimen of the same species and size as that originally planted unless otherwise agreed in writing by MSDC. Replacement planting after this date may be requested at the discretion of MSDC. Grassland maintenance during the establishment period will be undertaken for a period of 5 years within grassland habitat areas (G1 – G7). Maintenance is to be carried out by the main contractor for the first five years to ensure establishment of the woodland, hedgerows and grassland areas.

93. Planting aftercare will be delivered by contractors who can demonstrate appropriate experience and capacity to deliver effective and robust aftercare and provide a consistent quality of work across the whole project.

9.1.1. Legal Obligations

94. Maintenance will be carried out in accordance with relevant legislation. Maintenance staff will be aware of the legal obligations to protect nesting birds (mainly during the months of March to August) and bats which may roost against walls or trees during their active season (generally April to September inclusive, but can be active in March and October in warmer weather). A suitably qualified ecologist will check for protected species prior to the start of relevant maintenance activities.

9.1.2. General Requirements

95. The following requirements for maintenance will apply to all planted areas within the EA THREE DCO boundary shown in the Soft Landscape General Arrangement (Appendix 2):

- All landscape maintenance tasks to be undertaken by a competent contractor.
- All trimming and pruning of plants to be carried out once plants have flowered, seeded and shown fruit. Any management works related to soft landscape generally to be left until late Autumn.
- No fertiliser or pesticides will be used.
- All arisings from landscape maintenance to be removed from site or stored with approval from relevant authorities. Where appropriate arisings are to be used in the creation and maintenance of habitat piles or hibernaculum.
- Watering to be carried out as required to ensure the successful establishment of the soft landscape proposals as detailed in Tables 9-1 to 9-12.
- All planted areas within the EA THREE DCO boundary shown in the soft landscape general arrangement drawing (Appendix 2) will be kept clear of weed growth for the first 3 growing seasons; after 3 years, a herb layer can be allowed to return.
- Weed control generally throughout all areas of the site to include spot herbicide treatment or manual removal of the following:
  - all broad leaved weeds.
  - docks (*Rumex spp*).
  - injurious weed species listed in the Weeds Act 1959 and Wildlife and Countryside Act 1981.
  - nettles (*Urtica spp*).
  - ragworts (*Senecio spp*).
  - thistles (*Cirsium spp*).
  - willowherb (*Epilobium spp*).

- Controls will be implemented in accordance with the EcoMP (EA3-OND-CNS-REP-BOW-000001) in any areas of invasive or notable species.
- There will be an agreed procedure for joint annual inspection of all planting areas by representatives of MSDC and EATL at the end of each growing season and for each year of the ten year aftercare period. Areas found not to be thriving will be treated to such additional works as are required to rectify the situation within the next growing season.
- Any replacements for those plants that have not established successfully in the first ten years of planting to be replaced the first available planting season with species, size, shape and form to match those of the existing planting scheme, unless otherwise agreed in writing by MSDC.
- Where grassland areas are found to not have established or regenerated sufficiently, grass to be re-seeded / topped up to ensure successful establishment of grassland.
- Suspension of the aftercare period for any part of the scheme may occur in the event that in the opinion of MSDC there was a significant failure of the planting scheme that could not be satisfactorily remedied in the following planting season, and or part of the planting scheme was failing to progress to the extent that it would not achieve the objectives of the scheme within the specified aftercare period.

96. The following section outlines the aims of the landscape management strategy in relation to the soft landscape proposals and includes a description of maintenance tasks that will be undertaken.

9.2. Woodland Planting (WM1, WM2, WM4)

97. There are three types of woodland planting, as shown in the Soft Landscape General Arrangement (Appendix 2), each serving a different purpose:

- WM1 – Core Woodland mix. This contains a diverse mix of native species, typical to the area and is intended to provide long-term screening as well as providing habitat and biodiversity. These are generally slower growing, taller species.
- WM2 – Woodland Edge mix. This is the diverse mix of species generally used around the edges of the woodland; it is intended to provide habitat variety and diversity but also is used where taller growing species would be inappropriate to plant (for example, adjacent to overhead powerlines).
- WM4 – Wet Woodland mix. This is a diverse mix suitable for planting within the region of the main SuDS attenuation basin, which may come under frequent or regular inundation. The tree species chosen are able to withstand wet areas or frequent flooding.

98. Details of the maintenance of the woodland planting areas are detailed in Table 9-1:

Table 9-1 Maintenance of Woodland

Woodland Maintenance	
Pruning, Trimming and Thinning	
1	All tree work will be undertaken to standards defined in BS 3998 and Forestry and Arboriculture Training and Safety Council Safety Guidance.
2	During pruning, trimming and thinning, the operator will ensure adjacent structures, plants or trees are not damaged. Prune and thin trees to maintain a well-balanced natural appearance; remove any suckers or basal growth growth and pruning back to branch collar. Prune between leaf fall and mid-winter. All arising's to be used in the creation and maintenance of habitat piles or hibernaculum in un-obtrusive areas. Consideration will be given to the potential for nesting birds during the nesting season.
3	Formative pruning of young trees to encourage good growth and shape to be undertaken years 1, 3 and 5. After 3 years full growing seasons, selectively thin, re-space and crown raise feathered trees and whips for all transplants up to 3m high, ensuring consideration of ecological receptors that may be present.

Woodland Maintenance	
4	After 5 years, from time of planting, it is expected that canopy closure will be achieved. Selectively thin weak or poor specimens to allow better specimens more space to thrive. Particular attention should be applied to the nurse crop (WM3) with a view to remove specimens that are supressing WM1 and WM2.
5	After 6-10 years it is possible to consider species that can be coppiced (e.g. Hazel). Additional further thinning should take place, particular attention should be applied to the nurse crop (WM3) with a view to remove specimens that are supressing WM1 and WM2 species. A judgement will need to be made as to the selection of specimens to remove so as not to be detrimental to the visual screening.
6	Ties, guards and stakes will be checked, adjusted and removed as required.
Weed Control	
1	Open areas between trees are to be seeded with species-rich grassland at time of tree planting, whilst being allowed to naturally develop. Within the first 3 growing season weeds are to be managed in line with the grassland maintenance programme where these are either considered pernicious or outcompeting either low lying herb species or newly planted trees. Mulched areas surrounding planted trees are to be kept free of all vegetation to ensure a clear weed free area whilst trees mature. Maintenance should aim to create a species-rich sward amongst the woodland to naturally develop into a native woodland ground flora habitat throughout the woodland maturity.
2	Mulching will be undertaken as the primary form of weed control. Mulching helps to moderate soil temperatures, reduce soil compaction and moisture loss (especially on lighter soils), provide nutrients, improve soil structure, while keeping mowers and trimmers away from the trunk. These benefits result in more root growth and healthier plants.
3	The use of well-composted wood chips taken from chipped material from the arisings of removed hedgerow sections and felled trees is acceptable and encouraged. A stockpile of chipped material will be kept near to each hedgerow crossing for use as mulching material.
4	Mulches will be applied immediately after planting, when the soil is moist and warm. Mulch material/matting will be applied on the surface of cultivated soil, when the soil is not frozen, to a depth of 5cm – 10cm, within the radius of the tree canopy (but not placed against the trunk). A minimum mulch circle radii will be 500 cm. Mulch will be freshened or replaced every 2-3 years, or as required, to maintain a minimum 5cm mulch depth. Mulch will be kept at least 8-15cm away from the trunk of young trees and shrubs.
5	Keep areas weed-free by a combination of herbicide applications and hand-weeding (preferably) orhoeing. Ensure that the methods used will cause a minimum of damage to adjacent planted areas. Do not allow nylon filament rotary cutters or other mechanical tools closer than 200mm to the stem of any tree or plant, carry out operations close to stems using hand tools. Maintain a grass & weed-free area around the base of each tree, min 500mm diameter.
6	Herbicide application: A foliar acting translocated or contact herbicide will be applied to emergent weeds, ensuring adjacent flora is not in contact with herbicide. Herbicide should only be used where hand weeding is not possible/feasible..
7	Hand weeding will be undertaken as necessary throughout the planting areas: Hoe and loosen the soil throughout the planting areas, taking care to avoid disturbance of roots of planted material. Remove weeds entirely, including roots with the minimum of disturbance to soil and and plants, bulbs and mulched surfaces. On completion, rake areas to a neat condition.
Watering	
Watering is required at planting, apply a heavy watering to the full rooting depth. Planting to include water retaining granules, where required. If the addition of mulch/biodegradabe mulch mats is delayed, then apply mulch only after rain or watering when the soil is moist. Take into account published meteorological data on rainfall for any given period, in particular in periods of	

Woodland Maintenance
Spring drought during April, May & June. Therefore, if required, undertake a heavy watering to full rooting depth. The contractor will need to arrange for a mobile water bowser or tanker to bring the required clean water to site.
Re-firming
Trees and shrubs will be maintained in a firm position in the ground and all stakes, guards and ties will be checked regularly. Particular timing of inspections: After strong winds, frost heave and other disturbances. Replace missing stakes and/or tree guards and report any significant failures. All tree guards will be biodegradable and/or removed when no longer required.
Failures
Towards end of first growing season a survey will be undertaken to assess successful uptake of planting and make recommendations for replacements. Any tree or shrubs planted that, within a period of 10 years after planting, is removed, dies or becomes, 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. A report on the establishment of the woodland is to be shared with MSDC stating what was found and any remedial action that is to be taken.

9.3. Hedgerow Planting (H1)

133. The H1 native hedgerow planting (as shown in Appendix 2) has a number of aims:

- It will provide additional visual screening along the top of the earth bund that surrounds the perimeter of the Converter Station.
- It will provide visual screening where trees and woodland are not possible to be planted because of technical constraints.
- It contributes towards creating a landscape framework within the area within which to locate the Converter Station.
- It contributes to enhancing the natural environment by providing “green corridors” and additional habitat.

134. Details of the maintenance of the hedgerow planting are detailed in Table 9-2:

Table 9-2 Maintenance of Hedgerows

Hedgerow Maintenance	
Pruning, Trimming and Thinning	
1	If the transplants are well branched, cutting back will not be necessary. Otherwise, for the first three years after planting, maintenance will concentrate on shortening the longer shoots and just tipping back shorter ones to encourage branching and dense growth without much loss in height. This trim will take place during September, ensuring ecological checks are undertaken as required.
2	From the third year onwards, trim the sides of the hedge, aiming for a well trimmed full A-shape (in cross section) to ensure that sunlight reaches the top and bottom equally. Aim for a width of about 1m at the base, tapering upwards to the desired height (approx. 1.1.m). Ideally, not all of the hedge should be pruned in the same year, treat either in alternate sections or alternate sides of the hedge. All arisings will be left in situ to decay back into the soil and feed the establishing hedge..
3	After 3 years’ establishment of new hedge planting, maintain hedges in accordance with the following: • Where existing hedge is higher than 3.6m allow for hedge work including coppicing appropriate species, removing old growth to allow regrowth of shoots from the base. • Remove excess leaf mould, deadwood and other material from base of hedges to keep soils most and encourage growth. • Replant gaps with species indicated in schedule (Appendix 9).

Hedgerow Maintenance	
Weed Control	
1	Hedgerows will be kept clear of weed growth for the first 3 growing seasons; after 3 years, a herb layer can be allowed to return
2	Mulching will be undertaken as the primary form of weed control. Mulching helps to moderate soil temperatures, reduce soil compaction and moisture loss (especially on lighter soils), provide nutrients, improve soil structure, while keeping mowers and trimmers away from the trunk. These benefits result in more root growth and healthier plants.
3	The use of wood chips taken from chipped material from the arisings of removed hedgerow sections and felled trees is acceptable and encouraged. A stockpile of chipped material will be kept near to each hedgerow crossing for use as mulching material.
4	Mulches will be applied immediately after planting, when the soil is moist and warm. Mulch material/matting will be applied on the surface of cultivated soil, when the soil is not frozen, to a depth of 5cm – 10cm. Mulch will be applied to a minimum of 500mm either side of the length of the hedge trench , guided by whether weed growths are outgrowing and smothering the hedge at this width. Mulch will be freshened or replaced every 2-3 years or as required, to maintain a minimum 5cm mulch depth. Mulch will be kept at least 8-15cm away from the trunk of young hederow trees.
5	Keep areas weed-free by a combination of herbicide applications and hand-weeding (preferably) or hoeing. Ensure that the methods used will cause a minimum of damage to adjacent planted areas. Do not allow nylon filament rotary cutters or other mechanical tools closer than 200mm to the stem of any hedge plant, carry out operations close to stems using hand tools. Maintain a minimum of 500 mm either side of the hedge as aa grass & weed-free area
6	Herbicide application: A foliar acting translocated or contact herbicide will be applied to emergent weeds , ensuring adjacent flora is not in contact with herbicide. Herbicide should only be used where hand weeding is not possible/feasible
7	Hand weeding: Hoe and loosen the soil throughout the planting areas, taking care to avoid disturbance of roots of planted material. Remove weeds entirely, including roots. Remove the minimum of soil and minimise disturbance to plants, bulbs and mulched surfaces. On completion, rake areas to a neat condition.
Watering	
Watering is required at planting, apply a heavy watering to the full rooting depth. If the addition of well compsted bark mulch is delayed, then apply mulch only after rain or watering. Take into account published meteorological data on rainfall for any given period, in particular in periods of Spring drought during April, May & June. Therefore, if required, undertake a heavy watering to full rooting depth. The contractor will need to arrange for a mobile water bowser or tanker to bring the required clean water to site.	
Re-firming	
Hedge plants will be maintained in a firm position in the ground and all stakes and guards will be checked regularly. Particular timing of inspections: after strong winds, frost heave and other disturbances. replace missing rabbit guards and report any significant failures. All guards will be biodegradable and/or removed when no longer required. Spiral guards and stakes to be removed after 5 years.	

Hedgerow Maintenance
Failures
Towards end of first growing season a survey will be undertaken to assess successful uptake of planting and make recommendations for replacements. Any hedgerow trees planted that, within a period of 10 years after planting, is removed, dies or becomes, 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. A report on the establishment of the hedgerows is to be shared with MSDC stating what was found and any remedial action that is to be taken.

9.4. Amenity Grass for Verges and Embankments (G1)

162. The aim is to create a healthy and full lawn turf along the access road verges, the internal face of the earthworks bunding and verge adjacent to perimeter footpath around the Converter Station.

163. Details of the maintenance of the verges and embankments are detailed in Table 9-3:

Table 9-3 Maintenance of Verges and Embankments

Verges and Embankment Maintenance	
Cutting	
1	A low-frequency rural grass mowing regime will be adopted, with some grass verge and embankment areas allowed to grow longer, with two cuts undertaken between May and September. If required, a mowing strip of 1m along the access road verge will be cut more regularly to give the appearance of a deliberately managed and maintained edge, with two cuts per month between March and October. Grass cuttings will be removed. Maintenance strimming will be undertaken with due consideration of the potential for ground nesting birds within the nesting season.
2	The benefits of cutting less frequently include lower maintenance costs and improved opportunities for bio-diversity. Particularly during prolonged periods of dry weather, leaving the grass longer will shade and protect the root zones of the grasses.
3	During dry spells do not cut grass.
Weed Control	
Regular grass cutting will generally suppress broadleaf weeds therefore weed as necessary using spot herbicide treatment or manual removal of the following: • all broad leaved weeds; • docks (*Rumex* spp); • injurious weed species listed in the Weeds Act 1959 and Wildlife and Countryside Act 1981; • Japanese knotweed (*Fallopia* spp); • nettles (*Urtica* spp); • ragworts (*Senecio* spp); • thistles (*Cirsium* spp); and • willowherb (*Epilobium* spp)	

Verges and Embankment Maintenance
Watering
As required during dry spells for establishment only, the intention is to create a sustainable grass sward not reliant on irrigation systems. If watering is required, due to unseasonably dry weather during the establishment period, then the contractor will need to arrange for a mobile water bowser or tanker to bring the required clean water to site.

9.5. Wet Grassland (G2)

175. The aim is to create a healthy and full sward of wetland grass habitat (G2) within the SuDS Detention Basin. Details of the maintenance of the wetland grass areas are detailed in Table 9-4:

Table 9-4 Maintenance of Wetland Grass

Wetland Grass Maintenance	
Cutting	
1	Wetland habitats are characteristically quite variable in composition, reflecting local drainage and management. Conditions can vary and localized differences may require a targeted approach specific to the area in question.
2	First year management. Most of the sown species are perennial and will be slow to germinate. Avoid cutting in the spring and early summer if the mixture is autumn sown. Allow any annuals to flower, then in mid-summer cut and remove the vegetation
3	In the second and subsequent years the grassland can be managed in a number of ways which, depending on soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer cut in combination with autumn and possibly spring mowing allowing for species to flower and set seed during the growing season.
4	Do not cut or graze from spring through to late July/August (to give the sown species an opportunity to flower).
5	After flowering in July or August cut to c 50mm. Leave the arisings to dry and shed seed for 1-7 days then remove from site.
6	Mow or graze the re-growth through to late autumn/winter to c 50mm and again in spring if needed.
Weed Control	
Weed control will be undertaken as necessary to include spot herbicide treatment, taking into account precautions for the use of herbicides within or near to standing bodies of water, or manual removal.	
Watering	
Unlikely to be required due to the type of grassland proposed (i.e. wetland grassland). However, should additional watering be required, then the contractor will need to arrange for a mobile water bowser or tanker to bring the required clean water to site.	

9.6. Species Rich Grass Areas (G3)

193. The intention of Species Rich Grassland areas (G3) is to create a healthy and full sward of species rich grassland to reinstate areas of former agricultural land disturbed by the construction and earthworks, or to create new grassland habitats on areas of land around

the Converter Station that will no longer be in agricultural use and are unsuitable for woodland planting, such as within the corridors of overhead electrical lines. The G3 seed mix is intended to assist with the introduction of grass species appropriate to the area and site conditions.

194. Details of the maintenance of the species rich grass areas are detailed in Table 9-5:

Table 9-5 Maintenance of Species Rich Grass Areas

Species Rich Grass Maintenance	
Cutting	
1	Similar to wetland grass areas, meadow like habitats are characteristically quite variable in composition, reflecting local drainage and management.
2	First year management. Most of the sown species are perennial and will be slow to germinate. Avoid cutting in the spring and early summer if the mixture is autumn sown. Allow any annuals to flower, then in mid-summer cut and remove the vegetation.
3	In the second and subsequent years the grassland can be managed in a number of ways which, depending on soil fertility, will determine the character of the grassland. One cut is proposed in mid-summer (July/August) to allow flowering and setting of seed with a second cut, if required, in autumn or possibly early spring, ensuring ecological checks are undertaken due to risk of ground nesting birds and other species. Management is to be directed by ecological input to ensure habitats are allowed to provide full ecological diversity and availability where possible.
4	Do not cut or graze from spring through to late July/August (to give the sown species an opportunity to flower).
5	After flowering in July or August cut to c 50mm. Leave the arisings to dry and shed seed for 1-7 days then remove from site.
6	Mow or graze the re-growth through to late autumn/winter to c 50mm and again in spring if needed.
7	Similar to wetland grass areas, meadow like habitats are characteristically quite variable in composition, reflecting local drainage and management.
Weed Control	
Weed control will be undertaken as necessary to include spot herbicide treatment or manual removal.	
Watering	
Watering is unlikely to be required as the intention is to create a species rich grassland not dependent upon external manual watering or irrigation. However, should additional watering be required due to extremely unseasonal dry conditions, then the contractor will need to arrange for a mobile water bowser or tanker to bring the required clean water to site	

9.7. Topsoil Storage Mix (G4)

214. A topsoil storage low maintenance grass mix (G4) will be used immediately following topsoil stripping to stabilise long term top soil storage. Where agreed with the landowner, this may be a legume-rich mix to fix nitrogen into the soil to help support growth of other grasses. The sward can also be ploughed back in to improve soil structure.

Table 9-6 Maintenance of Topsoil Storage

Topsoil Storage Maintenance
Cutting
The emergent grass sward will be mown or strimmed initially to a cutting height of 50mm to promote tillering of the grasses. This will in turn both stabilise the soil surface and restrict opportunities for weed species to invade the sward. The sward will subsequently be mown to a height of 50mm once in April/May and again in August/September during the construction period, , to allow for flowering and seeding (if of appropriate mix) to provide a resource for invertebrates and birds, unless growth rates or climatic conditions indicate otherwise.
Weed Control
At all times during the site working and restoration programme good agricultural practice will be used to contain weed growth and the appropriate herbicide will, if required, be applied in accordance with manufacturers' recommendations. Herbicide is however, to be avoided where possible. Ideally there is to be no herbicide use on bunds throughout the entirety of the storage period and is only to be used just before reinstatement to kill off vegetation. Weed control will be undertaken as necessary to include manual removal, or if required spot herbicide treatment. Any areas of failed grass will be cultivated and reseeded in the next seeding season.
Watering
Unlikely to be required as the intention is to create a temporary grass sward not dependent upon external manual watering or irrigation. However, should additional watering be required due to extremely unseasonal dry conditions or to ensure the bund structure is retained, then the contractor will need to arrange for a mobile water bowser or tanker to bring the required clean water to site.

9.8. Aquatic and Marginal Grass and Planting Mixes (G6, G7)

221. The intention of the aquatic and marginal grass and plant mixes is to stabilise SuDS elements: swale base, detention basin and permanent pond with species that a suitable for regular and frequent inundation; whist providing a valuable biodiversity resource to the local area. Details of the maintenance of aquatic and marginal grass areas are detailed in Table 9-7:

Table 9-7 Maintenance of Aquatic and Marginal Grass

Aquatic and Marginal Grass Maintenance
Cutting
In the first year, annual weed growth may be cut back to encourage the development of a good perennial ground cover. Generally, as required, cut grass in swales, access and overflows when it is at 100-150mm high. Wetland or meadow vegetation cut at 50mm once a year and removed to wildlife areas or compost.
Weed Control
Manual weed treatment only, no chemicals to be used. Any areas of failed grass or vegetation will be cultivated and reseeded and replanted in the next appropriate planting/seeding season.

Aquatic and Marginal Grass Maintenance
Watering
Unlikely to be required due to the type of species proposed (i.e. aquatic and marginal aquatic). However, should additional watering be required during the establishment period, then the contractor will need to arrange for a mobile water bowser or tanker to bring the required clean water to site.

9.9. Programming of Maintenance Tasks

228. The following is an indicative annual schedule of maintenance visits that will be undertaken for the first 10 years of establishment within woodland and hedgerow planted areas (WM1 - WM4 and H1) and for the first five years of establishment within grassland habitat areas (G1 – G7). This provides a reasonable frequency of the more common operations, and a good indication of the required level of intensity of management required but is not intended to be fully comprehensive or restrictive.

229. An appointed contractor will be required to construct a schedule of operations specifying operations and frequency using his own experience and horticultural knowledge and understanding of the growing conditions prevalent within the local area.

230. The ongoing programme of maintenance work will include proposed frequency of visits and operations detailed in the specification, i.e. pruning. It will also include scheduled dates for:

- Infrequent operations such as re-spacing of plants, pruning, topping up of mulch, replacement of plants / restocking of beds etc.;
- Planting review and refurbishment;
- Monitoring and review; the effectiveness of the management operations is to be closely and continually monitored and reviewed annually against the NBS Specification and this Maintenance Plan, with any resulting changes incorporated into the subsequent years' programme.

Table 9-8 Feathered trees, whips and shrub mixes (WM1, WM2, WM3, WM4) – activities and number of visits

Month	Watering	Weeding	Re-firming
January			
February			
March			1
April	2		
May	2	1	
June	2	1	
July	2	1	
August	2	1	
September		1	
October		1	1
November			
December			
Note: Stakes, spiral guards and ties to be removed as required. Watering as necessary during periods of drought in the establishment period			

Table 9-9 Hedgerows (H1) – activities and number of visits

Month	Watering	Weeding	Re-firming
January			
February			
March			1
April	2		
May	2	1	
June	2	1	
July	2	1	
August		1	
September		1	
October		1	1
November			
December			
Note: Watering as necessary during periods of drought in the establishment period. Spiral guards and stakes to be removed after 5 years			

Table 9-10 Amenity Grass areas (G1) – activities and number of visits

Month	Weeding	Mowing (neat margins along verges)	Mowing (areas of longer grass)
January			
February			
March		**2**	
April		2	
May	**1**	**2**	**1**
June		2	
July	**1**	**2**	
August		2	1
September	**1**	**2**	
October		2	
November			
December			

* Note: frequency of mowing of grass areas as and when required due to weed growth to protect planting.

Table 9-11 Wetland and Species Rich Grassland areas (G2, G3) – activities and number of visits

Month	Weeding	Mowing (leave arisings 1 week)
January		
February		
March		**1***
April		
May	**1**	
June		
July		
August		
September	**1**	**1***
October		
November		**1***
December		

** Note: Late summer cut after flowering (leave arisings to dry and seeds a chance to shed / disperse for 1 week); Late autumn / winter – mow or graze. Spring cut (refer to table 9-5).*

Table 9-12 Swale Maintenance (G1, G2) – activities and general frequency

Maintenance	Action	Frequency
Regular maintenance	Litter and debris removal from site	Monthly
	Amenity grass cutting at 35-50mm	As required
	Grass cut to swales, access and overflows 100-150mm.	Monthly or as required
	Wetland or meadow vegetation cut at 50mm and remove to wildlife or compost piles	Monthly or as required
	Inspect and clear inlets, outlets and overflows	Monthly
Occasional tasks	Remove leaf accumulation	As required
	Cut back overhanging branches to allow dense vegetation growth	As required
Remedial work	Repair erosion, level uneven surfaces or damage by re-turfing or seeding	As required
	Remove silt and spread locally outside design profile and reinstate surface	As required
	Repair inlets, outlets or check dam structures to design detail	As required

Table 9-13 Detention Basin Maintenance (G1, G2, G7) – activities and general frequency

Maintenance	Action	Frequency
Regular maintenance	Litter and debris removal from site	Monthly
	Amenity grass cutting at 35-50mm	As required
	Grass cutting to access routes, overflows and basin where required at 75-100mm not to exceed 150mm	As required
	Meadow grass, where appropriate, cut at 50mm and remove to wildlife or compost piles	Annually
	Manage wetland planting in micropools by cutting and remove to wildlife or compost piles	As required
	Inspect and clear inlets, outlets, control structures and overflows	Monthly
Occasional tasks	Remove leaf accumulation	As required
	Cut back overhanging branches to allow dense vegetation growth	As required
	Remove sediments from forebay, inlets and pre-treatment structures	As required
Remedial work	Inspect and repair damage to inlets, outlets, banks and overflows	As required

Table 9-14 Permanent Pond Maintenance (G6) – activities and general frequency

Maintenance	Action	Frequency
Regular maintenance	Litter and debris removal from site	Monthly
	Amenity grass 35-50mm for access, paths and visual requirements	As required
	Grass cut to pond edges, access and overflows 75-100mm and not to exceed 150mm	Monthly or as required
	Wetland, meadow or rough grass cut at 50mm and remove to wildlife or compost piles	Annually or as required
	Cut pond vegetation if required and no more than 30% 100mm above pond base and remove to wildlife or compost piles	Annually or as required
	Inspect and clear inlets, outlets and control structures	Monthly
	Remove sediment from Forebay structures if present and site apply subject to agreement with the Environment Agency	Annually
Occasional tasks	Review silt accumulation remove and site apply or take off site if necessary subject to agreement with the Environment Agency	As required

Maintenance	Action	Frequency
	Cut back or remove any overhanging branches or self-seeded trees and shrubs from vegetated SuDS to ensure a dense ground vegetation.	As required
Remedial work	Repair or replace inlets, outlets or control structures to design detail	As required

10. REFERENCES

CIRIA, 2015, CIRIA report C753. The SuDS Manual-v5 Guidance for the design & management of SuDS systems

DEFRA, 2009, Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

Forestry Commission, 2017, The UK Forestry Standard, The governments' approach to sustainable forestry, Forestry Commission, Edinburgh

APPENDIX 1 HARD LANDSCAPE GENERAL ARRANGEMENT (EA3-OND-CNS-DRG-IBR-000002)

HARD LANDSCAPE LEGEND

- **EA THREE DCO Boundary**
- **Existing Contours**
- **Proposed Contours**
- **Pylon**
- **Overhead powerlines**
- **Approximate underground cable alignment**

Proposed Hardworks

- **P1: Asphalt road**
  Description: Rural road with concrete kerb edging to Engineers specification.
- **P2: Permeable gravel groundcover within substation**
  Description: Local flint aggregate subject to conduction testing
- **P3: Self binding gravel footpath**
  Description: Natural gravel self-binding footpath.
- **P4: Reinforced grass road surface**
  Description: Golpla pre-grown reinforced grass road from Geosynthetics Ltd.
- **F1: Fence**
  Description: 2.4m high galvanised steel mesh fencing.
- **F1a: Gate**
  Description: 2.4m high galvanised steel entrance gate.
- **F2: Fence**
  Description: Rabbit / deer protection fencing for new woodland.
- **F3: Maintenance access gate**
  Description: 2m wide maintenance gate / height dependent upon adjacent fencing.

Filter drain with grass cover and manhole access (Refer to engineers specification)

Filter drain with exposed aggregate and manhole access (Refer to engineers specification)

Filter drain within substation compound (Refer to engineers specification)

Field drain and manhole access (Refer to engineers specification)

NOTE: Final alignments of existing tracks within site boundary to be confirmed

NOTES

1. This drawing is to be read in conjunction with all other drawings and specifications.
2. Do not scale off this drawing. Written dimensions to be taken only.
3. Any discrepancies found between this drawing and other drawings and specifications in the construction documents must be referred to the Landscape Architect prior to work commencing.
4. This drawing must not be copied in whole or in part without prior written consent of Optimised Environments Ltd.

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
02	Suds pond updated.	rt	14.04.2022
01	SPR comments; P1 asphalt road; added gate to fencing.	jd	24.01.2022

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Client

ScottishPower Renewables

Project

East Anglia THREE Offshore Windfarm

Drawing Title

APPENDIX 01

HARD LANDSCAPE GENERAL ARRANGEMENT PLAN

Scale Bar 12.5m 25m 37.5m 50m 62.5m

North

Scale: **1:1250@A1** Date: **DECEMBER 2021**

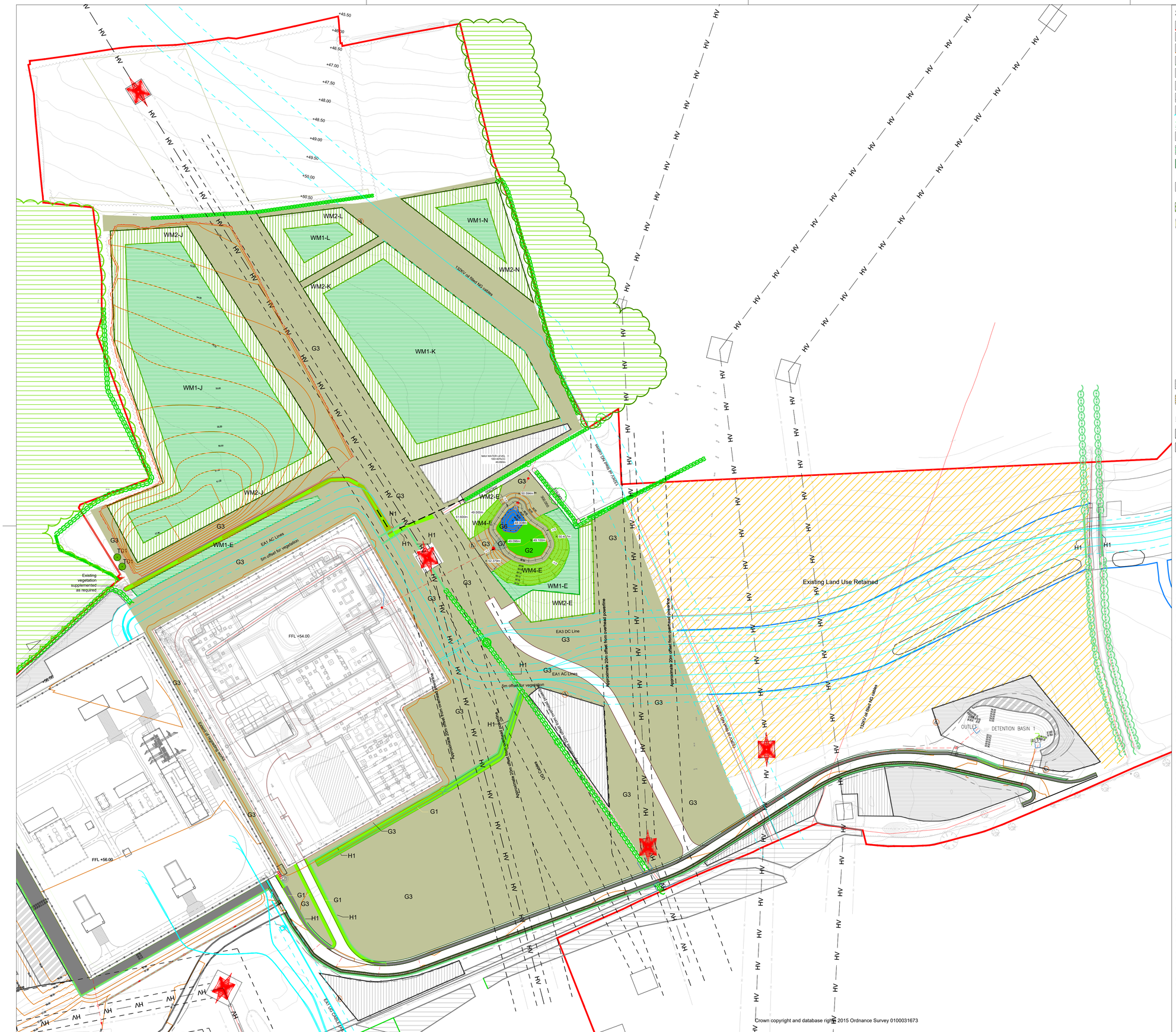
By: **rt** Status: **For Information**

Checked: **jd** Approved: **bp**

Drawing Number **EA3-OND-CNS-DRG-lBR-000002** Rev **02**

Computer File: P:\2020\201527_EA3plan\CAD\AUTOCAD\SHEETS

APPENDIX 2 SOFT LANDSCAPE GENERAL ARRANGEMENT (EA3-OND-CNS-DRG-IBR-000003)



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SOFT LANDSCAPE LEGEND

- **EA THREE DCO Boundary**
- **Existing Contours**
- **Proposed Contours** (+54.00)
- **Existing Vegetation to be retained**
- **Indicative areas of existing mature woodland**
- **Pylon**
- **Overhead powerlines**
- **Approximate underground cable alignment**

Proposed Planting

- **Txx** Tree replanting location. See plant schedules for details.
- **H1** Mixed native species hedge. See plant schedules for details.
- **WM1** Core Woodland comprising generally slower growing mixed broadleaf species such as oak (See plant schedules for details)
- **WM2** Edge woodland comprising generally lower growing mixed broadleaf species such as Rowan (See plant schedules for details)
- **WM4** Wet woodland planting mix appropriate for SUDs detention basin area. (See plant schedules for details)
- **R1** Supplementary / infill planting for gaps in existing hedgerows using WM2 tree/shrub mix or H1 hedgerow mix as specified
- **G1** Amenity grass seed mix for embankments, verges and swale sides
- **G2** Wetland areas grassland seed mix areas.
- **G3** Species rich grassland seed mix areas.
- **G6** Marginal aquatic planting for the margins around the permanent pond.
- **G7** Marginal aquatics for the SUDs basin forebay and swale base areas
- Filter drain with grass cover and manhole access (Refer to engineers specification)
- Filter drain with exposed aggregate and manhole access (Refer to engineers specification)
- Filter drain within substation compound (Refer to engineers specification)
- **P4: Reinforced grass road surface** Description: Golpla pre-grown reinforced grass road from Geosynthetics Ltd.

FOR INFORMATION ONLY:

- EA1 Woodland. Woodland planting carried out as part of EA1 landscape works. For information only.
- Existing land use to be retained and managed as agricultural use in accordance with local landowners recommendations and guidance

Proposed Fencing to New Woodland

- **F2: Fence** Description: Rabbit / deer protection fencing for new woodland.
- **F3: Maintenance access gate** Description: 2m wide maintenance gate / height dependent upon adjacent fencing.

GENERAL NOTES TO BE READ IN CONJUCTION WITH SPECIFICATION AND DRAWINGS:

SITE CLEARANCE GENERALLY

General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
Stones: Remove those with any dimension exceeding 75 mm.
Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
Vegetation: Clear scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings.
Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

WOODLAND PLANTING GENERALLY

Preparation:	Flail clear all vegetation from site to 100mm high. Remove
all	arisings. Cross-rip planting areas to 600mm deep to remove
and	break through clay pans
Sizes:	Bare root, transplanted whips, 60-80cm high. Local provenance where possible
Spacings:	1.5m centres or as indicated in Plant Schedules
Timings:	Deciduous trees and shrubs: Late October to late March,
Conifers and evergreens:	September/ October or April/ May.
Planting:	Notching: Make a vertical 'I', 'L', 'T' or 'H' notch.
Planting Depth:	To accommodate full depth of roots. Plant tree, close notch
with	root collar at ground level and firm the soil.
Planting density:	As plant schedule.
Layout:	Random groups of no less than 3 or more than 7 of the same species, ensuring that no three plants are aligned in any one direction.
Protection:	Allow for deer proof fence to surround areas woodland
planting,	fencing to incorporate rabbit proof fencing. Fencing mesh to BS EN 10223-5:2012.
Mulch:	75mm of well-composted bark mulch to be provided around tree base.
Maintenance:	Allow for 10 year maintenance and management as per management plan
Replacements:	As required, commiserate species and sizes.

HEDGE PLANTING GENERALLY

Preparation:	Flail clear all vegetation from site to 100mm high. Remove all arisings. Cross-rip planting areas to 600mm deep to remove and break through clay pans
Sizes:	Bare root, transplanted whips, 90-120cm high. Local provenance where possible
Spacings:	Double staggered row, 5 plants per linear metre
Timings:	Deciduous trees and shrubs: Late October to late March
Protection:	Allow for tree protection tubes for each plant.
Mulch:	75mm of well-composted bark mulch to be provided around base of plants
Maintenance:	Allow for 10 year maintenance and management as per management plan
Replacements:	As required, commiserate species and sizes.

PLANTS/ TREES - GENERAL

Condition:	Materially undamaged, sturdy, healthy and vigorous.
Appearance:	Of good shape and without elongated shoots.
Hardiness:	Grown in a suitable environment and hardened off.
Health:	Free from pests, diseases, discoloration, weeds and physiological disorders.
Root system and condition:	Balanced with branch system.
Standard:	The National Plant Specification.
Species:	True to name.
Origin/ Provenance:	Local provenance.
Definition:	Origin and Provenance have the meaning given in the
National	Plant Specification

WOODLAND/HEDGE MAINTENANCE

Watering:	Only as necessary to prevent plants wilting
Loose plants:	Refirm surrounding soil, without compacting.
Weed control:	Cut down and remove weeds prior to setting seed in a 1 m diameter area around each tree/hedge. Vegetation except
trees	and coppice shoots to be retained: Cut within the plantation
area.	Height (maximum): 50 mm.
Arisings:	Leave between rows. Mechanical, chemical or mulching methods of vegetation
control:	Submit proposals.
Ditches and drains:	Keep clear.

PROTECTION TO H1 HEDGE PLANTING AND WM WOODLAND PLANTING OUTSIDE FENCED AREAS

Manufacturer:	Acorn planting products or equal approved.
Product reference:	'Oxy-degradable' shelterguard supplied with 1.2m x 25mm
square stake.	
Type:	Round.
Material:	Biodegradable plastic mesh.
Size:	1.2 m high x 110 mm diameter.
Colour:	Green.
Support:	Single timber stake.
General:	Ensure that protection methods do not impede natural movement of trees or restrict growth.

ROOT BARRIERS

Underground Proprietary vertically ribbed root barriers are to be installed to an appropriate depth where trees are located in proximity to hard landscape, existing or proposed utilities / services

NOTES

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
03	Suds pond update.	rt	19.04.2022
02	Suds pond update; eastern hedgeline shown on plan.	rt	14.04.2022
01	SPR comments; Red line boundary.	jd	24.01.2022

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Client

ScottishPower Renewables

Project

East Anglia THREE Offshore Windfarm

Drawing Title

APPENDIX 02

SOFT LANDSCAPE GENERAL ARRANGEMENT PLAN

Scale Bar 12.5m 25m 37.5m 50m 62.5m

North

Scale: **1:1250@A1** Date: **DECEMBER 2021**

By: **rt** Status: **For Information**

Checked: **jd** Approved: **bp**

Drawing Number **EA3-OND-CNS-DRG-IBR-000003** Rev **02**

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APPENDIX 3 EARTHWORKS GENERAL ARRANGEMENT (EA3-OND-CNS-DRG-IBR-000004)

EARTHWORKS LEGEND

- EA THREE DCO Boundary
- Existing Contours
- Proposed Contours (+54.00)
- Pylon
- Overhead powerlines (HV)
- Approximate underground cable alignment
- Filter drain with grass cover and manhole access (Refer to engineers specification)
- Filter drain with exposed aggregate and manhole access (Refer to engineers specification)
- Filter drain within substation compound (Refer to engineers specification)
- Field drain and manhole access (Refer to engineers specification)

NOTES

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
03	Suds pond updated.	rt	19.04.2022
02	Suds pond updated.	rt	14.04.2022
01	SPR comments. SE updated contour detail.	jd	24.01.2022

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Client

ScottishPower Renewables

Project

East Anglia THREE Offshore Windfarm

Drawing Title

APPENDIX 03

EARTHWORKS GENERAL ARRANGEMENT PLAN

Scale Bar 12.5m 25m 37.5m 50m 62.5m

North

Scale: **1:11250@A1** Date: **DECEMBER 2021**

By: **rt** Status: **For Information**

Checked: **jd** Approved: **bp**

Drawing Number **EA3-OND-CNS-DRG-IBR-000004** Rev **02**

Computer File: P:\2020\201527_EA3plan\CAD\AUTOCAD\SHEETS

APPENDIX 4 TYPICAL CONSTRUCTION DETAIL: SURFACES (EA3-OND-CNS-DRG-IBR-000005).

E10: 150mm standard concrete flush channel

Product:	CS2 Square flush channel CS2
Material:	Standard natural concrete edging
Supplier:	Marshalls or equal approved Landscape House Premier Way Lowfield Business Park Elland HX5 9HT T: 0845 3020600
Specials:	Radius, angle, quadrant, drop kerb and transition specials to be used where required.
Unit Size:	150 x 150mm
Joints:	To engineer's detail and specification
Build up:	Refer to engineer's specification and details.
Sample:	5m length associated with adjacent paving samples to be approved prior to laying permanent areas.

E10 sheet 000005 — **Standard Concrete Flush Channel**

Scale: 1 : 20

P1: Standard Asphalt surfaced road

Material: asphalt

Refer to engineers (SE) detail and specification but typically to be:
- Asphalt wearing course laid to falls;
- DBM binder course.
- Granular type 1 sub-base.
- N.B. Additional capping may be required in areas with poor ground conditions

P1 sheet 000005 — **Standard Asphalt Surfaced Access Road**

Scale: 1 : 20

P2: Inert permeable gravel ground cover

Material:	Locally sourced flint gravel
Colour:	Kennet flint gravel or similar locally sourced stone Contractor to submit proposals. To be approved.
Size:	8-14mm aggregate, or submit proposals
Depth:	100mm

Notes:
1. Use of non-National Grid standard specification of gravel dependent upon proposed alternative passing conductivity tests by engineer.
2. Loose laid and raked to uniform thickness
3. Terram membrane to be laid below gravel layer
4. Samples to be approved

Kennet flint

Image for reference only. Sample to be approved.

P2 sheet 000005 — **Inert Gravel Ground Cover**

Scale: 1 : 20

P3: Self binding gravel path with timber edging

Surfacing

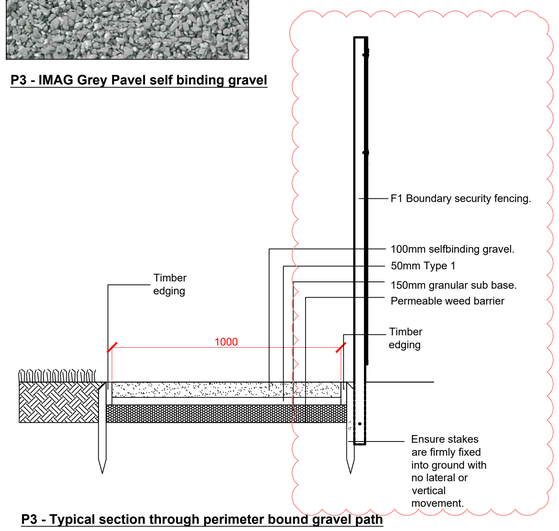
Material:	'IMAG Grey Pave' self binding gravel or equal approved, sample to be provided before any alternatives are approved.
Colour:	'Grey Pave'.
Finish:	As supplied.
Depth:	100mm
Build up:	To engineers detail / manufacturers recommendations, Typically to 'Drives and Car Parks' specification, but typically: - 50mm granular type 1 sub-base; - 150mm selected granular material; - Permeable weed barrier - N.B. Additional capping may be required in areas with poor ground conditions

Edging:

Material:	Treated softwood timber and stakes
Unit Size:	50x50x600 treated soft wood pegs at 1200mm centres supporting 38mm x 150mm timber edge.
Treatment:	Pressure impregnated to BS 351-1 with Tanalith E/GFb preservative or equal and approved. Top of peg to be weathered below ground level on grass edges to shed water. Timber edge to be screwed to pegs with galvanised fixings.
Sample:	2 x 5m lengths associated with adjacent paving samples to be approved prior to laying permanent areas.

P3 - IMAG Grey Pavel self binding gravel

P3 - Installed self binding gravel path with timber edging



P3 - Typical section through perimeter bound gravel path

P3 sheet 000005 — **Self Binding Gravel with Timber Edging**

Scale: 1 : 20

P4: Reinforced grass road system with standard concrete square channel

Surfacing

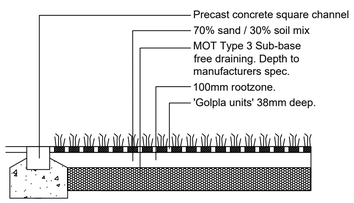
Material:	Golpla pre-grown grass road.
Supplier:	Geosynthetics Ltd. or equal approved. Fleming Road Harrowbrook Industrial Estate Hinckley Leicestershire LE10 3DU Tel: +44 (0)1455 617140
Colour:	Green
Finish:	As supplied
Unit Size:	As supplied.
Growing medium:	Soil to be sandy loam free from stones, debris and weed seeds.
Thickness:	To manufacturers recommendation.
Build up:	Refer to engineer's specification and details.

Laying Notes:

- No trafficking of Grass Road during first grass growing season until full establishment.
- No service covers to be located within P4.

Edging:

Product:	BS Standard Concrete Square Channel
Material:	Precast concrete
Supplier:	Marshalls or equal approved Landscape House Premier Way Lowfield Business Park Elland HX5 9HT 0845 3020600
Unit Size:	150 x 150 x 914mm
Joints:	To engineer's detail and specification
Build up, foundation and haunch:	Refer to engineer's specification and details.
Sample:	5m length associated with adjacent paving samples to be approved prior to laying permanent areas.



P4: Typical section.

P4 - Pregrown grass road units

P4 - Installed grass road units

P4 sheet 000005 — **Reinforced Grass Road System with Standard Concrete Square Channel**

Scale: 1 : 20

NOTES

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
01	SPR comments. SE detail for perimeter path ; P1 Asphalt road to replace concrete.	jd	24.01.2022

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Client
ScottishPower Renewables

Project
East Anglia THREE Offshore Windfarm

Drawing Title
APPENDIX 04

Typical Details: Surfaces

Scale Bar — North

Scale:	**1:20@A1**	Date:	**DECEMBER 2021**
By:	**rt**	Status:	**INFORMATION**
Checked:	**jd**	Approved:	**bp**

Drawing Number: **EA3-OND-CNS-DRG-IBR-000005** Rev: **01**

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APPENDIX 5 TYPICAL CONSTRUCTION DETAIL: FENCING (EA3-OND-CNS-DRG-IBR-000006).

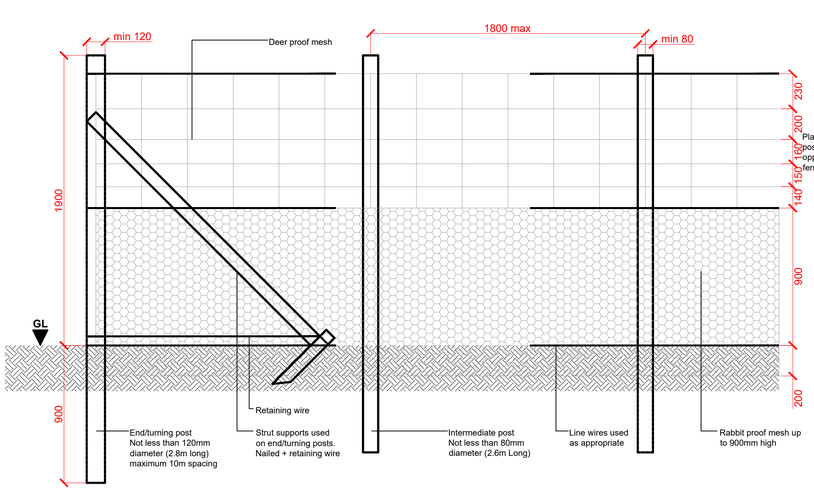
F2: Deer proof fence (with rabbit proof mesh)

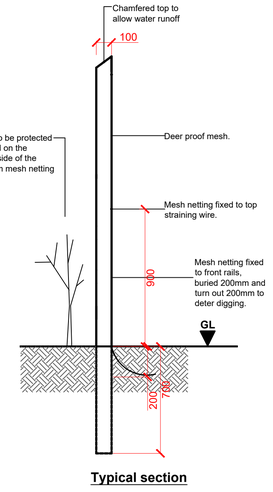
Description:	Wooden post fencing with wire mesh netting
Height:	1.9m
Material:	All timber shall be FSC pressure treated larch or other softwood as approved.
End/Turning Posts:	Minimum 120mm diameter 2800mm (1900mm above ground) at intervals no greater than 10m. Posts to be driven to minimium depth 900mm.
Intermediate Posts:	Minimum 80mm diameter 2600mm (1900mm above ground) at intervals no greater than 1.8m. Posts to be driven to minimium depth 700mm.
Rabbit proof mesh:	Ground level to 900mm high (plus 200mm sub ground level) Galvanised wire netting with max 31mm apertures, 18g wire gauge (BS EN 10223–2). Netting to be fixed securely to fence posts. Mesh to extend into trench at bottom of fence line 200mm below ground level. Trench to be backfilled.
Deer proof mesh:	900mm - 1800mm: Double width netting deer fencing 6/90/30, max 200x300mm. High Tensiile steel wire 2.5mm diameter.
Fixings:	All fixings to be appropriately sized and galvanised to BS EN ISO 1461

Assembly:

1. Fencing to follow the ground profile with small adjustments to height as necessary to obtain flowing alignment.
2. Line wires used as appropriate with Lashing rods, retaining wire used for strut retention.
3. BS 1722 Part 7 applies

Refer to: Forestry Commission, Forest Fencing Technical Guide for further information. Contractor to confirm final fence configuration for approval.





Typical section

F2 sheet 000006 — **Deer proof fence (with rabbit proof mesh)**

Scale: 1 : 20

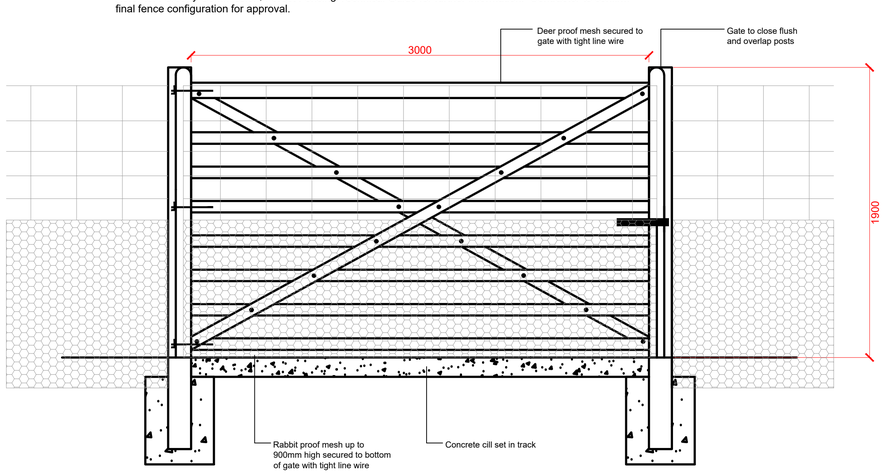
F3: Access gate

Description:	Wide single leaf timber field gate, with heavy toprail and cross bracing
Height:	1.9m
Gate width:	3m
Material:	All timber shall be FSC pressure treated larch or other softwood as approved.
Finish:	New planed finish
Top rail:	100mm x 75mm, edges chamfered
Under rail/ cross braces:	75 x 25mm
Hanging and slam stiles (rounded top):	100 x 75mm
Fixings:	All joints to be morticed and tenoned, Rail and brace crossings to be bolted with stainless steel bolts.
Gate posts:	150x150mm Slamming post 175 x 175mm Hanging Post
Foundation:	To engineer's detail
Security Locks:	1No. agricultural field gate lock to be installed to each gate.

Hanging fittings:

- Heavy Galvanized Adjustable Hinge Set,
- 1 Loop Over Catch,
- 1 Anti Lift Device
- Fitting of Irons to Gate

Refer to: Forestry Commission, Forest Fencing Technical Guide for further information. Contractor to confirm final fence configuration for approval.



F3 sheet 000006 — **Access Gate**

Scale: 1 : 20

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
02	SE Security fencing / gate detail omitted.	jd	30.03.2022
01	SPR comments. SE Security fencing / gate detail added.	jd	24.01.2022

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Client

ScottishPower Renewables

Project

East Anglia THREE Offshore Windfarm

Drawing Title

APPENDIX 05

Typical Details: Landscape Fencing

Scale Bar 0.2m 0.4m 0.6m 0.8m 1.0m — North

Scale:	**1:20@A1**	Date:	**DECEMBER 2021**
By:	**rt**	Status:	**INFORMATION**
Checked:	**jd**	Approved:	**bp**

Drawing Number **EA3-OND-CNS-DRG-IBR-000006** Rev **02**

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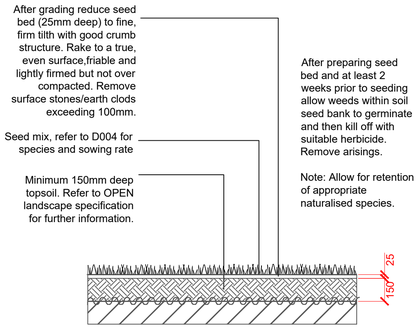
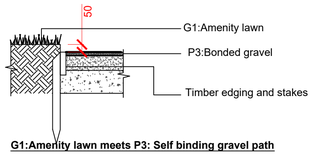
APPENDIX 6 TYPICAL CONSTRUCTION DETAIL: PLANTING (EA3-OND-CNS-DRG-IBR-000007).

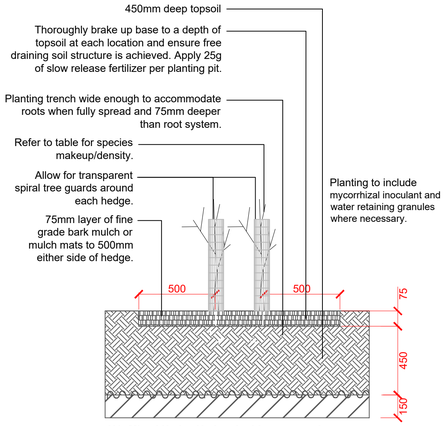
Spiral shelter for hedge plants
Product: Spiral Shelter
Supplier: Fiberweb Geosynthetics Ltd. or equal approved.
Blackwater Trading Estate,
The Causeway,
MALDON,
CM9 4GG
Tel: +44 (0) 1621 874201
Material: 100% Recycled Photodegradable PVC
Colour: Transparent
Size: 60cm x 50mm
Support: Bamboo cane
Ties: Two ties required.



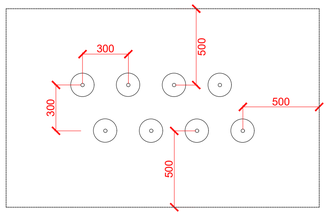
Planting type: G1 Amenity lawn seeding



G1:Amerility lawn meets P3: Self binding gravel path

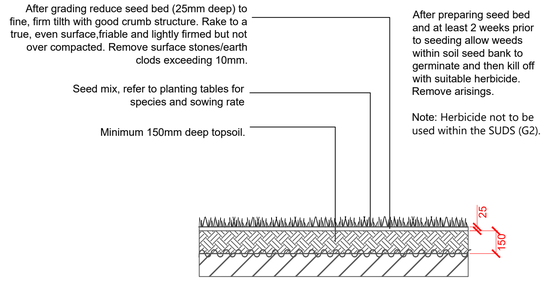


H1: Mixed Native Hedge double staggered row

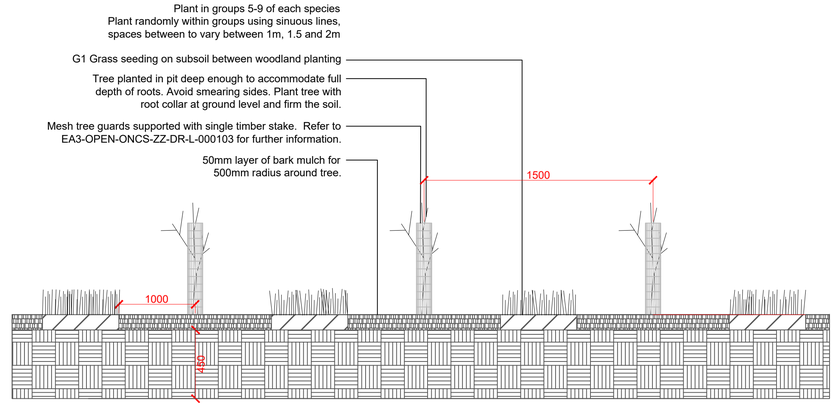


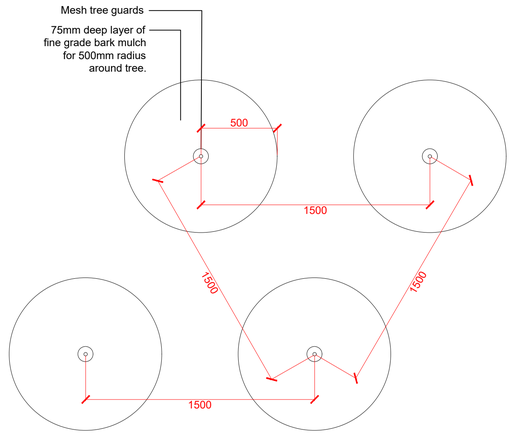
Typical Planting Spacing Arrangement for Mixed Native Hedge.

G1 sheet 000007 — **Amenity Lawn**
Scale: 1 : 20



Planting type: G2 (wetland grass), G3 (species rich grassland), G4 (long term topsoil storage) seeding





WM1-WM4 - Typical Planting Spacing Arrangement for Woodland Planting

WM sheet 000007 — **Woodland Mix Planting**
Scale: 1 : 20

H1 sheet 000007 — **Hedge**
Scale: 1 : 20

R1: Supplement planting
Species: As per WM2 mix
Percentage: As per WM2 mix
Plant sizes: As per WM2 mix
Root condition: As per WM2 mix
Protection: As per WM2 mix
Density: Where there is a gap in planting larger than 5m2 new planting to be included at 1.5 m centres. Locations to be agreed on site.

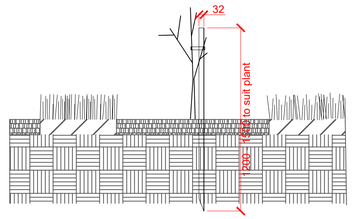
R1 sheet 000007 — **Supplement planting**
Scale: 1 : 20

G2-G4 sheet 000007 — **Seed Mix Areas (G2, G3 & G4)**
Scale: 1 : 20

Treeguards for Trees within Group Planting Areas
Product: Treeguard Mesh Tube
Supplier: Fiberweb Geosynthetics Ltd. or equal approved.
Blackwater Trading Estate,
The Causeway,
MALDON,
CM9 4GG
Tel: +44 (0) 1621 874201
Material: Recycled HDPE Photodegradable
Colour: Olive Green
Height: 1.2m & 1.5m - to correspond to height of tree in mix table
Diameter: 80-110mm
Support: Softwood timber stake 20mm x 20mm square,
1.2m-1.5m length to ensure $\frac{1}{3}$ length underground and 30cm below top of guard,
FSC certified, treated to BS8417:2003
Ties: Two ties required.

Supportive stakes for trees that are within fencing (without canes/spiral guards).
Product: Soft Wood Tree Support Stakes
Supplier: Green-tech
Tel: 01423 369727

Material: Softwood
Height: 1.2m & 1.5m - to correspond to height of tree in mix table
Width: 32mm square
1.2m-1.5m length to ensure $\frac{1}{3}$ length underground.
FSC certified, treated to BS8417:2003.
Ties: Two ties required.



WM1-WM4 - Typical Tree staking detail (without spiral guard)

NOTES
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Topographical Survey: Please reference surveyor's survey.

CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
01	SPR comments. Additional information re. tree staking	jd	24.01.2022

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Client
ScottishPower Renewables

Project
East Anglia THREE Offshore Windfarm

Drawing Title
APPENDIX 06

Typical Details: Planting

Scale Bar 0.2m 0.4m 0.6m 0.8m 1.0m
North

Scale: **1:20@A1** Date: **DECEMBER 2021**
By: **rt** Status: **INFORMATION**
Checked: **jd** Approved: **bp**

Drawing Number **EA3-OND-CNS-DRG-IBR-000007** Rev **01**

Computer File: P:\2020\201527_EA3plant\CAD\AUTOCAD\SHEETS

APPENDIX 7 TYPICAL CONSTRUCTION DETAIL: PLANTING SCHEDULES – WOODLAND (EA3-OND-CNS-BOM-IBR-000001).

WM1-WM4: Tree and Shrub Planting Mixes

Planting specification:

Species and mix: As per tables. Mix to be used for new woodland blocks for mitigation planting around the Converter Station. Derived from SCC comments on EA1 substation mixes and also additional species selected to replace potential losses due to Ash Dieback disease.

Planting: Trees centres to vary between min 1m , maximum 2m centres. Plant numbers calculated using 1.5 plants centres (0.44 per square metre). Plant in sinuous rows - do not plant in a straight line matrix. Plant in species groups of minimum 5, maximum 9 plants, with the species randomly placed. Ensure each group has a minimum of 5 plants. Refer to EA3-OND-CNS-DRG-IBR-000007 for typical planting details.

Root Treatment: Where required provide mycorrhizal inoculant for each plant at planting.

Weed supression: For each plant, provide 50mm deep well composted bark mulch, up to 500mm radius from tree.

Protection: For large groups of trees, protect with deer/rabbit fencing as per F2. Depending on location trees outside fencing can be protected with tree guards (see separate specification note)

Watering: Water at planting to full rooting depth. If addition of bark mulch delayed, only apply bark mulch after rain or watering. During periods of drought in establishment phase undertake heavy watering to full rooting depth.

These tables provide typical numbers of each species for the areas identified on the Soft Landscape Drawing.

General Maintenance:

Weed control by hand weeding/hoeing only in May & September

NO herbicide applications required.

NO fertiliser required.

Review at end of growing season and replace failures as required with appropriately sized plants.

Allow for selective thinning after 5 and 10 years.

Formative pruning of young trees to encourage good growth and shape to be undertaken years 1, 3 and 5.

Abbrev.	Name	Common Name	Girth (cm)	Height cm	Root Zone	Specification	Total Quantities
T1 Individual Tree Planting							
Q r	Quercus robur	Common Oak	12-14	350-425	RB	3x; Heavy Standard; Clear stem 175-200cm; 3 brks.	2

T1 sheet 000001

Individual Tree Planting Schedule

Scale: 1 : 20

Abbrev.	Name	Common Name	Height cm	Root Zone	Specification	Mix %	Ctr m	No./m²	Plan Areas m² 1955	13700	9417	698	805	Total m² 26575
									Plant Quantities No. WM1-E	WM1-J	WM1-K	WM1-L	WM1-N	Total Qty
WM1 Core Woodland Tree Mix														
A ca	Acer campestre	Common Maple	80-100	B	1+2; Transplant - seed raised	10	1.5	0.44	87	609	419	31	36	1181
A ps	Acer pseudoplatanus	Sycamore	80-100	B	1+1; Transplant - seed raised	10	1.5	0.44	87	609	419	31	36	1181
A gl	Alnus glutinosa	Native Alder	80-100	B	1+1; Transplant - seed raised	5	1.5	0.44	43	304	209	16	18	591
B pub	Betula pubescens	Downy Birch	80-100	B	1+1; Transplant - seed raised	15	1.5	0.44	130	913	628	47	54	1772
C be	Carpinus betulus	Common Hornbeam	80-100	B	1+1; Transplant - seed raised	5	1.5	0.44	43	304	209	16	18	591
P sy	Pinus sylvestris	Scots Pine	100-125	RB	3x; leader with laterals	5	1.5	0.44	43	304	209	16	18	591
P tre	Populus tremula	Aspen	80-100	B	1+1; Transplant - seed raised	12	1.5	0.44	104	731	502	37	43	1417
P pad	Prunus avium	Wild Cherry	80-100	B	1+1; Transplant - seed raised	8	1.5	0.44	70	487	335	25	29	945
Q r	Quercus robur	Common Oak	125-150	B	2x; Feathered; 2 brks	10	1.5	0.44	87	609	419	31	36	1181
T co	Tilia cordata	Small-Leaved Lime	80-100	B	1+1; Transplant - seed raised	20	1.5	0.44	174	1218	837	62	72	2362
						100%			**869**	**6089**	**4185**	**310**	**358**	**11811**

WM1 sheet 000001

Core Woodland Tree Mix

Scale: 1 : 20

Abbrev.	Name	Common Name	Height cm	Root Zone	Specification	Mix %	Ctr m	No./m²	m² 1747	6189	9417	698	805	Total m² 18856
									Plant Quantities No. WM2-E	WM2-J	WM2-K	WM2-L	WM2-N	Total Qty
WM2 Edge Woodland Tree Mix														
C san	Cornus sanguinea	Dogwood	60-80	B	brks	10	1.5	0.44	78	275	419	31	36	838
C av	Corylus avellana	Common Hazel	80-100	B	brks	10	1.5	0.44	78	275	419	31	36	838
C mon	Crataegus monogyna	Common Hawthorn	100-125	B	1+2; Transplant - seed raised	20	1.5	0.44	155	550	837	62	72	1676
E e	Euonymus europaeus	Spindle	60-80	B	brks	5	1.5	0.44	39	138	209	16	18	419
I a	Ilex aquifolium	Holly	80-100	RB	Leader with laterals	5	1.5	0.44	39	138	209	16	18	419
M sy	Malus sylvestris	Crab Apple	100-125	B	1+2; Transplant - seed raised	10	1.5	0.44	78	275	419	31	36	838
P sp	Prunus spinosa	Blackthorn	100-125	B	brks	10	1.5	0.44	78	275	419	31	36	838
S c	Salix caprea	Goat Willow	200-250	B	2x; Feathered; 5 brks	10	1.5	0.44	78	275	419	31	36	838
S ni	Sambucus nigra	Common Elder	80-100	B	brks	10	1.5	0.44	78	275	419	31	36	838
V op	Viburnum opulus	Guelder Rose	80-100	B	brks	10	1.5	0.44	78	275	419	31	36	838
						100%			**776**	**2751**	**4185**	**310**	**358**	**8380**

WM2 sheet 000001

Edge Woodland Tree Mix

Scale: 1 : 20

Abbrev.	Name	Common Name	Height cm	Root Zone	Specification	Mix %	Ctr m	No./m²	Plan Areas m² 818		Total m² 818
									Plant Quantities No. WM4-E		Total Qty
WM4 Wetland Woodland Tree Mix											
A ca	Acer campestre	Common Maple	80-100	B	1+2; Transplant - seed raised	10	1.5	0.44	36	0	36
A ps	Acer pseudoplatanus	Sycamore	80-100	B	1+1; Transplant - seed raised	10	1.5	0.44	36	0	36
A gl	Alnus glutinosa	Native Alder	80-100	B	1+1; Transplant - seed raised	20	1.5	0.44	73	0	73
B pub	Betula pubescens	Downy Birch	80-100	B	1+1; Transplant - seed raised	15	1.5	0.44	55	0	55
C be	Carpinus betulus	Common Hornbeam	80-100	B	1+1; Transplant - seed raised	5	1.5	0.44	18	0	18
S al	Salix alba	White Willow	80-100	B	2x; Feathered; 2 brks	10	1.5	0.44	36	0	36
P tre	Populus tremula	Aspen	80-100	B	1+1; Transplant - seed raised	12	1.5	0.44	44	0	44
P pad	Prunus avium	Wild Cherry	80-100	B	1+1; Transplant - seed raised	8	1.5	0.44	29	0	29
Q r	Quercus robur	Common Oak	125-150	B	2x; Feathered; 2 brks	10	1.5	0.44	36	0	36
						100%			**364**	**0**	**364**

WM4 sheet 000001

Wet Woodland Tree Mix

Scale: 1 : 20

NOTES

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DRAWING INFORMATION BASED UPON

Topographical Survey: Please reference surveyor's survey.

CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
02	LPA comments; Prunus padus replaced with Prunus avium.	jd	14.03.2022
01	SPR comments; Alnus cordata replaced with Alnus glutinosa.	jd	24.01.2022

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Client
ScottishPower Renewables

Project
East Anglia THREE Offshore Windfarm

Drawing Title
APPENDIX 07

Typical Details:
Plant Schedules - Trees

Scale Bar 0.2m 0.4m 0.6m 0.8m 1.0m North

Scale: **1:20@A1** Date: **DECEMBER 2021**

By: **rt** Status: **INFORMATION**

Checked: **jd** Approved: **bp**

Drawing Number **EA3-OND-CNS-BOM-IBR-000001** Rev **02**

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APPENDIX 8 TYPICAL CONSTRUCTION DETAIL: PLANTING SCHEDULES - GRASSES (EA3-OND-CNS-BOM-IBR-000002).

G1: Amenity Grass for Verges, Embankments, SUDs Swale sides

Supplier: Germinal Seeds GB (Formerly British Seed Houses) or similar approved
Camp Road
Witham St. Hughs
Lincoln
LN6 9QJ
Tel: 01522 868714
Product reference: A£ Embankments & Drought or similar approved.
Sowing rate: 50g/m2. Sow between August to October.
Note: Standard A3 mix is modified to reduce CRF and add legumes at 2.5%

Species	Common Name	% Mix
Festuca rubra var. rubra	Strong Creeping Red Fescue	52.5%
Festuca rubra var. commutata	Chewings Fescue	20.0%
Festuca arundinacea	Tall fescue	15.0%
Agrostis palustris	Bentigrass	5.0%
Medicago lupulina	Black medick	2.5%
Trifolium repens	Minature White Clover	2.5%
Trifolium pretense	Red clover	2.5%
Total		100%

G1 sheet 000002 — **Amenity Grass for Verges, SUDs Swale sides**
Scale: 1 : 20

G2: Wetland Grass Mix for Wetland Areas and Detention Basin

Supplier: Germinal Seeds GB (Formerly British Seed Houses) or similar approved
Camp Road
Witham St. Hughs
Lincoln
LN6 9QJ
Tel: 01522 868714
Product reference: RE3 River Floodplain / Water Meadow (MG8 Grassland)
NB. Species mix to be confirmed by ecologist.
Sowing rate: 5g/m2.

Species	Common Name	% Mix
Festuca rubra spp. Litoralis	Slender Creeping Red Fescue	25.00%
Cynosurus cristatus	Crested dogstail	20.00%
Festuca pratensis	Meadow Fescue	10.00%
Poa trivalis	Rough-Stalked Meadow Grass	10.00%
Holcus lanatus	Yorkshire Fog	5.00%
Pheleum bertonlonii	Small Leaved Timothy	5.00%
Plantago lanceolata	Ribwort Plantain	3.00%
Ranunculus acris	Meadow buttercup	3.00%
Agrostis stolonifera	Creeping Bent	2.50%
Anthoxanthum odoratum	Sweet vernal	2.50%
Centaurea nigra	Common Knapweed	2.00%
Leucanthemum vulgare	Ox-eye Daisy	2.00%
Ranunculus repens	Creeping Buttercup	2.00%
Trifolium repens	White Clover	2.00%
Filpendula ulmaria	Meadow Sweet	1.00%
Prunella vulgaris	Self Heal	1.00%
Rumex acetosa	Common Sorrel	1.00%
Trifolium pratense	Red Clover	1.00%
Rhinanthus minor	Yellow Rattle	0.80%
Caltha palustris	Marsh Marigold	0.25%
Leontodon autumnale	Autumn Hawkbit	0.25%
Leotondon hispidus	Rough Hawkbit	0.25%
Lychnis flos-cuculi	Ragged Robin	0.25%
Cerastium fontanum	Common Mouse-ear	0.10%
Sanguisorba officinalis	Greater Burnett	0.10%
Total		100%

G2 sheet 000002 — **Wetland Grass Mix**
Scale: 1 : 20

G3: Species Rich Grass Mix

Supplier: Germinal Seeds GB (Formerly British Seed Houses) or similar approved.
Camp Road
Witham St. Hughs
Lincoln
LN6 9QJ
Tel: 01522 868714
Product reference: WFG16 Productive Soils
NB. Species mix to be confirmed by ecologist
Sowing rate: 5g/m2. Sow between August to October.

Species	Common Name	% Mix
Festuca rubra ssp litoralis	Slender Creeping Red Fescue	25%
Cynosurus cristatus	Crested Dogstail	23%
Festuca arundinacea	Tall Fescue	20%
Alopecurus pratensis	Meadow Foxtail	5%
Phleum bertolonii	Small Leaved Timothy	5%
Medicago lupulina	Black Medick	3%
Plantago lanceolata	Ribwort Plantain	3%
Achillea millefolium	Yarrow	2%
Anthoxanthum odoratum	Sweet Vernal	2.00%
Galium verum	Lady's Bedstraw	2.00%
Rhinanthus minor	Yellow Rattle	2%
Trifolium repens	White Clover	2%
Centaura nigra	Common Knapweed	2%
Ranunculus acris	Meadow ButterCup	2%
Ranunculus repens	Creeping Buttercup	2%
Leontodon hispidus	Rough Hawksbit	1%
Prunella vulgaris	Self Heal	1%
Rumex acetosa	Common Sorrel	1%
		100%

G3 sheet 000002 — **Species Rich Grass Mix**
Scale: 1 : 20

G4: Grass for Long Term Topsoil Storage

Supplier: Germinal Seeds GB (Formerly British Seed Houses), or similar approved.
Camp Road
Witham St. Hughs
Lincoln
LN6 9QJ
Tel: 01522 868714
Product reference: A17 (Legume and Clover)
Sowing rate: 2.5g/m2.

Species	Common Name	% Mix
Vicia sativa	Common Vetch	25%
Lotus Corniculatus	Birdsfoot Trefoil	15%
Medicago sativa	Lucerne	15%
Trifolium pretense	Red Clover	15%
Onobrychis vicifolia	Sainfoin	15%
Trifolium repens	White Clover	15%
		100%

G4 sheet 000002 — **Grass for Long Term Topsoil Storage**
Scale: 1 : 20

G6: Marginal Aquatics Mix for SuDs - Permanent Pond Area

Supplier: Contractors choice (to be approved)
Sizes: Plugs > 50ml
Density: 5 plants per m2, planted in blocks as per soft landscape general arrangement drawing

Species	Common Name	Root Zone	Specification	Mix%
Agrostis stolonifera	Creeping Bent	0.3L	Full pot; Sept to April planting; British native-origin	10.00
Apium nodiflorum	Fool's Watercress	0.5L	Full pot; Sept to April planting; British native-origin	10.00
Filipendula ulmaria	Meadowsweet	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	20.00
Glyceria fluitans	Floating Sweet Grass	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Mentha aquatica	Water Mint	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Myosotis scorpioides	Water Forget-me-not	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Nasturtium aquaticum	Watercress	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Persicaria amphibia	Amphibious Bistort	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Veronica beccabunga	Brooklime	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00

G6 sheet 000002 — **Marginal Aquatics Mix - Permanent Pond**
Scale: 1 : 20

G7: Marginal Aquatics Mix for SuDs - Basin Forebay and Swale Base

Supplier: Contractors choice (to be approved)
Sizes: Plugs > 50ml
Density: 5 plants per m2, planted in blocks as per soft landscape general arrangement drawing

Species	Common Name	Root Zone	Specification	Mix%
Carex acutiformis	Lesser Pond Sedge	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Carex nigra	Common Sedge	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Carex riparia	Greater Pond Sedge	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Iris pseudacorus	Yellow Flag Iris	50cc min.	Plug; established root 2-3 months min.; Sept to April planting; British native-origin	10.00
Sparganium erectum	Branched Bur-reed	110-125cc	Root Trainer; well rooted; Sept to April planting; British native-origin	50.00
Lythrum salicaria	Purple Loostrife	50cc min.	Plug; established root 2-3 months min.; British native-origin	10.00

G7 sheet 000002 — **Marginal Aquatics Mix - Basin Forebay**
Scale: 1 : 20

Abbrev.	Name	Common Name	Height cm	Root Zone	Specification	Mix %	Ctr m	No./Lm	Lm	Total Lm
									410	410
									Plant Quantities No.	
									H1	Total Qty
H1 Native Hedgerow Mix										
A ca	Acer campestre	Common Maple	45-60	B	1+1; Transplant - seed raised	20	0.3	6.0	492	492
C be	Carpinus betulus	Common Hornbeam	45-60	B	1+1; Transplant - seed raised	5	0.3	6.0	123	123
C av	Corylus avellana	Hazel	45-60	B	brks	2	0.3	6.0	49	49
C mon	Crataegus monogyna	Common Hawthorn	45-60	B	1+1; Transplant - seed raised	60	0.3	6.0	1476	1476
C San	Cornus sanguinea	Dogwood	45-60	b	breaks	5	0.3	6.0	123	123
L vu	Ligustrum vulgare	Common Privet	45-60	B	breaks	2	0.3	6.0	49	49
P sp	Prunus spinosa	Blackthorn	45-60	B	brks	2	0.3	6.0	49	49
R c	Rhamnus cathartica	Buckthorn	45-60	B	laterals; 3 breaks	2	0.3	6.0	49	49
R can	Rosa canina	Dog Rose	45-60	B	brks	2	0.3	6.0	49	49
						100%			**2460**	**2460**

H1 sheet 000002 — **Native Hedge Mix**
Scale: 1 : 20

H1: Native Hedgerow Mix

Planting specification:

Species and mix: As per table below

Planting: Plant 300mm centres, in a double staggered row, 300mm between rows. Cut back hard after planting to encourage base growth. Refer to EA3-OPEN-ONCS-ZZ-DR-L-000102 for planting details.

Root Treatment: As required, provide mycorrhizal inoculant for each plant at planting.

Weed supression: For the length of the hedge trench provide 50mm deep well composted bark mulch, 500mm either side of hedge trench.

Protection: For each plant, provide a transparent spiral guard 90cm plus single bamboo cane.

Watering: Water at planting to full rooting depth. If addition of bark mulch delayed, only apply bark mulch after rain or watering. During periods of drought in establishment phase undertake heavy watering to full rooting depth.

General Maintenance:

Mechanical trimming in full A shape. Trim sections of hedge on 3 year rotation in winter.

Weed control by hand weeding/hoeing only in May & September

NO herbicide applications required.

NO fertiliser required.

Review at end of growing season and replace failures as required with appropriately sized plants.

NOTES

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DRAWING INFORMATION BASED UPON

Topographical Survey: Please reference surveyor's survey.

CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
01	SPR comments; added G1/G2 mixes.	jd	24.01.2022

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Client
ScottishPower Renewables

Project
East Anglia THREE Offshore Windfarm

Drawing Title
APPENDIX 08

Typical Details;
Plant Schedules - Grasses & Hedges

Scale Bar 0.2m 0.4m 0.6m 0.8m 1.0m
North

Scale: **1:20@A1** Date: **DECEMBER 2021**
By: **rt** Status: **INFORMATION**
Checked: **jd** Approved: **bp**

Drawing Number **EA3-OND-CNS-BOM-IBR-000002** Rev **01**

Computer File: P:\2020\201527_EA3plan\CAD\AUTOCAD\SHEETS

APPENDIX 9 PLANT SCHEDULE ILLUSTRATIVE NOTES PRESENTING SAMPLE PHOTOGRAPHS OF THE TREE SPECIES AND ADDITIONAL DESCRIPTIVE TEXT. (EA3-OND-CNS-BOM-IBR-000003).

APPENDIX 9

EAST ANGLIA THREE OFFSHORE WIND FARM

PLANT SCHEDULE NOTES

Schedule name: **EA3-OND-CNS-BOM-IBR-000003**
Client: ScottishPower Renewables
Project: East Anglia THREE
Location: Bramford, Nr Ispwich
Date: 25 JANUARY 2022
Document ref: EA3-OND-CNS-BOM-IBR-000003_App9_Plant_Sch_Illus_Notes.doc
Revision: DRAFT FINAL

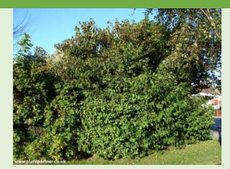
Trees listed in Alphabetical Order

WM1 Core Woodland Tree Mix

Botanical Name	Common Name	Description	Health & Safety and Care Notes	Health & Safety Note	Image
Acer campestre	Common Maple	The native Common or Field Maple is a variable tree of medium height thriving in sun or shade. The head is rounded, broad and informal. The lobed deciduous leaves open tinged-red turning bright yellow in autumn. Yellow-green flowers in small loose clusters are produced in April followed by winged fruit called 'keys' which mature from green to brown, possibly red-tinged, August-September. Grows to a height of 8-12m with a 10-12m spread.	Tolerant of pollution, road salt and lime. Young plants respond well to trimming and so makes a good hedge.		
Acer pseudoplatanus	Sycamore	Naturalized in Britain for centuries, the Sycamore is a very variable spreading tree, often rounded though, tolerant of wind, salt, atmospheric pollution and poor soil. Large, usually five-lobed deciduous foliage sometimes shows good yellow shades in autumn. Produces abundant light green seed with wings sometimes tinged pinky-red before aging to brown. Grows to a height of 25-30m with a 20-25m spread.	Self-sown seedlings can prove troublesome weeds. Clonal selections are better behaved. Aphids gather on flower stalks & under-sides of leaves		
Alnus glutinosa	Common Alder	The Common Alder is a densely branched, medium-sized, occasionally taller tree. Rounded foliage follows the yellow catkins in March. Excellent on moist, even wet sites. Good wind tolerance. Grows to a height of 15-20m with an 8-10m spread.	Relatively brittle branches are easily damaged in transport. Although grows in moist ground conditions, will require adequate drainage on planting in order to enable successful establishment. Being susceptible to Phytophthora root rot avoid locations liable to flood, specifically along the banks of slow-moving water courses.		
Betula pubescens	Downy Birch	The Downy or White Birch, like pendula, is a native but the basal bark on the trunk is white or grey rather than black, the foliage slightly more rounded and the shoots less pendulous giving an upright although shorter form. Usually does better on moist soils. Grows to a height of 15-20m with a 6-8m spread.	Root-ball recommended from 12-14cm girth and upwards. Although grows in moist ground conditions, will require adequate drainage on planting in order to enable successful establishment.		

Carpinus betulus	Common Hornbeam	The hornbeam is a shade tolerant, relatively slow growing but ultimately tall tree. The trunk has smooth grey bark which often has prominent ribs. The foliage is ovate and toothed with an uneven surface. When used as a hedge, the brown autumn foliage which rustles in the wind, persists all through the winter. Grows to a height of 15-20m with a 12-15m spread. AGM	Best in well drained, fairly rich conditions, but can thrive in chalky, sandy or dry soil. Root-ball recommended from 12-14cm girth and upwards. Not for very windy locations. Responds well to trimming and so makes a good hedge with cost effective instant hedging being achieved by using 200-250 or even 175-200cm high feathered plants immediately cut back upon planting to promote bushiness down to the ground.		
Pinus sylvestris	Scots Pine	Fast growing native, the needles are normally broader & shorter than those of the Austrian Pine. Clusters of yellow male flowers are produced at the base of new shoots in the latter half of May. Reddish-purple female cones appear at the top of new shoots, turning green then ripening to light brown after two or three years. Grows well in most locations	Can be pruned lightly either in early spring before growth begins or after new growth is completed, if necessary to keep its natural shape. Cuts should be made just above a bud or in the axil. Susceptible to damage and/or loss of shape if tied up and handled during the six week period of extension growth in spring.		
Populus tremula	Aspen	A medium sized tree with a fairly broad crown. The rounded, toothed foliage trembles in any breeze and turns to yellow in autumn. Grows to a height of 15m with a spread of 10m.	Excellent on poor soils and in industrial or seaside sites. Although very useful in providing rapid screening and shelter in exposed conditions, this tree is likely to become a liability owing to its proneness to diseases such as canker and rust, relatively short life-span and aggressive, suckering root system which means that it should not be planted near drains or other services, walls or buildings.		
Prunus padus	Bird Cherry	The Bird Cherry is a native small to medium height tree with a rounded head. Fragrant white flowers in racemes at the end of April into May. Small round black fruits in autumn. Grows to a height of 12-15m with a spread to 10m.	Root-ball recommended from 16-18cm girth and upwards. Roots liable to disrupt surrounding surfaces		
Quercus robur	Common Oak	The Common or English Oak is a large, relatively vigorous variable woodland tree, but normally with a broad spreading, heavily branched crown. At its best on deep, fertile soil where it can achieve mighty proportions, hence a tree of the lowlands. It has unstalked or very short stalked lobed leaves and stalked clusters of acorns. Known for sustaining a wide variety of wildlife. Grows to a height of 20-25m although can achieve 30-42m. Spread is 20-25m.	Root-ball recommended from 12-14cm girth and upwards. Water-demanding during first years of establishment period.		
Tilia cordata	Small-leaved Lime	The native Small-leaved Lime is a variable medium-tall tree with an initially conical crown, broadening to become quite rounded with age. Foliage roundly heart-shaped. Shiny dark green above, paler below. Flowers pale yellow-white and slightly fragrant. Grows to a height of 18-20m, occasionally larger, with a 15m spread.	Susceptible to epicormic growth, so ensure nursery stock has a clean trunk with fully healed wounds (from previous branch removal). Aphids do gather on the undersides of leaves to produce a light 'drip' effect in summer although relatively less so compared to some of the worst offending Limes, but still not ideal for use in car parks or similar locations. Requires free-draining planting pits.		

WM2 Edge Woodland Tree Mix

Botanical Name	Common Name	Description	Health & Safety and Care Notes	Health & Safety Note	Image
Cornus sanguinea	Common Dogwood	Common Dogwood. This native has green stems, flushed red. Green leaves turn an eye-catching reddish-purple in autumn. Black fruits.	Mild stomach upset if fruits are eaten and skin irritation may be caused from leaves. Prefers moist yet free-draining soil. Prune hard back in late winter each year to promote coloured stems.	Mild stomach upset if the fruit is eaten and skin irritation may be caused from leaves.	
Corylus avellana	Common Hazel	The Common Hazel is a native large multi-stemmed shrub or small to medium-sized tree which is not typically grown as a clear-stemmed tree. The yellow catkins make a fine display in early spring. The relatively large, rounded, green serrated foliage often turns to yellow shades in autumn, when the clusters of edible nuts are ripe. Thrives in a wide range of soils and in sun/light shade.			
Crataegus monogyna	Common Hawthorn	The Common Hawthorn is widely used for hedging. This variable native has small, lobed foliage and brown or grey bark. Masses of clusters of scented white flowers in May and small red fruits in autumn. The best growth is produced in good soil, but the plant is very tolerant of cold, occasional water-logging and wind. Grows to a height of 8-10m with a 6-8m spread.	May cause stomach upset if fruit is eaten uncooked. Spiny twigs can cause scratching and possible skin irritation. Hedging plants which are not cut back after planting tend to remain rather bare at the base. Take care to keep roots moist and plant before foliage starts to 'pip' to minimise losses. Root-ball recommended from 12-14cm girth and upwards.	May cause stomach upset if the fruit is eaten uncooked. Spiny twigs can cause scratching and possible skin irritation.	
Euonymus europaeus	Common Spindle Tree	The Native Spindle Tree is a deciduous medium shrub or small tree with dark green, oval, pointed leaves. Grown for its orange-scarlet colourful fruits & autumn foliage display.	All parts particularly the fruits are harmful if eaten.	All parts particularly the fruits are harmful if eaten.	
Ilex aquifolium	Common Holly	The native evergreen Common Holly is a large shrub, which can become a medium-sized tree in time. The glossy green foliage is variably spiny. Persistent red berries are produced on female plants ripening from green. Does well in most soils, in sun or light shade and near the sea. Good evergreen hedging plant. AGM	Berries may be harmful if eaten and very spiny leaves can cause scratching and possible skin irritation. Can be clipped to form an excellent evergreen hedge. For large plants, specify bushy, furnished to the base for instant impact; select one size larger than required & allow for trimming back once in situ. Available root-balled in winter. Although can take on a tree form in time, it is not available as such for supply.	Berries may be harmful if eaten and very spiny leaves can cause scratching and possible skin irritation.	
Malus sylvestris	Common Crab Apple	The Common Crab Apple is generally a small deciduous tree with generally a rounded crown; can be thorny. Foliage is green with flowers pale pink to white appearing in April. Red-flushed green fruit is produced in autumn. Grows to a height of 7-9m with a spread to 7m.	Root-ball recommended from 14-16cm girth and upwards		

Prunus spinosa	Blackthorn	The native Sloe or Blackthorn is a dense twiggy large bush often found and used in hedges. An abundance of white flowers in March-April on dark stems, followed by small pea-sized blue-black fruits. Autumn leaf colour is a dull yellow. Grows to 4-5 metres high with the same for the spread.	Spiny twigs can cause scratching and possible skin irritation. Beware as typically substituted with Prunus domestica, which is much larger in leaf, fruit and form.	Spiny twigs can cause scratching and possible skin irritation.	
Salix caprea	Goat Willow	The Goat Willow is a small tree or large shrub, though more often the latter. Male yellow catkins and green female catkins (on separate plants) appear in March before the leaves. Fruit in the form of white downy seeds are released in May. Young shoots are a shiny red-brown. Grows to a height of 8m occasionally reaching to 12m, with a spread of 8m.	May possibly cause severe discomfort if the leaves are eaten. Aggressive root systems cause disruption and so should not be planted close to buildings, drains or services.	May possibly cause severe discomfort if the leaves are eaten.	

WM3 Screening Woodland Mix

Botanical Name	Common Name	Description	Health & Safety and Care Notes	Health & Safety Note	Image
Betula pubescens	Downy Birch	The Downy or White Birch, like *pendula*, is a native but the basal bark on the trunk is white or grey rather than black, the foliage slightly more rounded and the shoots less pendulous giving an upright although shorter form. Usually does better on moist soils. Grows to a height of 15-20m with a 6-8m spread.	Root-ball recommended from 12-14cm girth and upwards. Although grows in moist ground conditions, will require adequate drainage on planting in order to enable successful establishment.		
Larix decidua	Common Larch	The Common Larch is a graceful fast growing deciduous conifer. Fresh green needles in spring turn yellow in autumn. Yellow male flowers are produced in April with the emergence of the first leaves, together with the attractive purple female scaly cones ripening to green then to brown by autumn with straight scales as opposed to being peeled backwards as on *L. x eurolepis* and *L. kaempferi*. Grows to a height of 20-25m with a 6-7m spread.	Ensure free-draining pits. Being a feathered tree, is typically specified by height rather than girth. Be aware that this plant is occasionally susceptible to the pathogen *Phytophthora ramorum* otherwise known as Sudden Oak Death.		
Larix x eurolepis	Dunkeld Larch	This Larch also known as the Hybrid Larch is a fast growing deciduous conifer typically used in commercial forestry plantings. Grey-green needles turn an eye-catching yellow in autumn. Yellow male flowers are produced in April with the emergence of the first leaves, together with the attractive purple-red female scaly cones ripening to green then to brown by autumn. Grows to a height of 20-25m with a 6m spread.	Ensure free-draining pits. Being a feathered tree, is typically specified by height rather than girth. Be aware that this plant is occasionally susceptible to the pathogen *Phytophthora ramorum* otherwise known as Sudden Oak Death.		
Pinus nigra	Austrian Pine	The Austrian Pine is a vigorous tall evergreen conifer with feathered conical outline when young, developing into a rather columnar headed, clear stemmed tree in middle age; has long twisted needles. Clusters of yellow male flowers are produced at the base of new shoots in the latter half of May. Reddish-purple female cones appear at the top of new shoots, turning green then ripening to light brown after two or three years. Thrives in most soils and situations including seaside, exposed and urban areas.	Can be pruned lightly either in early spring before growth begins or after new growth is completed, if necessary to keep its natural shape. Cuts should be made just above a bud or in the axil. Susceptible to damage and/or loss of shape if tied up and handled during the six week period of extension growth in spring.		

Populus tremula	Aspen	A medium sized tree with a fairly broad crown. The rounded, toothed foliage trembles in any breeze and turns to yellow in autumn. Grows to a height of 15m with a spread of 10m.	Excellent on poor soils and in industrial or seaside sites. Although very useful in providing rapid screening and shelter in exposed conditions, this tree is likely to become a liability owing to its proneness to diseases such as canker and rust, relatively short life-span and aggressive, suckering root system which means that it should not be planted near drains or other services, walls or buildings.		
Prunus padus	Bird Cherry	The Bird Cherry is a native small to medium height tree with a rounded head. Fragrant white flowers in racemes at the end of April into May. Small round black fruits in autumn. Grows to a height of 12-15m with a spread to 10m.	Root-ball recommended from 16-18cm girth and upwards. Roots liable to disrupt surrounding surfaces		
Quercus cerris	Turkey Oak	The Turkey Oak is tall and, for an oak, relatively fast growing. The crown is fairly broad, the trunk upright. Does best in well-drained soils, even if they are on the dry side. Quite tolerant of sea wind. Foliage is usually larger with the lobes more toothed than *Quercus robur.* The Turkey Oak is a good avenue tree. Grows to a height of 25-30m with a 15-20m spread.	Root-ball recommended from 12-14cm girth and upwards. Water-demanding during first years of establishment period.		
Rhamnus frangula	Alder Buckthorn	Vigorous thornless shrub preferring damp soils. Foliage glossy green and oval-shaped, usually turns yellow in autumn. Bees are attracted to the very small, singular light green flowers borne in May. Produces red berries which then turn black in early autumn.	Caution - all parts are harmful if eaten.	Caution - all parts are harmful if eaten.	
Viburnum opulus	Guelder Rose	The Guelder Rose is a native large, vigorous, deciduous shrub with a rounded form. Green typically 3-lobed leaves turn red in autumn. White flat flower heads consisting of central white fertile flowers surrounded by infertile white florets are produced in May to June followed by clusters of bright red fruit. Does well in moist ground. Grows to a height of 4-5 metres with a 3-4 metre spread.	Berries may be eaten when cooked but has the potential to cause stomach upset or worse if taken in anything other than a small amount.	Berries may be eaten when cooked but has the potential to cause stomach upset or worse if taken in anything other than a small amount.	

WM4 Wet Woodland Mix

Botanical Name	Common Name	Description	Health & Safety and Care Notes	Health & Safety Note	Image
Acer campestre	Common Maple	The native Common or Field Maple is a variable tree of medium height thriving in sun or shade. The head is rounded, broad and informal. The lobed deciduous leaves open tinged-red turning bright yellow in autumn. Yellow-green flowers in small loose clusters are produced in April followed by winged fruit called 'keys' which mature from green to brown, possibly red-tinged, August-September. Grows to a height of 8-12m with a 10-12m spread.	Tolerant of pollution, road salt and lime. Young plants respond well to trimming and so makes a good hedge.		

Acer pseudoplatanus	Sycamore	Naturalized in Britain for centuries, the Sycamore is a very variable spreading tree, often rounded though, tolerant of wind, salt, atmospheric pollution and poor soil. Large, usually five-lobed deciduous foliage sometimes shows good yellow shades in autumn. Produces abundant light green seed with wings sometimes tinged pinky-red before aging to brown. Grows to a height of 25-30m with a 20-25m spread.	Self-sown seedlings can prove troublesome weeds. Clonal selections are better behaved. Aphids gather on flower stalks & under-sides of leaves		
Alnus cordata	Italian Alder	The Italian Alder is a large, fast growing, wind tolerant tree, which does well in a wide range of soils, including moist, even wet ground. Its crown has a narrow, conical, almost columnar form that can be somewhat irregular. The glossy heart-shaped foliage appears early in spring and persists until the frosts with some leaves briefly turning yellow though not a distinctive characteristic. Grows to a height of 15-20m with a 6m spread. AGM	Relatively brittle branches are easily damaged in transport. Although grows in moist ground conditions, will require adequate drainage on planting in order to enable successful establishment. Being susceptible to Phytophthora root rot avoid locations liable to flood, specifically along the banks of slow moving water courses.		
Alnus glutinosa	Common Alder	The Common Alder is a densely branched, medium-sized, occasionally taller tree. Rounded foliage follows the yellow catkins in March. Excellent on moist, even wet sites. Good wind tolerance. Grows to a height of 15-20m with an 8-10m spread.	Relatively brittle branches are easily damaged in transport. Although grows in moist ground conditions, will require adequate drainage on planting in order to enable successful establishment. Being susceptible to Phytophthora root rot avoid locations liable to flood, specifically along the banks of slow moving water courses.		
Betula pubescens	Downy Birch	The Downy or White Birch, like *pendula*, is a native but the basal bark on the trunk is white or grey rather than black, the foliage slightly more rounded and the shoots less pendulous giving an upright although shorter form. Usually does better on moist soils. Grows to a height of 15-20m with a 6-8m spread.	Root-ball recommended from 12-14cm girth and upwards. Although grows in moist ground conditions, will require adequate drainage on planting in order to enable successful establishment.		
Carpinus betulus	Common Hornbeam	The hornbeam is a shade tolerant, relatively slow growing but ultimately tall tree. The trunk has smooth grey bark which often has prominent ribs. The foliage is ovate and toothed with an uneven surface. When used as a hedge, the brown autumn foliage which rustles in the wind, persists all through the winter. Grows to a height of 15-20m with a 12-15m spread. AGM	Best in well drained, fairly rich conditions, but can thrive in chalky, sandy or dry soil. Root-ball recommended from 12-14cm girth and upwards. Not for very windy locations. Responds well to trimming and so makes a good hedge with cost effective instant hedging being achieved by using 200-250 or even 175-200cm high feathered plants immediately cut back upon planting to promote bushiness down to the ground.		
Populus tremula	Aspen	A medium sized tree with a fairly broad crown. The rounded, toothed foliage trembles in any breeze and turns to yellow in autumn. Grows to a height of 15m with a spread of 10m.	Excellent on poor soils and in industrial or seaside sites. Although very useful in providing rapid screening and shelter in exposed conditions, this tree is likely to become a liability owing to its proneness to diseases such as canker and rust, relatively short life-span and aggressive, suckering root system which means that it should not be planted near drains or other services, walls or buildings.		
Prunus padus	Bird Cherry	The Bird Cherry is a native small to medium height tree with a rounded head. Fragrant white flowers in racemes at the end of April into May. Small round black fruits in autumn. Grows to a height of 12-15m with a spread to 10m.	Root-ball recommended from 16-18cm girth and upwards. Roots liable to disrupt surrounding surfaces		

Quercus robur	Common Oak	The Common or English Oak is a large, relatively vigorous variable woodland tree, but normally with a broad spreading, heavily branched crown. At its best on deep, fertile soil where it can achieve mighty proportions, hence a tree of the lowlands. It has unstalked or very short stalked lobed leaves and stalked clusters of acorns. Known for sustaining a wide variety of wildlife. Grows to a height of 20-25m although can achieve 30-42m. Spread is 20-25m.	Root-ball recommended from 12-14cm girth and upwards. Water-demanding during first years of establishment period.		
Salix alba	White Willow	The White Willow is a fast growing, native tree often found near water. The head usually forms a rounded cone, the twiggy branches have drooping tips and the narrow foliage is silvery-green. Male yellow catkins and yellow-green female catkins are produced in April after the first leaves appear. Good in seaside areas provided the soil is not too dry. Grows to a height of 25m with a spread to 15m.	May possibly cause severe discomfort if the leaves are eaten. Aggressive root systems cause disruption and so should not be planted close to buildings, drains or services.	May possibly cause severe discomfort if the leaves are eaten.	

H1 Native Hedgerow Mix

Botanical Name	Common Name	Description	Health & Safety and Care Notes	Health & Safety Note	Image
Acer campestre	Common Maple	The native Common or Field Maple is a variable tree of medium height thriving in sun or shade. The head is rounded, broad and informal. The lobed deciduous leaves open tinged-red turning bright yellow in autumn. Yellow-green flowers in small loose clusters are produced in April followed by winged fruit called 'keys' which mature from green to brown, possibly red-tinged, August-September. Grows to a height of 8-12m with a 10-12m spread.	Tolerant of pollution, road salt and lime. Young plants respond well to trimming and so makes a good hedge.		
Carpinus betulus	Common Hornbeam	The hornbeam is a shade tolerant, relatively slow growing but ultimately tall tree. The trunk has smooth grey bark which often has prominent ribs. The foliage is ovate and toothed with an uneven surface. When used as a hedge, the brown autumn foliage which rustles in the wind, persists all through the winter. Grows to a height of 15-20m with a 12-15m spread. AGM	Best in well drained, fairly rich conditions, but can thrive in chalky, sandy or dry soil. Root-ball recommended from 12-14cm girth and upwards. Not for very windy locations. Responds well to trimming and so makes a good hedge with cost effective instant hedging being achieved by using 200-250 or even 175-200cm high feathered plants immediately cut back upon planting to promote bushiness down to the ground.		
Cornus sanguinea	Common Dogwood	Common Dogwood. This native has green stems, flushed red. Green leaves turn an eye-catching reddish-purple in autumn. Black fruits.	Mild stomach upset if fruits are eaten and skin irritation may be caused from leaves. Prefers moist yet free-draining soil. Prune hard back in late winter each year to promote coloured stems.	Mild stomach upset if the fruit is eaten and skin irritation may be caused from leaves.	
Corylus avellana	Common Hazel	The Common Hazel is a native large multi-stemmed shrub or small to medium-sized tree which is not typically grown as a clear-stemmed tree. The yellow catkins make a fine display in early spring. The relatively large, rounded, green serrated foliage often turns to yellow shades in autumn, when the clusters of edible nuts are ripe. Thrives in a wide range of soils and in sun/light shade.			

Crataegus monogyna	Common Hawthorn	The Common Hawthorn is widely used for hedging. This variable native has small, lobed foliage and brown or grey bark. Masses of clusters of scented white flowers in May and small red fruits in autumn. The best growth is produced in good soil, but the plant is very tolerant of cold, occasional water-logging and wind. Grows to a height of 8-10m with a 6-8m spread.	May cause stomach upset if fruit is eaten uncooked. Spiny twigs can cause scratching and possible skin irritation. Hedging plants which are not cut back after planting tend to remain rather bare at the base. Take care to keep roots moist and plant before foliage starts to 'pip' to minimise losses. Root-ball recommended from 12-14cm girth and upwards.	May cause stomach upset if the fruit is eaten uncooked. Spiny twigs can cause scratching and possible skin irritation.	
Ligustrum vulgare	Common Privet	Native common Privet is semi-evergreen with scented white flowers in summer followed by black berries. Thrives virtually everywhere, including chalk soils.	Harmful if eaten, in particular the berries. Has ability to regenerate from old wood so may be hard pruned.	Harmful if eaten, in particular the berries.	
Prunus spinosa	Blackthorn	The native Sloe or Blackthorn is a dense twiggy large bush often found and used in hedges. An abundance of white flowers in March-April on dark stems, followed by small pea-sized blue-black fruits. Autumn leaf colour is a dull yellow. Grows to 4-5 metres high with the same for the spread.	Spiny twigs can cause scratching and possible skin irritation. Beware as typically substituted with Prunus domestica, which is much larger in leaf, fruit and form.	Spiny twigs can cause scratching and possible skin irritation.	
Rhamnus cathartica	Common Buckthorn	Also known as Purging Buckthorn, this deciduous shrub forms dense thickets with spines at the end of short shoots. Leaves are glossy green, oval and rounded with toothed margins. Numerous inconspicuous, yellow-green female flowers on separate plants to the males, are produced from late April-May followed by small, round fruit turning from green to red, then black. Found on scrubland, hedges and woodland. Grows to 4-6 metres high with a 4 metre spread.	Berries may cause stomach upset if eaten becoming severe if taken in quantity; spines will cause scratching and possible skin irritation.	Berries may cause stomach upset if eaten becoming severe if taken in quantity; Spines can cause scratching and possible skin irritation.	
Rosa canina	Dog Rose	The Native Dog Rose has white or more usually pink, single scented flowers followed by red hips on vigorous thorny stems.	Thorns can cause scratching and possible skin irritation. If fruit is eaten, seed hairs may cause irritation and possibly choking.	Thorns can cause scratching and possible skin irritation. if the fruit is eaten, seed hairs may cause irritation and possibly choking.	

APPENDIX 10 NBS LANDSCAPE SPECIFICATION (EA3-OPEN-ONCS-ZZ-SP-L-000001)

EAST ANGLIA THREE

EA3-OND-CNS-SPE-IBR-000001
Appendix 10: Landscape Specification
ScottishPower Renewables

APPENDIX 10 NBS SPECIFICATION
JANUARY 2022

open
optimised environments

Revision	Issue notes	Issued By	Approved	Date
00	Draft Issue for comment.	rt	jd	12.01.2022
01	Revised to incorporate SPR / SE comments.	rt	jd	27.01.2022

201527_EA3

Optimised Environments Limited

ScottishPower Renewables

EA3-OND-CNS-SPE-IBR-000001

Appendix 10: Landscape Specification

27-01-2022

Contents

D20
Excavating and filling

Clauses

2 To be read with preliminaries/general conditions

Generally/the site

110 Site investigation

1. Report: If available to be provided by Engineer

150A Existing services, features and structures

1. Services: Engineer to provide further details.
2. Site features to be retained: Engineer to provide details.
3. Structures: Engineer to provide details of protection.

Clearance/excavating

164 Tree roots

1. Protected area: Do not cut roots within precautionary protection area.
   1.1. Size of area: Refer to AT Coombes Tree Protection Plan, Ref: BTC2293-TPP(OCS).
2. Excavation in protected area
   2.1. Method: By hand
   2.2. Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
4. Cutting
   4.1. Make clean smooth cuts with no ragged edges.
   4.2. Pare cut surfaces smooth with a sharp knife.
   4.3. Treatment of cut roots: Not required
5. Backfill: As dug material.

168 Site clearance

1. Timing: Before topsoil stripping, if any.
2. General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
3. Treatment: Cut vegetation to ground.

170 Removing small trees, shrubs, hedges and roots

1. Identification: Clearly mark trees to be removed.
2. Small trees, shrubs and hedges: Cut down
3. Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas
4. Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets and Site safety requirements.

175 Felling large trees

1. Definition: Girth over 600 mm.

2. Identification: Clearly mark trees to be removed.
3. Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.
4. Felling: As close to the ground as possible.
5. Stumps: Remove by stump grinding
6. Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

180 Chipping and shredding

1. General: Permitted, retain on site with waste exemption if materials can be reused for mulch/ hibernacula.

220 Stripping topsoil

1. General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
2. Depth
    2.1. Remove to an average depth of 250 mm.
    2.2. Give notice where the depth of topsoil is difficult to determine.
3. Handling: Handle topsoil for reuse or sale in accordance with clause 225.
4. Around trees: Do not remove topsoil from below the spread of trees to be retained.
5. Site storage: Keep separate from excavated sub-soil

221 Treating topsoil

1. Treatment: Apply a suitable translocated nonresidual herbicide.
2. Timing: Not less than two weeks before excavating topsoil.

225 Handling topsoil

1. Standard: To BS 3882. Refer to the Defra guidance on handling of topsoil, Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, DEFRA
2. Aggressive weeds
    2.1. Species: Included in the Weeds Act, section 2 or the appropriate Wildlife and Countryside Act for the relevant jurisdiction.
    2.2. Give notice: Obtain instructions before moving topsoil.
3. Contamination: Do not mix topsoil with:
    3.1. Subsoil, stone, hardcore, rubbish or material from demolition work.
    3.2. Other soil or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.
    3.3. Oil, fuel, cement or other substances harmful to plant growth.
    3.4. Other classifications of topsoil.
4. Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
5. Weather Conditions:: If sustained heavy rainfall (e.g. >10mm in 24 hours) occurs during soil handling operations, work will be suspended and not restarted until the ground has had at least a full dry day or agreed moisture criteria (such as ‘drier than the plastic limit’) can be met. Lighter soil can generally be moved at a higher moisture content without damage than a heavy soil.

350 Existing watercourses

1. Diverted watercourses which are to be filled: Before filling, remove vegetable growths and soft deposits. Base of watercourse to be left to dry out before filling with further soil.

370 Underground structures in landscape areas

1. Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth.
2. Minimum depth below finished levels
    2.1. Grass, ground cover and perennial planting: 500 mm.
    2.2. Shrub planting: 750 mm.
    2.3. Within 2 m of tree planting: 1000 mm.
3. Walls and slabs remaining: In every 10 m² of wall or slab, make a drainage hole at least 600 mm diameter.

Disposal of materials

410 Excavated topsoil storage

1. Storage: Stockpile in temporary storage heaps: 2m high, Confirm location of storage with Landscape Architect / Engineer prior to commencing works

420 Topsoil storage heaps

1. Location: To be confirmed
2. Standard: To BS 3882.
3. Height (maximum): 2m
4. Protection
    4.1. Surface sealed.
    4.2. Do not place any other material on top of storage heaps.
    4.3. Do not allow construction plant to pass over storage heaps.
    4.4. Prevent compaction and contamination.

421A Topsoil storage heap treatment

1. Treatment: Sow with legume rich grass mix, sowing rate 2.5g/m2. Refer to G4 Grass for Long Term Topsoil Storage
2. Supplier:: Germinal Seeds GB
3. Product Reference:: A17

441 Surplus subsoil

1. Excavated material: Stockpile in temporary storage heaps max 3metres high.
2. Retained material: Spread and level surplus subsoil on site.
    2.1. Locations: To be confirmed
    2.2. Protected areas: Do not raise soil level within root spead of trees that are to be retained.
3. Remaining material: Remove from site.

450 Water

1. Generally: Keep all excavations free from water until:
    1.1. Formations are covered.
    1.2. Below ground constructions are completed.
    1.3. Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
2. Drainage: Form surfaces of excavations and fill to provide adequate falls.

3. Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water. Require permit unless meets requirements of the regulatory position statement.

454 Ground water level, springs or running water

1. Give notice: If it is considered that the excavations are below the water table.
2. Springs/ Running water: Give notice immediately if encountered.

Filling

610 Compacted filling for landscape areas

1. Fill: Material capable of compaction by light earthmoving plant.
2. Filling: Layers not more than 200 mm thick. Lightly compact each layer to produce a stable soil structure.

615 Loose tip filling for landscape areas

1. Filling: Do not firm, consolidate or compact when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

Bioremediation - Not Used

'specification for highway works: earthworks specification' appendices - Not Used

Ω End of Section

Q10
Kerbs/ edgings/ channels/ paving accessories

Clauses

2 To be read with preliminaries/general conditions.

Types of kerbs/edgings and channels

110C E10 precast concrete channels for edging reinforced grass lay-by

1. Manufacturer: Marshalls plc.
   1.1. Web: www.marshalls.co.uk.
   1.2. Email: MarshallsWM@web-response.co.uk.
   1.3. Product reference: Channels
2. Type: Square channel, 150 x 150 CS2

Roads/paving accessories/ marking/ demarcation - Not Used

Laying

520 Adverse weather

1. Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

530 Concrete for foundations, races and haunching

1. Standard: To BS 8500-2.
2. Designated mix: Not less than GEN0 or Standard mix ST1.
3. Workability: Very low.

540 Cement mortar bedding

1. General: To section Z21.
2. Mix (Portland cement:sand): 1:3.
   2.1. Portland cement: Class CEM I 42.5 to BS EN 197-1.
   2.2. Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).
3. Bed thickness: 12-40 mm.

570 Channels

1. Installation: To an even gradient, without ponding or backfall.
2. Lowest points of channels: 6 mm above drainage outlets.

620 Accuracy

1. Deviations (maximum)
   1.1. Level: ± 6 mm.
   1.2. Horizontal and vertical alignment: 3 mm in 3 m.

625 Regularity of paved surfaces

1. Maximum undulation of (non-tactile) paving surface: 3 mm.

1.1. Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).

2. Difference in level between adjacent units (maximum)
   2.1. Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
   2.2. Recessed, filled joints: 2 mm.
      2.2.1. Recess depth (maximum): 5 mm.
   2.3. Unfilled joints: 2 mm.
3. Sudden irregularities: Not permitted.

630 Narrow mortar joints

1. Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.
   1.1. Joint width: 3 mm.

Ω End of Section

Q22
Asphalt roads/ pavings

Types of paving

110 Cement concrete paving

1. Description: P1: Standard concrete surfaced road
2. Description: Refer to engineers detail and specification.

Preparatory work/ requirements

220 Bituminous materials generally

1. Suppliers' names: Submit.
   1.1. Timing (minimum): Two weeks before starting work.
2. Test certificates: At the time of delivery for each manufacturing batch submit certificate:
   2.1. Confirming compliance with this specification and the relevant standard.
   2.2. Stating full details of composition of mix.

230 Samples

1. Submit:

240 Acceptance of surfaces

1. Surface: Sound, clean and suitably close textured.
2. Level tolerances: To BS 594987.
3. Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

250 Abutments

1. Vertical edges of manholes, gullies, kerbs and other abutments: Clean and paint with a thin uniform coating of Polymer modified bitumen emulsion bond coat.
2. Finishing: Tamp surface around projections.
   2.1. Level: Flush or not more than 3 mm above projections.

Laying

310 Laying generally

1. Preparation: Remove all loose material, rubbish and standing water.
2. Adjacent work: Form neat junctions. Do not damage.
3. Channels, kerbs, inspection covers etc: Keep clean.
4. New paving
   4.1. Keep traffic free until it has cooled to prevailing atmospheric temperature.
   4.2. Do not allow rollers to stand at any time.
   4.3. Prevent damage.
   4.4. Lines and levels: With regular falls to prevent ponding.
   4.5. Overall texture: Smooth, even and free from dragging, tearing or segregation.
   4.6. State on completion: Clean.

320 Adverse weather

1. Frozen materials: Do not use.
2. Suspend laying
   2.1. During freezing conditions
   2.2. If the air temperature reaches 0°C, or in calm dry conditions -3°C, on a falling thermometer.
   2.3. Hot rolled asphalt: During periods of continuous or heavy rain or if there is standing water on the base.

330 Levels

1. Permissible deviation from the required levels, falls and cambers (maximum): In accordance with BS 594987, clause 5.2.

340 Flatness/ Surface regularity

1. Deviation of surface: Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge placed anywhere on the surface to be not more than:
   1.1. Base:
   1.2. Binder course:
   1.3. Surface course:
   1.4. Where a straightedge cannot be used the surface must be of a comparable standard of accuracy when judged by eye.

350 Contractor's use of pavements

1. Before use
   1.1. Timing: allow newly laid sections to cool before trafficking.
   1.2. Open-grained surface: Fill with 0/4 mm size coated grit. Remove surplus.
   1.3. Finish: Uncoated chipping and binder surface treatment.
2. Preparation for final surfacing
   2.1. Timing: Defer laying until as late as practicable.
   2.2. Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.
   2.3. Adhesion:
      2.3.1. Application rate:
      2.3.2. Accuracy: Uniform, without puddles.
   2.4. Finishing: Allow emulsion to break completely before applying surface.

351 Contractor's use of pavements

1. Preparation for final surfacing
   1.1. Timing: Defer laying until as late as practicable.
   1.2. Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.
   1.3. Adhesion:
      1.3.1. Application rate:
      1.3.2. Accuracy: Uniform, without puddles.
   1.4. Finishing: Allow emulsion to break completely before applying surface.

360 Uncoated chippings for surface treatment

1. Chippings: Clean aggregate to BS EN 13043 and PD 6682-2, size 2.8/6.3, grading category Gc85/15.
   1.1. Type/ Source:
   1.2. Colour:
2. Binder
   2.1. Cutback bitumen to BS EN 12591 or bitumen emulsion to BS 434-1.
   2.2. Do not use cut-back bitumen at temperatures below 15°C.
   2.3. Do not use modified binders without prior approval.
3. Application
   3.1. Binder application rate: In accordance with TRL Road Note 39. Adjust rate for modified binders in accordance with manufacturer's instructions.
   3.2. Coverage: 100–105% shoulder to shoulder to BS 598-1.
   3.3. Compaction: Roll. Do not crush chippings.
4. Completion
   4.1. Before trafficking, remove excess chippings.
   4.2. Carry out further removal of loose chippings disturbed by traffic as necessary.

Completion

395 Slip resistance testing

1. Surfaces to be tested:
   1.1. Surface condition:
2. Timing:
3. Period of notice (minimum): 3 working days.
4. Test standard:
   4.1. Testing authority:
   4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: …….
   4.3. Report: Submit.
      4.3.1. Format:

Ω End of Section

Q23
Gravel/ hoggin/ woodchip/ resin bound roads/ paving/ overlays

Clauses

2 To be read with preliminaries/ general conditions.

Types of surfacing

110A Hard binding gravel

1. Description: P3 perimeter maintenance path
2. Subgrade improvement layer: Submit proposals
   2.1. Compacted thickness: Submit proposals
3. Geotextile: Sheet
   3.1. Manufacturer: Submit proposals
      3.1.1. Product reference: Submit proposals
4. Granular sub-base: Highways Agency Type 2 unbound mixture, as section Q20
   4.1. Compacted thickness: 150 mm
5. Blinding to sub-base: Required
6. Surface course: Angular gravel, free from clay, with sufficient grit to enable compaction.
   6.1. Type: IMAG Grey Pave or submit samples for approval
   6.2. Source: Submit proposal
   6.3. Colour: Grey Pave
   6.4. Size: Graded 6-10 mm
   6.5. Compacted thickness: 100 mm
7. Completion: Compact to produce a firm, regular surface, stable in use.

170A Loose gravel overlay

1. Description: P2 inert permeable gravel ground cover within substation
2. Base: Made up ground formed by excvation works related to substation construction, topped with 100mm rolled MOT Type 3 granular material
   2.1. Preparation: Ensure made up ground is free draining
3. Gravel: Loose laid and raked to uniform thickness:
   3.1. Type: Kennet Flint or other locally sourced Flint stone - supply samples for approval
   3.2. Source: Locally sourced
   3.3. Colour: Grey
   3.4. Size: Graded 8-14 mm or submit proposals
   3.5. Thickness: 100 mm

270 Hard landscaping materials specification

1. Minimum 'BRE Green Guide to Specification Online' rating: A

Laying

310A Timber edging

1. For self binding gravel path (p3)
2. Softwood board
   2.1. Size: 150 x 38 mm.
   2.2. Fixing: Galvanized nails into softwood pegs.
3. Softwood pegs
   3.1. Size: 50 x 50 x 600 mm long
   3.2. Fixing: Drive into ground.
   3.3. Centres: 1200 mm
4. Preservative treatment: Tanalith E/GFb or submit approvals)

315 Materials

1. Compatibility: Chippings suitable for use with respective binders/ emulsions/ resin/ epoxy.

320 Samples

1. Submit: Representative samples of all aggregates.

325 Blinding to sub-base

1. Type: Fine hoggin
2. Laying: Compact. Seal interstices. Provide free drainage.
3. Compacted thickness: 25 mm

340 Laying generally

1. Channels, gullies, etc: Keep clear.
2. Finished surfaces
   2.1. Lines and levels: To prevent ponding.
   2.2. Overall texture: Even.
   2.3. State at completion: Clean.

350 Cold weather working

1. Frozen materials: Do not use.
2. Freezing conditions: Do not lay pavings.
3. Cold bituminous surface dressings: Do not apply when ambient temperature is below 10°C.
4. Other dressings or overlays: As manufacturers' recommendations.

360 Drainage falls

1. Sealed surfaces
   1.1. Falls and cross falls (minimum): 1:40.
   1.2. Camber (minimum): 1:50.
2. Unsealed surfaces (minimum): 1:30.

380 Laying granular surfaces in pedestrian areas and cycle tracks

1. Permissible deviation from required levels, falls and cambers (maximum): ±12 mm.

2. General: Spread and level in 100 mm maximum layers. As soon as possible, compact each layer.
3. Dry weather: Lightly water layers during compaction.

390 Protection from traffic and plant

1. Paved areas: Restrict access to prevent damage.

Completion - Not Used

Ω End of Section

Q25
Slab/brick/sett/cobble pavings

Clauses - Not Used

General

180A Plastic grass reinforcing paving system

1. Description: For maintainance track to suds basin
2. Manufacturer: Geosynthetics Ltd
   2.1. Web: www.geosyn.co.uk
   2.2. Email: pgent@geosyn.co.uk
   2.3. Tel: +44 (0)1455 617139
   2.4. Fax: +44 (0)1455 617140
   2.5. Address: Geosynthetics Ltd, Fleming Road, Harrowbrook Industrial Estate, Hinckley, Leicestershire, LE10 3DU
3. Product reference: Golpla® Pre-Grown
4. Colour: Green
5. Material: The Golpla shall be UV stable 100 % recycled Polypropylene (80%) and Polyethylene (20%).
6. Size: 640mm long x 330mm wide x 38 mm depth modular laid dimension. Each unit shall have a free surface area available for infill of 94%.
7. The units shall have 60 hexagonal cells of per unit, measuring 63mm per cell.
   7.1. Note.The General Arrangement drawing shows the lay-by to be 3.5m wide, this should be achievable using 5No whole pavers and 1No. 1/2 paver.
8. Subbase [To be confirmed by engineer but manufacturers recommendations are as follows:]. The base construction must have sufficient strength to withstand the maximum bearing load likely to be applied, even if the wettest of conditions. A typical construction may consist of a 150mm - 250mm layer of well-compacted graded stone (note NOT MOT Type 1). MOT Type 3 as described in Specification for Highway Works Clause 805 is suitable, followed by a 100mm minimum consolidated depth of a 70/30 Rootzone under the pavers. The loading capacity shall be 100 kN/m.
9. Edging: To be formed using E10 pre-cast standard concrete 150mm wide channels. The Golpla must have fully enclosed cells to ensure there are no exposed edges within the system
10. Bedding: Minimum of 100mm Rootzone 70:30 mix. The infill is a clean friable top soil and specified seed mix. Level the Rootzone to plus or minus 10mm. Consolidation is best achieved by the use of the light vibrating plate after laying the Golpla® pavers.
11. Laying: Lay the pavers starting in the left hand corner of the lay-by, with the paver locking tabs facing forwards and to the right. Continue laying the pavers
12. making sure that each is interlocked into its neighbour. Stand on the laid pavers when laying the next row. Each pallet will be numerical identified in order indicating the
13. installation sequence of the pallets of Golpla® Pregrown. All Golpla® Pregrown units should be installed within a maximum of 48 hours after delivery to ensure a sucessful
14. installation. For fitting around obstructions, the pavers can be easily cut with a hand saw or power cutter. Cut pavers should be nailed down using the Golpla nails. The
15. whole area should be consolidated either with a vibrator plate or small roller
16. Paving units: ['Golpla' pavers pre-grown with grass as supplied by Geosythentics Ltd].
    16.1. Bond: [In accordance with manufacturer's recommendations].
    16.2. Filling: [Supplied pre-filled and with pre-grown grass].

16.3. Seed mix specification [Seed mix to be as per L7 in section Q30 Seeding]

16.4. Accessories: [Golpla nails for securing paving units that are cut and also all paving units at the top, bottom and along the slope].

17. Notes: No recessed covers, utilitiy access chambers, Fire Hydrants, valve covers to be located within the paving units
18. Each installation will be different according to the requirements of the individual site, therefore it is important that the correct base construction is specified depending on
19. the sub base strength. Geosynthetics Limited can arrange for testing and construction advice if required. If the installation is on a slope greater than 5%, then additional nailing may be
20. required. Please consult Geosynthetics Limited for technical information. Reliable sources of Rootzone can be found on www.brtma.com
21. Aftercare: In order for the installation to give good service and to maintain acceptable grass coverage, it is important to ensure that adequate moisture is available whilst the
22. roots are establishing, and subsequently to supply nutrients in the form of a general purpose fertiliser after four weeks, and then twice annually. Apply as per the
23. recommendations on the bag. For best results Golpla® Pregrown requires a 2 to 4 week establishment period, depending on application and seasonality. Until grass sward is fully established the grass road is not to be used. A full seasons grass growth is recommended before all but emergency use. Contractor and sub-contractors are not to use the pavers for temporary haul activities or for storage of materials which will all destroy the grass cover and impair loadbearing capability.

System performance - Not Used

Products - Not Used

Execution

620 Adverse weather

1. General
   1.1. Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
   1.2. Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
2. Paving with mortar joints and/ or bedding
   2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.
3. Paving laid and jointed in sand:
   3.1. Stockpiled bedding sand: Protect from saturation.
   3.2. Exposed areas of sand bedding and uncompacted areas of sand bedded paving: Protect from heavy rainfall.
   3.3. Saturated sand bedding: Remove and replace, or allow to dry before proceeding.
   3.4. Laying dry-sand jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

765 Laying plastics grass reinforcing pavers

1. Laying: Tamp down into lightly compacted laying course - Consolidate with vibrating plate compactor;- Secure with fasteners; and- Stand on laid pavers when laying next row.
   1.1. Nominal thickness of laying course after compaction: 30 mm
2. Securing on slopes: Soil nails
3. Filling: Allow to settle and refill level with surface.

Completion - Not Used

Ω End of Section

Q28
Topsoil and soil ameliorants

Clauses

2 To be read with preliminaries/ general conditions.

System outline

115 Topsoil system for turfing and seeding

1. Description: For verges and embankments
2. Composition
   - 2.1. Soil: Site sourced topsoil
   - 2.2. Ameliorants: Sanitized and stabilized composted materials
   - 2.3. Accessories: None

115A Soil system for grass swards

1. Description: For species rich areas
2. Composition
   - 2.1. Soil: Site sourced topsoil
   - 2.2. Ameliorants: None
   - 2.3. Accessories: None

115C Soil system for grass swards

1. Description: For reinforced grass system
2. Composition
   - 2.1. Soil: Imported topsoil to BS 3882
   - 2.2. Ameliorants: Sanitized and stabilized composted materials
   - 2.3. Accessories: None

135 Planting bed topsoil system

1. Description: For woodland areas
2. Composition
   - 2.1. Topsoil: Site sourced topsoil
   - 2.2. Ameliorants: Sanitized and stabilized composted materials
   - 2.3. Accessories: Mycorrhizal inoculant

135A Planting bed soil system

1. Description: For hedgerows
2. Composition
   - 2.1. Topsoil: Site sourced topsoil
   - 2.2. Ameliorants: Sanitized and stabilized composted materials
   - 2.3. Accessories: Mycorrhizal inoculant

155 Mulching and top dressing system

1. Description: For woodland areas

2. Composition
   2.1. Material: Sanitized and stabilized composted materials

155A Mulching and top dressing system

1. Description: For hedgerows
2. Composition
   2.1. Material: Sanitized and stabilized composted materials

Products

300 Preparation materials generally

1. Purity: Free of pests and disease.
2. Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
3. Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
   3.1. Corrosive, explosive or flammable.
   3.2. Hazardous to human or animal life.
   3.3. Detrimental to healthy plant growth.
4. Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
5. Objectionable odour: None.
6. Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

305 Permitted materials

1. Materials: Composted bark and Composted green/ food waste certified to PAS 100
2. Give notice: before ordering or using.
3. Declaration of compliance in accordance with BS EN 13650: Required

310 Materials not permitted

1. Materials: - Peat;- Products containing peat; and- River and canal dredgings

315 Imported topsoil to BS 3882

1. Description: For grass seeding and woodland areas and hedgerows
2. Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
3. Standard: To BS 3882.
4. Classification: Multipurpose
   4.1. Grade: Within the parameters of 'sandy loam' textural class
5. Source: Submit proposals
   5.1. Product reference: Submit proposals

335 Imported manufactured topsoil, custom mix

1. Description: For grass seeding and woodland areas and hedgerows
2. Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
3. Source: Submit proposals

3.1. Product reference: Submit proposals

4. Texture: Sandy clay loam
5. Reaction, to BS 1377-3: pH 5.5-8.5.
6. Organic matter to BSI PD CR 13456: Minimum 5%
7. Nutrient content: Minimum index values for nitrogen, phosphorus, potassium and magnesium to be as for BS 3882 multipurpose topsoil.
8. Crumb structure: Made up of discernible crumbs.
9. Stone size in any dimension (maximum): 20 mm

360 Sanitized and stabilized composted materials certified to PAS 100

1. Description: For tree pits and hedgerows
2. Standard: In accordance with PAS 100.
3. Source: Submit proposals
   3.1. Product reference: Submit proposals
4. Horticultural parameters
   4.1. pH (1:5 water extract): 7.0-8.7.
   4.2. Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
   4.3. Moisture content (m/m of fresh weight): 35-55%.
   4.4. Organic matter content (minimum): 25%.
   4.5. Grading (air dried samples): 99% passing 25 mm screen, and 90% passing: 10 mm screen mesh aperture
   4.6. Carbon:Nitrogen ratio (maximum): 20:1.
5. Texture: Friable.
6. Objectionable odour: None.
7. Composting Association certification: Required
8. Declaration of analysis: Submit.
9. Additional analyses: Not required
10. Samples: Submit details of recent chemical and physical analysis before ordering

370 Temporary crops grown on site

1. Description: On temporary topsoil storage heaps
2. Seed mix: Leguminous seed mix as per mix G5
3. Source: Germinal GB Ltd.
   3.1. Product reference: A17 grade 'A' legume and clover seed mixture

380 Mycorrhizal inoculant

1. Description: For transplanting all bare root plants
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals

Execution

605 Site investigation

1. Report: See section D20.

610A Topsoil analysis

1. Soil to be analysed: Imported topsoil and Topsoil stockpile
2. Soil analyst: Hutton Soils,The James Hutton Institute,CraigiebucklerAberdeenAB15 8QHEmail: info@huttonsoils.comTel: +44 (0) 1224 395115 (Typically 09:00 – 17:00 hrs, Monday – Friday)
3. Tests to undertake:
4. pH, Nutrient status (Mg, K and P) and Organic matter (Gardening Report)
5. Samples: Collect in accordance with BS 3882.
6. Submit
    6.1. Declaration of analysis: - Chemical analysis;- Maximum stone content, stone size and pH value; and- Nutrient content, pH value and textural classification
    6.2. Report detailing soil analyst's recommendations.

620 Importing topsoil

1. Give notice: Before stripping topsoil for transfer to site.
    1.1. Notice period: 14 days

625 Sample loads

1. Description: For imported topsoil
2. Deliver to site a sample load: of 5 kg
3. Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
    3.1. Notice period: 14 days

630 Documentation for imported topsoil

1. Description: For tree pits
2. Timing: Submit at handover.
3. Contents
    3.1. Full description of all soil components.
    3.2. Record of source for all soil components.
    3.3. Record drawings showing the location and depth of all soils by type and grade.
    3.4. Declaration of analysis: in accordance with BS 3882, Annex E.
4. Number of copies: Two

635 Documentation for compost and composted materials

1. Description: For compost
2. Timing: Submit at handover.
3. Contents
    3.1. Full description of all compost components.
    3.2. Record of source for all compost components.
    3.3. Analyst's report for each test carried out.
    3.4. Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
    3.5. Quality Compost Protocol certification: Required
4. Number of copies: Two

650 Notice

1. Give notice before

1.1. Setting out.
1.2. Spreading topsoil.
1.3. Applying herbicide.
1.4. Applying fertilizer.
1.5. Visiting site during maintenance period.

2. Period of notice: 1 week

655 Mechanical tools

1. Restrictions: Do not use within 100 mm of tree and plant stems.

660 Grading subsoil for:

1. General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
2. Loosening:
   2.1. Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
   2.2. Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
   2.3. Rock and chalk subgrades: Lightly scarify to promote free drainage.
3. Areas of thicker topsoil: Excavate locally.
4. Avoid over compaction.

665 Subsoil surface preparation for:

1. General: Excavate and/ or place fill to required profiles and levels, as section D20.
2. Loosening
   2.1. Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
   2.2. Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
3. Stones: Immediately before spreading topsoil, remove stones larger than: 75 mm
4. Remove from site: Arisings, contaminants and debris and Builders rubble

670 Inspecting formations

1. Give notice: Before spreading topsoil for areas to receive forestry planting and lawn areas.
2. Notice period: 14 days

675 Preparation of undisturbed topsoil

1. Standard: In accordance with BS 4428.
   1.1. Grading and cultivation: Category A
2. Hard ground: Break up thoroughly.
3. Clearing: Remove visible roots and large stones with a diameter greater than 100 mm.
4. Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
5. Fallow period (minimum): Three months
   5.1. Weed control: At appropriate times seed with an approved leguminous seed mix.

680 Surplus topsoil to be retained

1. Generally: Spread and level on site:
   1.1. Locations: Any areas where topsoil is required for new planting

1.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.

685 Surplus materials to be removed

1. Topsoil: Remove from site: excess topsoil
2. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

690 Topsoil storage heaps

1. Location: Throughout the site
2. Height (maximum): 2.0 m
3. Width (maximum): 5.0 m
   3.1. Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
4. Protection
   4.1. Do not place any other material on top of storage heaps.
   4.2. Do not allow construction plant to pass over storage heaps.
   4.3. Prevent compaction and contamination, by fencing and covering as appropriate.

700 Grading of topsoil

1. Topsoil condition: Reasonably dry and workable.
2. Contours: Smooth and flowing, with falls for adequate drainage.
   2.1. Hollows and ridges: Not permitted.
3. Finished levels after settlement: 25 mm above adjoining paving, kerbs, manholes etc.
4. Give notice: If required levels cannot be achieved by movement of existing soil.

705 Handling topsoil

1. Aggressive weeds: Give notice and obtain instructions before moving topsoil.
2. Plant: Select and use plant to minimize disturbance, trafficking and compaction.
3. Contamination: Do not mix topsoil with:
   3.1. Subsoil, stone, hardcore, rubbish or material from demolition work.
   3.2. Other grades of topsoil.
4. Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
5. Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit: less 3%, to BS 1377-2

710 Spreading topsoil on:

1. Temporary roads/ surfacing: Remove before spreading topsoil.
2. Layers
   2.1. Depth (maximum): 150 mm.
   2.2. Gently firm each layer before spreading the next.
3. Depths after firming and settlement (minimum): 450 mm
4. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 Loose tipping of topsoil

1. General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

718 Final cultivation

1. Description: For grass seeding
2. Compacted topsoil: Break up to full depth.
3. Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
4. Depth: 150 mm
5. Particle size (maximum): 10 mm
6. Timing: After grading and fertilizing, and within a few days before seeding
7. Weather and ground conditions: Suitably dry.
8. Surface: Leave regular and even.
9. Levels: 25 mm above adjoining paving or kerbs and As section D20
10. Undesirable material brought to the surface
    10.1. Remove visible weeds.
    10.2. Remove roots and large stones with any dimension exceeding 20 mm.

720 Finished levels of topsoil after settlement

1. Above adjoining paving or kerbs: 25 mm
2. Below dpc of adjoining buildings: Not less than: 150 mm
3. Planting beds: Higher than adjoining grass areas by: 50 mm
4. Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
5. Sportsfields: To even levels and within the following permitted deviations:
    5.1. From levels or gradients shown on drawings: ±75 mm.
    5.2. From line between boning rods 30 m apart: ±25 mm.
6. Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
7. Adjoining soil areas: Marry in.
8. Thickness of turf or mulch: Included.

805 Applying soil ameliorant

1. Description: To all landscaped areas
2. Type: Organic materials
3. Locations: All planting areas
4. Fully incorporate into topsoil to a depth of 150 mm.
5. Application: Spread evenly.
    5.1. Timing: Apply prior to cultivation.
    5.2. Rate: To suit soil report recommendations
6. Timing: Prior to cultivation.
7. Other requirements: Submit details of recent chemical and physical analysis before ordering

840 Applying mycorrhizal inoculant

1. Description: For bare root plants
2. Depth: To maintain contact with root system

845 Applying loose mulch

1. Description: For tree pits
2. Timing: Immediately after planting

3. Preparation: Ensure that soil is thoroughly moistened, applying water where necessary
4. Coverage of mulch (minimum)
   4.1. Planting beds (depth): N/A
   4.2. Trees: In a circular area of 500 mm radius measured from the tree stem
   4.3. Container planting: N/A
5. Finished level of mulch: 70 mm below adjacent grassed or paved areas

Completion - Not Used

Ω End of Section

Q30
Seeding/turfing

Clauses

2 To be read with preliminaries/general conditions.

General information/requirements

115 Seeded and turfed areas

1. Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
2. Appearance: A closely knit, continuous ground cover of even density, height and colour.

120 Climatic conditions

1. General: Carry out the work while soil and weather conditions are suitable.

145 Watering

1. Quantity: Wet full depth of topsoil.
2. Application: Even and without displacing seed, seedlings or soil.
3. Frequency: As necessary to ensure the establishment and continued thriving of all seeding/turfing.

150 Water restrictions

1. Timing: If water supply is or is likely to be restricted by emergency legislation do not carry out seeding/turfing until instructed. If seeding/turfing has been carried out, obtain instructions on watering.

160 Notice

1. Give notice before
    1.1. Setting out.
    1.2. Applying herbicide.
    1.3. Applying fertilizer.
    1.4. Preparing seed bed.
    1.5. Seeding or turfing.
    1.6. Visiting site during maintenance period.
2. Period of notice: 1 week

170 Setting out

1. Boundaries: Mark clearly.
2. Delineation: In straight lines or smoothly flowing curves as shown on drawings.

Preparation

210 Herbicide

1. Description: For all grassed areas
2. Type: Suitable for suppressing perennial weeds.
3. Timing: Allow fallow period before cultivation.

3.1. Duration: As manufacturer's recommendation

212 Seed bed cleaning before sowing

1. Description: All grassed areas
2. Operations: Kill pernicious weeds with selective contact herbicide.

250 Soil requirements

1. Type
   1.1. Seeded areas: Existing topsoil
   1.2. Turfed areas: N/A
   1.3. Reinforced grass areas: Soil for grass swards, as section Q28

Seeding

311 Grass seed

1. Description: For verges, embankments suds swale sides g1
2. Supplier: Geminal GB Ltd
   2.1. Mixture reference: A3 Embankments & Drought
3. Application rate: 34-50 g/m²

311A Grass seed

1. Description: For wetland areas and detention basins g2
2. Supplier: Geminal GB Ltd
   2.1. Mixture reference: RE3 River Floodplain / Water Meadow (MC8 Grassland)
3. Application rate: 5-10 g/m²

311B Grass seed

1. Description: For species rich grass areas g3
2. Supplier: Geminal GB Ltd
   2.1. Mixture reference: WFG16 Productive Soils)
3. Application rate: 5-10 g/m²

311C Grass seed

1. Description: For topsoil storage g4
2. Supplier: Geminal GB Ltd
   2.1. Mixture reference: A17 grade 'A' legume and clover seed mixture
3. Application rate: 2.5 g/m²

311D Grass seed

1. Description: For arable field margins g5
2. Supplier: Geminal GB Ltd
   2.1. Mixture reference: Bespoke - see schedule G5
3. Application rate: 2.5 g/m²

319 Quality of seed

1. Description: For all grassed areas
2. Freshness: Produced for the current growing season.

3. Certification: Blue label certified varieties.
   3.1. Standard: EC purity and germination regulations.
   3.2. Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
4. Samples of mixtures: Submit when requested.

330 Sowing

1. General: Establish good seed contact with the root zone.
2. Method: To suit soil type, proposed usage, location and weather conditions during and after sowing
   2.1. Distribution: 2 equal sowings at right angles to each other and diagonally to main axis

335 Grass sowing season

1. Grass seed generally: April to June or August to October

340 Pre-emergent herbicide

1. Description: For all grassed areas
2. Standard: Pesticide Safety Directorate approved.
3. Application rate: In accordance with manufacturer's written recommendation.
   3.1. Timing: Immediately after sowing.

352 Edges to seeded areas

1. Description: Around tree pits
2. Timing: After seeded areas are well established.
3. Edges: Clean straight lines or smooth curves.
   3.1. Mulch and soil: Draw back to permit edging.
4. Arisings: Remove.
5. Completion: Respread soil and mulch.

361 Reinforced grass system

1. Description: P4 : For lay by on access route to substation
2. Manufacturer: Geosynthetics Ltd
   2.1. Product reference: Golpla Pre-Grown

Turfing - Not Used

Protecting/cutting

530 First cut of grassed areas

1. Timing: When grass is reasonably dry.
   1.1. Height of initial growth: 75 mm
2. Preparation
   2.1. Debris and litter: Remove.
   2.2. Stones and earth clods larger than 100 mm in any dimension: Remove
3. Height of first cut: 50 mm
4. Mower type: Contractor's choice
5. Arisings: Spread evenly over cut areas

565 Timber/ plastics edgings

1. Material: Softwood board
   1.1. Size: 150 mm x 38 mm.
2. Fixings: Nailed.
   2.1. Pegs: 50 mm x 50 mm x 450 mm long.
   2.2. Centres: 1200 mm.
   2.3. Installation height: 30 mm
3. Curved boards: Closely spaced vertical grooves cut in the back to achieve smooth flowing lines.
4. Preservative treatment: As section Z12 and Wood Protection Association commodity specification C4.
   4.1. Type: To provide a 30 year service life

590 Cleanliness

1. Soil and arisings: Remove from hard surfaces.
2. General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

Maintenance

610 Failures of seeding/ turfing

1. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
2. Defective materials or workmanship: Areas that have failed to thrive.
   2.1. Exclusions: Theft or malicious damage.
3. Method of making good: Recultivation and reseeding/ returfing.
4. Timing of making good: The next suitable planting season

620 Maintaining

1. Description: Road verges and embankment areas g1 - frequent cut
2. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
3. Maximum height of growth at any time: 125 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 35 mm.
   5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
   7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
   8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
   9.1. Size: Exceeding 25 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: When instructed

620A Maintaining

1. Description: Wetland areas g2 - infrequent cut
2. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
3. Maximum height of growth at any time: 250 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 35 mm.
   5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
   7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
   8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
   9.1. Size: Exceeding 25 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: When instructed

620B Maintaining

1. Description: Species rich areas g3 - infrequent cut
2. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
3. Maximum height of growth at any time: 250 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 50 mm.
   5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
   7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
   8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
   9.1. Size: Exceeding 25 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: When instructed

620C Maintaining

1. Description: Topsoil storage areas g4 - infrequent cut
2. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
3. Maximum height of growth at any time: 250 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 50 mm.
   5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.

7. Trimming: All edges.
   7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
   8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
   9.1. Size: Exceeding 100 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: When instructed

620D Maintaining

1. Description: Arable field margin areas g5 - infrequent cut
2. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
3. Maximum height of growth at any time: 250 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 50 mm.
   5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
   7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
   8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
   9.1. Size: Exceeding 100 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: When instructed

Ω End of Section

Q31
External planting

Clauses

2 To be read with preliminaries/general conditions.

General information/ requirements

112 Site clearance generally

1. General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
2. Stones: Remove those with any dimension exceeding 100 mm.
3. Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
4. Vegetation: Clear scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings
5. Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
6. Additional requirements: Remove remnants of old fence posts and mesh

115 Site clearance for aquatic/ marginal planting

1. Clearance
   1.1. General: Remove loose debris and rubbish.
   1.2. Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
2. Vegetation/ Algae: Skim surface to remove duckweed
3. Additional requirements: As per landscape managment plan

118 Soil conditions

1. Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
2. Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

120 Climatic conditions

1. General: Carry out the work while soil and weather conditions are suitable.
   1.1. Strong winds: Do not plant.

125 Times of year for planting

1. Deciduous trees and shrubs: Late October to late March.
2. Conifers and evergreens: September/ October or April/ May.
3. Herbaceous plants (including marginal): September/ October or March/ April.
4. Container grown plants: At any time if ground and weather conditions are favourable.
   4.1. Watering and weed control: Provide as necessary.
5. Dried bulbs, corms and tubers: September/ October.
6. Colchicum (crocus): July/ August.
7. Green bulbs: After flowering in spring.
8. Wildflower plugs: Late August to mid November or March/ April.

9. Aquatic plants: May/ June or September/ October.

130 Mechanical tools

1. Restrictions: Do not use within 100 mm of tree and plant stems.

145 Watering

1. Quantity: Wet full depth of topsoil.
2. Application: Even and without damaging or displacing plants or soil.
3. Frequency: As necessary to ensure establishment and continued thriving of planting.

150 Water restrictions

1. General: If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.

160 Notice

1. Give notice before
    1.1. Setting out.
    1.2. Applying herbicide.
    1.3. Applying fertilizer.
    1.4. Delivery of plants/ trees.
    1.5. Planting shrubs.
    1.6. Planting trees into previously dug pits.
    1.7. Watering.
    1.8. Visiting site during maintenance period.
2. Period of notice: One week

170 Soil requirements

1. Type
    1.1. Planted beds: N/A
    1.2. Tree pits, shrub pits and other backfilling: Plant pit backfilling soil system, as section Q28
    1.3. External container planting: N/A
    1.4. Mulch applied after planting: Mulching and top dressing system, as section Q28

200 Plants/ Trees – general

1. Condition: Materially undamaged, sturdy, healthy and vigorous.
2. Appearance: Of good shape and without elongated shoots.
3. Hardiness: Grown in a suitable environment and hardened off.
4. Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
5. Budded or grafted plants: Bottom worked.
6. Root system and condition: Balanced with branch system.
    6.1. Standard: The National Plant Specification
7. Species: True to name.
8. Origin/ Provenance: Local provenance
9. Definition: Origin and Provenance have the meaning given in the National Plant Specification.

215 Plants/ Trees – specification criteria

1. Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification.

245 Labelling and information

1. General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
    1.1. Full botanical name.
    1.2. Total number.
    1.3. Number of bundles.
    1.4. Part bundles.
    1.5. Supplier's name.
    1.6. Employer's name and project reference.
    1.7. Plant specification, in accordance with scheduled National Plant Specification categories.
2. Additional information: Submit on request: Country of origin and Date supplied and consignment details or reference.

260 Plant/ Tree substitution

1. Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
    1.1. Price.
    1.2. Difference from specified plants/ trees.
2. Approval: Obtain before making any substitution.

265 Plant handling, storage transport and planting

1. Standard: To CPSE 'Handling and establishing landscape plants'.
2. Frost: Protect plants from frost.
3. Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
4. Plant packaging: Black polyethylene bags
5. Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped
6. Planting: Upright or well balanced with best side to front.

280 Treatment of tree wounds

1. Cutting: Keep wounds as small as possible.
    1.1. Cut cleanly back to sound wood using sharp, clean tools.
    1.2. Leave branch collars. Do not cut flush with stem or trunk.
    1.3. Set cuts so that water will not collect on cut area.
2. Fungicide/ Sealant: Do not apply unless instructed.

285 Protection of existing grass

1. General: Protect areas affected by planting operations using boards/ tarpaulins.
    1.1. Excavated or imported material: Do not place directly on grass.
    1.2. Duration: Minimum period.

290 Surplus material

1. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

Plant containers - Not Used

Preparation of planting beds/ planting materials - Not Used

Planting shrubs/ herbaceous plants/ bulbs

400 Random plant layout

1. Description: To woodland planting
2. Spacing: Random groups of 9-23 plants of the same species. Avoid straight lines
3. Density: As plant schedule

400A Random plant layout

1. Description: To suds basin and swale base planting g6 g7 g8
2. Spacing: Random groups of 9-23 plants of the same species. Avoid straight lines
3. Density: As plant schedule

457 Planting aquatic/ Marginal plant plugs

1. Handling: Keep plants watered and in shade until planted. Do not allow to dry out.
2. Preparation: Remove coarse weeds etc. from planting sites.
3. Planting sites: SUDS Forebay areas, SUDS swale base, Pond margin. Refer to drawings
4. Planting: Into a hole to suit plug size and shape. Create a cleft at bottom of hole to improve rooting. Gently firm plant into hole to ensure good root hold into substrate.

459 Notch planting bare root aquatic plants

1. Notching: Make a vertical 'I', 'L', 'T' or 'H' notch.
   1.1. Depth: To accommodate full depth of roots.
2. Planting: Insert plant at specified water depth, close notch and firm surrounding soil to ensure good root hold into substrate.

471A Hedgerows

1. Planting: In trenches large enough to take full spread of roots. Set out plants evenly in double staggered row.

480 After planting

1. Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
2. Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
3. Top dressing: Mulching and top dressing system, as section Q28
   3.1. Depth: 50 mm

Planting trees

502 Antidesiccant for conifers/ Evergreens

1. Manufacturer: Submit proposals

1.1. Product reference: Submit proposals

2. Application: Dip in or thoroughly spray before delivering to site. Spray again soon after planting.
   2.1. Do not apply in wet or frosty weather.
   2.2. Ensure full coverage of underside of foliage.

505 Tree pits

1. Sizes: 75 mm deeper than root system and wide enough to accommodate roots when fully spread
2. Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
3. Pit bottoms: With slightly raised centre. Break up to a depth of: 150 mm
   3.1. Treatment: Soil ameliorant worked into pit bottoms
4. Pit sides: Scarify.
5. Backfilling material: Plant pit backfilling soil system, as section Q28
6. Accessories: None

535 Tree stakes

1. Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
   1.1. Preservative treatment: To provide a 20 year service life
2. Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
3. Stake size (minimum): 25 x 25 mm

555 Short single staking for

1. Description: Whips and feathered trees
2. Staking: Position stake close to tree on windward side and drive vertically at least 300 mm into bottom of pit before planting.
   2.1. Backfiling: Consolidate material around stake
3. Height of stakes: Cut to approximately 600 mm above ground level.
4. Ties: Adjustable ties
5. Tying: Secure tree firmly but not rigidly to stake with: at least two tieswithin 25 mm of top of stake.

595A Tree protection for trees not enclosed within deer / rabbit proof fencing

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Type: Round
3. Material: Plastics mesh
4. Size: 1.2 m high x 50 mm diameter
5. Colour: Brown
6. Support: Single timber stake
7. General: Ensure that protection methods do not impede natural movement of trees or restrict growth.

Woodland/ matrix/ buffer zone planting

599A Woodland planting

600 Woodland work generally

1. Services: Check for below and above ground services, including land drainage, in the vicinity. Give notice if they may be affected and obtain instructions before proceeding.
2. Safety: Comply with Arboriculture and Forestry Advisory Group Safety leaflets.

605 Existing vegetation/ Weed clearance

1. Surface vegetation clearance: Screef an area one metre diameter around each planting location
2. Arisings: Remove.

617 Removing trees and hedges

1. Identification: Clearly mark trees and hedges to be removed.
2. Work near retained trees: Where canopies overlap, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
3. Arisings: Remove.
4. Tree stumps: Remove mechanically to a minimum depth of 300 mm below ground level

625 Cultivation

1. General: Ripping at 600 mm centres to full depth of topsoil
2. Consolidation: Leave for three months
3. Soil within root spread of trees to be retained: Do not plough or cultivate.

680 Setting out

1. Planting density: As plant schedule
2. Layout: Random groups of no less than 3 or more than 7 of the same species, ensuring that no three plants are aligned in any one direction.

Protecting/ maintaining/ making good defects

710 Maintenance

1. Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
2. Frequency of maintenance visits: In accordance with the agreed maintenance schedule

720 Failures of planting

1. Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
   1.1. Exclusions: Theft or malicious damage after completion.
   1.2. Rectification: Replace with equivalent plants/ trees/ shrubs.
2. Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
3. Timing of making good: During the next suitable planting season

730 Protective fencing

1. Fencing type: Wooden Post and Rail fence with Rabbit Proof mesh, as section Q40

2. Erection: On completion of planting.
3. Removal: After planting is well established

740 Cleanliness

1. Soil and arisings: Remove from hard surfaces and grassed areas.
2. General: Leave the works in a clean tidy condition at completion and after any maintenance operations.

750 Planting maintenance generally

1. Weed control: Maintain weed free area around each tree and shrub.
   1.1. Diameter (minimum): The larger of 1 m or the surface of original planting pit.
   1.2. Keep planting beds clear of weeds: By use of approved non-residual herbicides
2. Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
3. Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
4. Staking: Check condition of stakes, ties, guys and guards.
   4.1. Broken or missing items: Replace.
   4.2. Rubbing: Prevent.
   4.3. Ties: Adjust to accommodate growth.
   4.4. Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
   4.5. Frequency of checks: At each scheduled maintenance visit
5. Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
6. Trees: Spray crown when in leaf during warm weather.
   6.1. Timing: After dusk.
7. Watering: When instructed

760 Planting maintenance – pruning

1. General: Prune to promote healthy growth and natural shape.
   1.1. Dead, dying, diseased wood and suckers: Remove.
   1.2. Timing: As appropriate to the species
   1.3. Trees: Favour a single central leading shoot.
2. Arisings: Remove.

770 Woodland planting maintenance

1. Watering: Only as necessary to prevent plants wilting.
2. Loose plants: Refirm surrounding soil, without compacting.
3. Weed control: Cut down and remove weeds prior to setting seed in a 1 m diameter area around each tree.
4. Vegetation except trees and coppice shoots to be retained: Cut within the plantation area.
   4.1. Height (maximum): 50 mm
   4.2. Arisings: Leave between rows.
5. Mechanical, chemical or mulching methods of vegetation control: Submit proposals.
6. Ditches and drains: Keep clear.
7. Watering: When instructed

780 Maintenance instructions

1. General: Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide a schedule of any ongoing maintenance problems experienced during the rectification period.

790 Final mulching

1. Timing: At end of the maintenance period.
2. Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
3. Planting beds: Remulch.
4. Depth (minimum): N/A
5. Trees: Remulch.
6. Depth (minimum): 75 mm

Ω End of Section

Q35
Landscape maintenance

Clauses

2 To be read with preliminaries/ general conditions.

Generally

105 Maintenance objectives

1. Location: Native woodland and hedgerows
   1.1. Duration: Ten years
2. Aims: - Provide visual screening for views looking towards the proposed substation- Enhanced landscape quality;- Improved landscape visual amenity; and- Provide wildlife habitat and increase biodiversity
3. Restrictions: As described in the landscape maintenance manual
4. Results: As scheduled

110 Notice

1. Give notice before
   1.1. Application of herbicide.
   1.2. Watering.
   1.3. Each site maintenance visit.
2. Period of notice: 2 weeks

130 Reinstatement

1. Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: Reinstate to original condition.

140 Control of mammalian pests

1. Specialist firms: Submit proposals
   1.1. Method: Rabbit proof fencing, as section Q40

145 Control of invasive animal species

1. Specialist firms: Submit proposals
2. Species: Deer
3. Location: Whole site
4. Method: Submit proposals

156 Watering

1. Supply: No site supply available, submit proposals
2. Quantity: Wet full depth of topsoil
3. Application: Do not damage or loosen plants.
4. Compacted soil: Loosen or scoop out, to direct water to rootzone.
5. Frequency: As schedule and when instructed

160 Water restrictions

1. General: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

170 Disposal of arisings

1. General: Unless specified otherwise, dispose of arisings as follows:
   1.1. Biodegradable arisings: Remove to recycling facility
   1.2. Grass cuttings: Leave for two to three days after cutting then remove
   1.3. Tree roots and stumps: Remove from site
   1.4. Shrub and tree prunings: Remove to recycling facility or hibernacula.
   1.5. Litter and nonbiodegradable arisings: Remove from site

180 Chipping or shredding

1. General: Not permitted on site.

190 Litter

1. Extraneous rubbish not arising from the contract work: Collect and remove from site.

195 Protection of existing grass

1. General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

197 Cleanliness

1. Soil and arisings: Remove from hard surfaces.
2. General: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

Grassed areas

210 Maintenance of grassed areas

1. General: Maintain turf in a manner appropriate to the intended use.
2. Soil and grass
   2.1. Condition: Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
   2.2. Waterlogging and compaction: Prevent.
   2.3. Damage: Repair trampling, abrasion or scalping.
3. Ornamental lawns: Maintain reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills.
   3.1. Edges: Neat and well defined, in clean straight lines or smooth flowing curves.
4. Litter and fallen leaves: Remove regularly to maintain a neat appearance.

220 Grass cutting generally

1. Before mowing: Remove litter, rubbish and debris.
2. Finish: Neat and even, without surface rutting, compaction or damage to grass.
3. Edges: Leave neat and well defined. Neatly trim around obstructions.
4. Adjoining hard areas: Sweep clear and remove arisings.
5. Drought or wet conditions: Obtain instructions.

225 Tree stems

1. Precautions: Do not use mowing machinery closer than 100 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.

255 First cut of

1. Description: All grassed areas
2. Height of initial growth: 75 mm
3. Preparation
   3.1. Debris and litter: Remove.
   3.2. Stones and earth clods larger than 25 mm in any dimension: Remove
4. Height of first cut: 50 mm
5. Mower type: Contractor's choice
6. Arisings: Leave during growing season, remove from first and last cuts of the year

340 Spot weedkilling in rough grass areas

1. Herbicide: Suitable for suppressing perennial weeds
2. Operations: Spot treat - all broad leaved weeds;- docks (Rumex spp);- injurious weed species listed in the Weeds Act 1959 and Wildlife and Countryside Act 1981;- Japanese knotweed (Fallopia spp);- nettles (Urtica spp);- ragworts (Senecio spp);- thistles (Cirsium spp); and- willowherb (Epilobium spp).

Flower beds/ seasonal beddings - Not Used

Shrubs/trees/hedges

500 Establishment of new planting

1. Duration: 10 years
2. Weed control
   2.1. Method: Keep planting beds clear of weeds by use of suitable herbicides.
   2.2. Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
3. Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
4. Watering: Contractor's choice

520 Refirming of trees and shrubs

1. Timing: After strong winds, frost heave and other disturbances.
2. Refirming: Tread around the base until firmly bedded.
3. Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

525 Tree guards

1. Loose or defective guards: Adjust, refix or replace to original specification and to prevent chafing.

530 Tree shelters

1. Loose or defective shelters: Adjust, refix or replace to original specification and to prevent chafing.
2. Removal: All guards will be biodegradable and/or removed when no longer required.

540 Pruning generally

1. Pruning: In accordance with good horticultural and arboricultural practice.
   1.1. Removing branches: Do not damage or tear the stem or bark.
   1.2. Wounds: Keep as small as possible and cut cleanly back to sound wood.
   1.3. Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
   1.4. Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
2. Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
3. Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
4. Disease or infection: Give notice if detected.
5. Growth retardants, fungicide or pruning sealant: Do not use unless instructed.

555 Pruning trees and shrubs

1. Standard: To BS 7370-4.
2. Special requirements: None

570 Formative pruning of young trees

1. Standard: Type and timing of pruning operations to suit the plant species.
2. Time of year: Do not prune during the late winter/ early spring sap flow period.
3. Young trees up to 4 m high
   3.1. Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
   3.2. Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
4. Whips or feathered trees: Do not prune.
5. Operatives: Member of the Arboricultural Association

605 Trimming slowly establishing hedges

1. Operations
   1.1. Timing: Cut back hard in June and September to encourage bushy growth down to ground level.
   1.2. Form: Allow to reach planned dimensions only by gradual degrees, depending on growth rate and habit.

615 Trimming field hedges

1. Operations: Trim to specified height and profile using suitable mechanical cutters.

620 Removal of dead plant material

1. Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.

630 Dead and diseased plants

1. Removal: As soon as possible
2. Replacement: In the next suitable planting season

645 Weed control generally

1. Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high
2. Adjacent plants, trees and grass: Do not damage.

650 Hand weeding

1. General: Remove weeds entirely, including roots.
2. Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
3. Completion: Rake area to a neat, clean condition.
4. Mulch: Reinstate to original depth.

655 Weed cutting by hand or machine

1. Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 75 mm.
2. Herbicides: Give notice before use

657 Herbicide to kill regrowth

1. Type: Suitable foliar acting herbicide to kill regrowth.
2. Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

665 Weed control with winter herbicide

1. Type: Suitable residual soil acting herbicide.
2. Time of year: Unless otherwise agreed, complete before end of March.
3. Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

670 Weed control with summer herbicide

1. Type: Suitable foliar acting herbicide.
2. Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

680 Soil aeration

1. Compacted soil surfaces
    1.1. Prick up: To aerate the soil of root areas and break surface crust.
    1.2. Size of lumps: Reduce to crumb and level off.
    1.3. Damage: Do not damage plants and their roots.

685 Soil level adjustment

1. Level of soil/mulch at edges of beds: Reduce to 50 mm below adjacent grass or hard surface.
    1.1. Arisings (if any): Spread evenly over the bed.

690 Maintenance of loose mulch

1. Thickness (minimum): 75 mm
    1.1. Top up: Annually
2. Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
3. Weeding: Remove weeds growing on or in mulch by hand weeding.

710 Woodland planting maintenance

1. Watering: In exceptional circumstances to prevent plants dying.
2. Loose plants: Refirm surrounding soil, without compacting.
3. Vegetation: Except trees and coppice shoots to be retained, cut down to 100 mm above ground level within the plantation area.
   3.1. Arisings: Leave between rows.
4. Ditches and drains: Keep clear.

715 Woodland thinning

1. Mature planting density: 4 plants per m²
2. Timing: Thin in stages in accordance with the agreed management plan.

720 Coppicing

1. Material to be coppiced Coryllus species.
2. Standard: Good forestry practice.
3. Cut stems: 200 mm
   3.1. Finish: Leave sloping upward towards the centre to promote rainwater runoff.
4. Brash: Stack around coppice stool to alleviate deer damage.
5. Coppiced timber: Extract

Tree work

810 Tree work generally

1. Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
2. Protection: Avoid damage to neighbouring trees, plants and property
3. Standards: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
4. Removing branches: Cut as Arboricultural Association Leaflet 'Mature tree management'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
5. Appearance: Leave trees with a well balanced natural appearance.
6. Chain saw work: Operatives must hold a Certificate of Competence.
7. Tree work: To be carried out by an approved member of the Arboricultural Association.

815 Additional work

1. Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

820 Prevention of wound bleeding

1. Standard: To BS 3998, clause 8.

825 Prevention of disease transmission

1. Standard: To BS 3998, clause 9 and Appendix B.

830 Cleaning out and deadwooding

1. Remove

1.1. Dead, dying, or diseased wood, broken branches and stubs. Some of these features are important ecological elements of woodland. Only removed if diseased otherwise leave as hibernacula.

1.2. Fungal growths and fruiting bodies.

1.3. Rubbish, windblown or accumulated in branch forks.

1.4. Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.

1.5. Other unwanted objects, e.g. tree houses, swings.

1.6. Climbing plants Remove from young trees.

835 Cutting and pruning generally

1. Tools: Appropriate, well maintained and sharp.
2. Final pruning cuts
   2.1. Chainsaws: Do not use on branches of less than 50 mm diameter.
   2.2. Hand saws: Form a smooth cut surface.
   2.3. Anvil type secateurs: Do not use.
3. Removing branches: Do not damage or tear the stem.
4. Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
5. Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
6. Large branches: Remove only if unavoidable
   6.1. Remove in small sections and lower to ground with ropes and slings.
7. Dead branches and stubs: When removing, do not cut into live wood.
8. Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
9. Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

855 Cutting tree roots

1. Excavating: Use hand tools only.
2. Protected area: Do not cut roots within an area which is the larger of:
   2.1. The branch spread of the tree.
   2.2. An area with a radius of half the tree's height, measured from the trunk.
3. Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
4. Cutting
   4.1. Cutting: Make clean smooth cuts with a hand saw.
   4.2. Wounds: Minimize. Avoid ragged edges.
   4.3. Finishing: Pare cut surfaces smooth with a sharp knife.
5. Backfilling
   5.1. Protection: Cover cut roots with clean sharp sand.
   5.2. Material: Backfill with original topsoil.

860 Removing trees, shrubs and hedges

1. Standards: To BS 3998, Appendix A and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
2. Existing services: Check for below and above ground services. Give notice if they may be affected.

3. Shrubs and smaller trees: Cut down and grub up roots.
4. Tree stumps
   4.1. Removal: Remove mechanically to a minimum depth of 300 mm below ground level
   4.2. Removal by winching: Give notice. Do not use other trees as supports or anchors.
5. Protection: Avoid damage to neighbouring trees, plants and property
6. Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
7. Filling holes
   7.1. Material: Use as-dug material and/ or imported soil as required.
   7.2. Finishing: Consolidate and grade to marry in with surrounding ground level.

865 Bark damage

1. Wounds
   1.1. Do not attempt to stop sap bleeding.
   1.2. Bark: Remove ragged edges using a sharp knife.
   1.3. Wood: Remove splintered wood from deep wounds.
   1.4. Size: Keep wounds as small as possible.
2. Liquid or flux oozing from apparently healthy bark: Give notice.

Water areas - Not Used

Hard landscape areas/fencing

910 Hard surfaces and gravel areas

1. Herbicide: Apply a suitable foliar acting or residual herbicide. Allow recommended period for herbicide to take effect before clearing arisings.
2. Hard surfaces: Remove litter, leaves and other debris.
3. Surface gutters and channels: Remove mud, silt and debris.
4. Drainage gullies: Empty traps and flush clean.
5. Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.
6. Repairs to flexible bituminous pavings: In accordance with the original paving specification or BS 7370-2, clause 4.12.
7. Stain removal: In accordance with BS 7370-2, table 4.

920 Fencing

1. Fences: Inspect and repair to maintain protection against rabbits.

Ω End of Section

Q40
Fencing

Clauses

2 To be read with preliminaries/ general conditions.

Fencing systems

126A Open mesh steel panel security fencing F1

1. Manufacturer: Refer to SE Details and Specification.
2. Panel:
3. Colour: RAL 7016 Anthracite
4. Earthing Requirements:: Refer to SE details.

210B Wooden post and rail fencing F2

1. Description: Wooden posr fencing with wire mesh netting
   1.1. Product reference: Submit proposals
2. Standard: To BS 1722-7, type SPR 11/4.
3. Height: 1900 mm
4. Wood: Larch or other softwood as approved
   4.1. Treatment: FSC pressure treated to provide a 30 year service life
   4.2. Finish: None required
5. Maximum centres of posts: 1.8 m
6. Method of setting posts: End/turning posts: driven to a minimum depth of 900 mm
7. Intermediate posts: driven to a minimum depth of 700 mm .
8. Minimum post diameter: End/turning posts: 120 mm
9. Intermediate posts: 80 mm
10. Accessories:
    10.1. Additional mesh - rabbit proof mesh fixed from 200mm sub-ground level to 900mm above ground level
11. deer proof mesh fixed from between 900mm above ground level to1800mm above ground level
12. for wire grades and fixing method refer to drawing EA1-GRD-DG-OPEN-796D002
    12.1. F3 Single leaf field gate
13. Fixings: All fixings to be appropriately sized and galvinised to BS EN ISO 1461
14. Conformity: Submit manufacturer's and installer's certificates, to BS 1722-7.

Gates, posts and stiles

510A Deer / rabbit proof field gates F3

1. Description: Wide single leaf timber field gate, with heavy toprail and cross bracing. To provide maintenance access into newly planted woodland areas protected by deer/rabbit proof fencing.
2. Manufacturer: Submit proposals
   2.1. Product reference: Submit proposals
3. Size: 1900 mm high x 3000 mm wide
4. Materials: Wood gate and posts
   4.1. Treatment: To provide a 30 year service life

4.2. Finish: None

5. Fittings: Adjustable hook and band top hinge, double swing rocker bottom hinge and loop over catch
   5.1. Finish: Hot dip galvanized to BS EN ISO 1461
6. Method of setting posts: Concrete foundation, 450 mm square x 600 mm deep
7. Accessories: Additional mesh - wildlife netting

550 Wood

1. Description: Gates and posts
2. Manufacturer: Submit proposals
3. Standard: To BS 5709.
4. Wood: Homegrown hardwoods
5. Treatment: As section Z12 and Wood Protection Association Commodity Specification C3.
   5.1. Type: To provide a 30 year service life
   5.2. Finish: None
6. Adhesive: Synthetic resin to BS EN 301, type 1.
7. Workmanship: As section Z10.
8. Fittings: Two tee hinges, return spring and a ring latch
   8.1. Finish: Hot dip galvanized to BS EN ISO 1461
9. Method of fixing: Concrete foundation, 450 mm square x 600 mm deep
10. Accessories: Additional mesh - wildlife netting and Gate opener

Accessories - Not Used

Execution

710 Installation generally

1. Set out and erect
   1.1. Alignment: Straight lines or smoothly flowing curves.
   1.2. Tops of posts: Following profile of the ground.
   1.3. Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
   1.4. Fixings: All components securely fixed.

715 Competence

1. Operatives: Contractors must employ competent operatives.
2. Qualifications: Submit certification of training.
   2.1. NHSS Sector Scheme 2A sub categories: - (a);- (d);- (f); and- (g)
   2.2. NHSS Sector Scheme 2C sub categories: Not required

720 Setting posts in concrete

1. Standard: To BS 8500-2.
2. Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
3. Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
4. Admixtures: Do not use.
5. Holes: Excavate neatly and with vertical sides.

6. Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
7. Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

730 Exposed concrete foundations

1. Filling: Compact until air bubbles cease to appear on the upper surface.
2. Finishing: Weathered to shed water and trowelled smooth.

740 Setting posts in earth

1. Holes: Excavated neatly, with vertical sides and as small as practicable to allow refilling.
2. Filling: Position posts/ struts and replace excavated material, well rammed as filling proceeds.

750 Driven posts

1. Damage to heads: Minimize.
    1.1. Repair: Neatly finish post tops after installation.

760 Nailed wood rails

1. Length (minimum): Two bays, with joints in adjacent rails staggered.
2. Fixing: Nail each length of rail to each post with two 100 mm galvanized nails.
3. Rails with split ends: Replace.

770 Site cutting of wood

1. General: Kept to a minimum.
2. Below or near ground level: Cutting prohibited.
3. Treatment of surfaces exposed by minor cutting and drilling: Two flood coats of solution recommended for the purpose by main treatment solution manufacturer.

780 Making good galvanized surfaces

1. Treatment of minor damage (including on fasteners and fittings): Low melting point zinc alloy repair rods or powders made for this purpose, or at least two coats of zinc-rich paint to BS 4652.
2. Thickness: Apply sufficient material to provide a zinc coating at least equal in thickness to the original layer.

790 Site painting

1. Timing: Prepare surfaces and apply finishes as soon as possible after fixing.

Completion

910 Cleaning

1. General: Leave the works in a clean, tidy condition.
2. Surfaces: Clean immediately before handover.

920 Fixings

1. All components: Tighten.
    1.1. Timing: Before handover.

930 Gates

1. Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.
   1.1. Timing: Before handover.

Ω End of Section

Specification created using NBS Chorus

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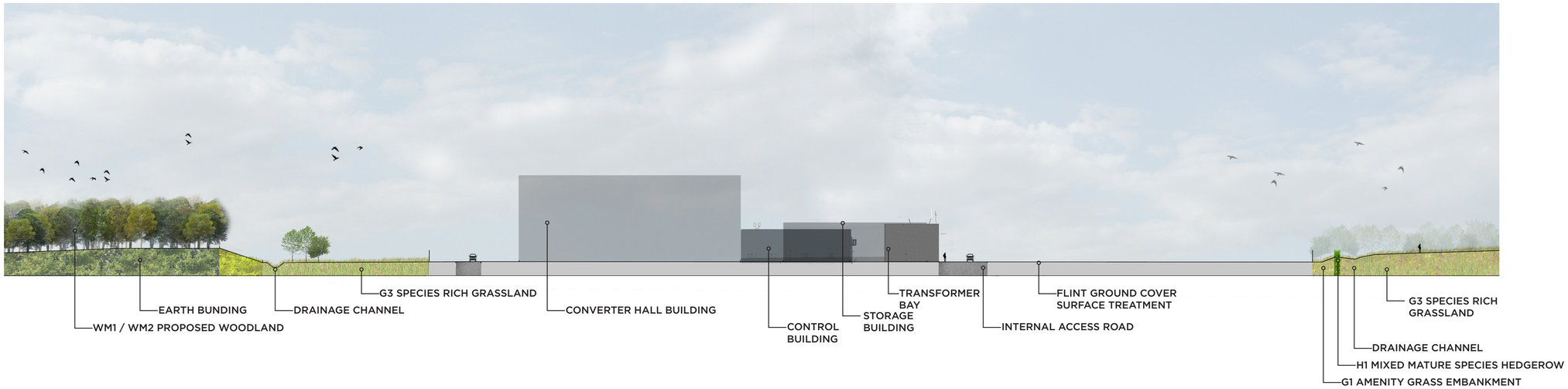
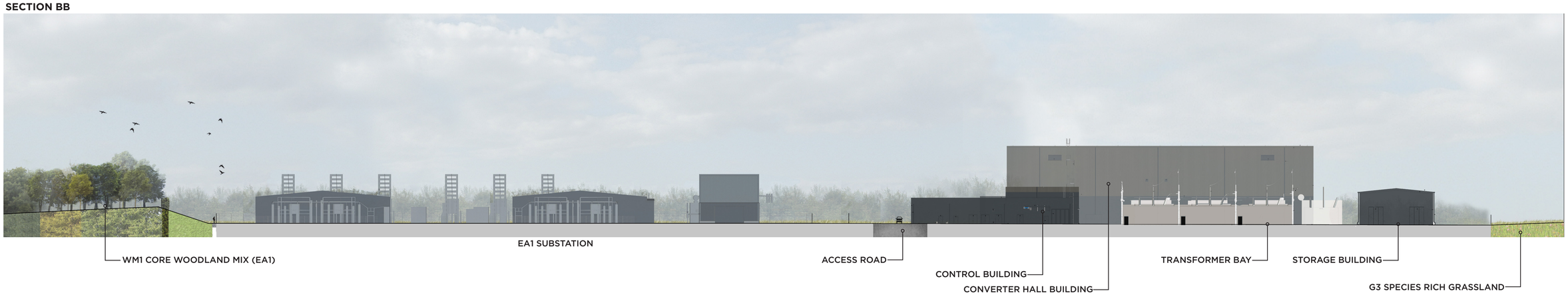
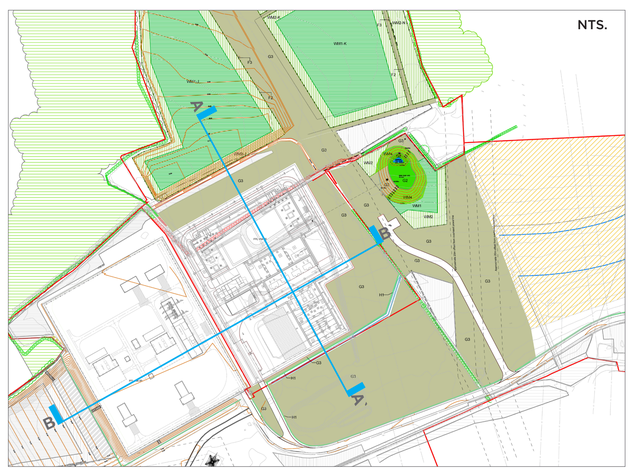
APPENDIX 11 ILLUSTRATIVE SECTIONS OF LANDSCAPING (EA3-OND-CNS-DRG-IBR-000008)

SECTION AA



SECTION BB





Issue	Revision	Initial	Date
01	SPR comments.	jd	25.01.2022

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Client
ScottishPower Renewables

Project
East Anglia THREE Offshore Windfarm

Drawing Title
APPENDIX 11

Illustrative Sections of Landscaping

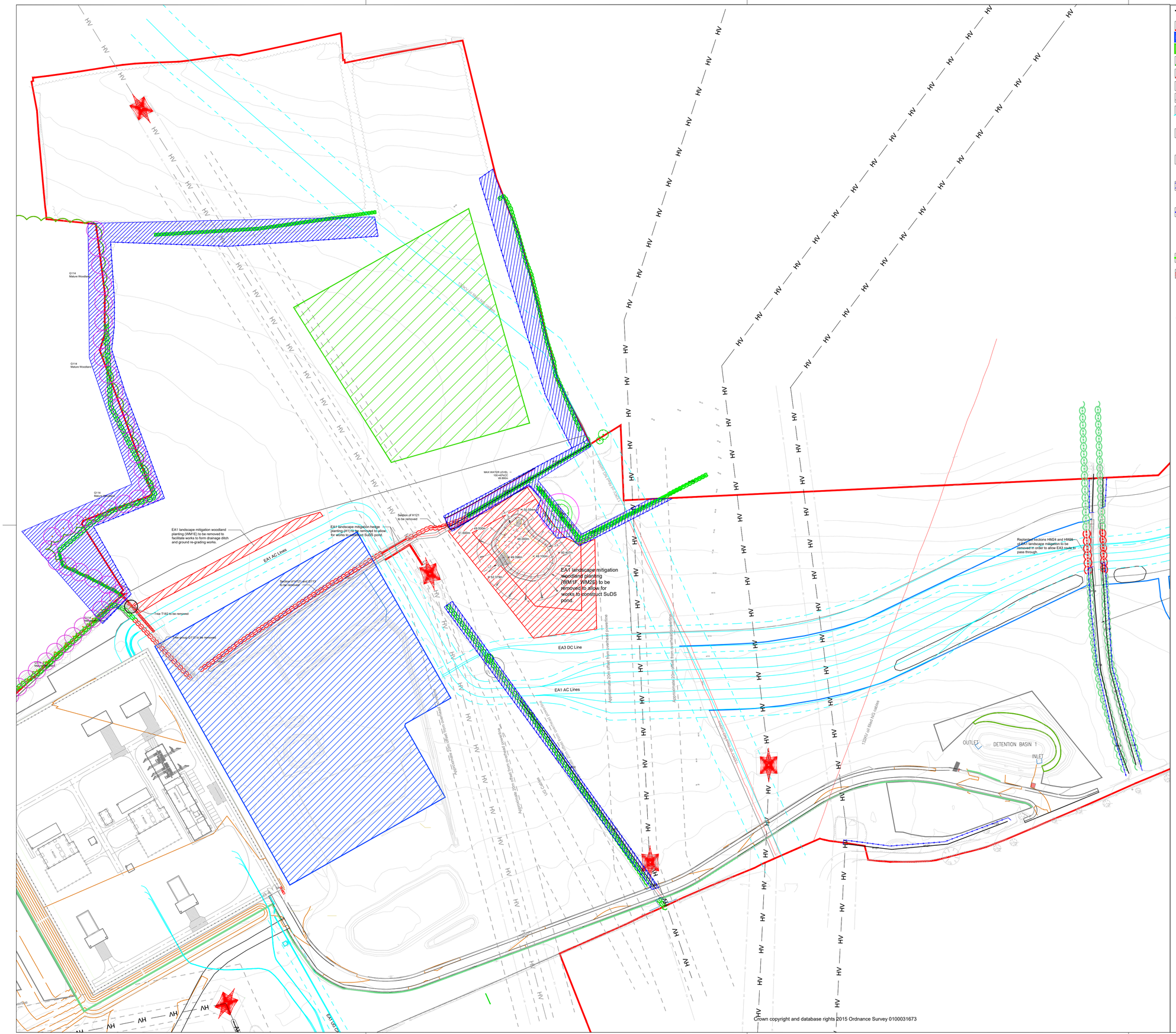
Scale Bar 5m 10m 15m 20m 25m
North

Scale:	**1:500@A1**	Date:	**DECEMBER 2021**
By:	**rt**	Status:	**INFORMATION**
Checked:	**jd**	Approved:	**bp**

Drawing Number **EA3-OND-CNS-DRG-IBR-000008** Rev **01**

Computer File: P:\2020\201527_EA3plant\CAD\AUTOCAD\SHEETS

APPENDIX 12 TREE PROTECTION PLAN (EA3-OND-CNS-DRG-IBR-000009).



TREE PROTECTION LEGEND

- **EA THREE DCO Boundary**
- Site of Proposed New Onshore Substation
- **Temporary Compound**
- **Existing Vegetation to be retained**
- **Existing Vegetation to be removed**
- **Pylon**
- **Overhead powerlines**
- **Approximate underground cable alignment**
- **Existing Tree**
  Refer to Bowland Arboricultural Method Statement and TPP for further details.
- **Root Protection Areas (RPAs)**
  Refer to Bowland TPP and Method Statement for further details.
- **Construction Exclusion Zones (CEZs)**
  Refer to Bowland TPP and Method Statement for further details.
- **Tree Protection Fencing**
  Tree protection fencing as per BS 5837: 2012 for all trees to be retained. Hedgerows to be protected by steel crown barriers.
  Refer to Bowland TPP and Method Statement for further details.
- **Existing Hedge**
- **Hedge Removal and Replacement Planting**

GENERAL NOTES:

1. Refer to Bowland Tree Protection Plan (TPP) BTC2293-TPP(OCS) for details on existing trees and tree protection measures.
2. Refer to OPEN drawing EA3-OND-CNS-DRG-IBR-000003 for planting proposals including landscape mitigation.
3. Protection of trees along wider field margins to north and east to be ensured through establishment of perimeter compound fencing.

NOTES

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
02	Suds pond updated.	rt	14.04.2022
01	SPR comments. Revised TPP included; updated SE contour plan.	jd	24.01.2022

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Client
ScottishPower Renewables

Project
East Anglia THREE Offshore Windfarm

Drawing Title
APPENDIX 12

TREE PROTECTION PLAN

Scale Bar 12.5m 25m 37.5m 50m 62.5m

North

Scale: **1:1250@A1** Date: **DECEMBER 2021**

By: **rt** Status: **For Information**

Checked: **jd** Approved: **bp**

Drawing Number **EA3-OND-CNS-DRG-IBR-000009** Rev **02**

Computer File: P:\2020\201527_EA3plan\CAD\AUTOCAD\SHEETS

APPENDIX 13 ILLUSTRATIVE PLAN OF THE LANDSCAPE SCHEME (EA3-OND-CNS-DRG-IBR-000010).

01
sheet
000006

Existing Aerial

Scale: 1:2500@A1

02
sheet
000006

EA THREE Illustrative Landscape Plan

Scale: 1:2500@A1

03
sheet
000006

Existing Aerial - Wide Context

Scale: 1:15000@A1

04
sheet
000006

EA THREE Illustrative Landscape Plan - Wide Context

Scale: 1:15000@A1

NOTES

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
02	Updated proposed plan to reflect GA.	jd	14.04.2022
01	SPR comments. Updated proposed plan to reflect GA.	jd	24.01.2022

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Project
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Drawing Title
APPENDIX 13

PLAN OF LANDSCAPE SCHEME

Scale Bar

North

Scale: **As shown@A1** Date: **DECEMBER 2021**

By: **rt** Status: **For Information**

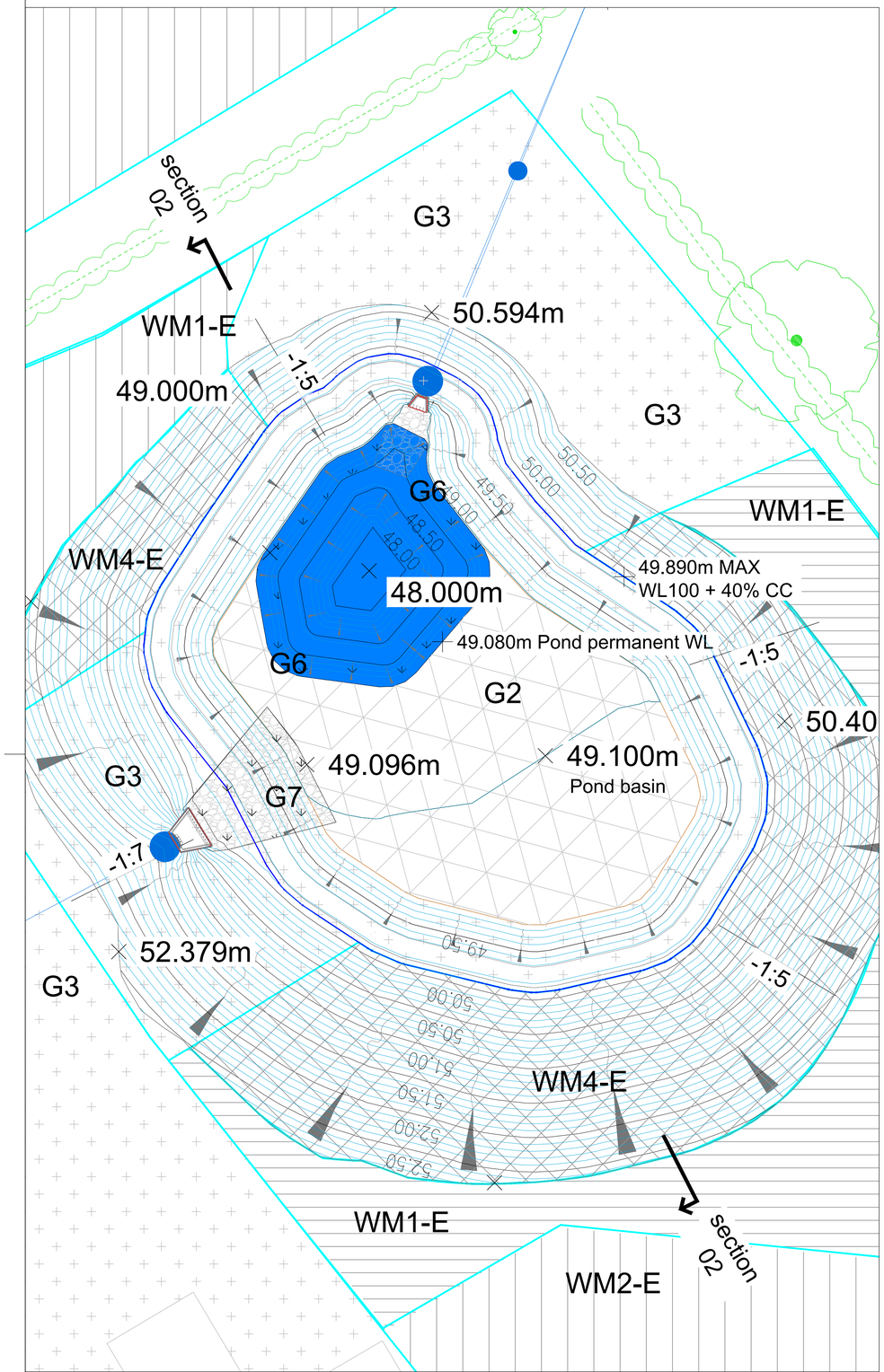
Checked: **jd** Approved: **bp**

Drawing Number
EA3-OND-CNS-DRG-IBR-000010

Rev
02

Computer File: P:\2020\201527_EA3plan\CAD\AUTOCAD\SHEETS

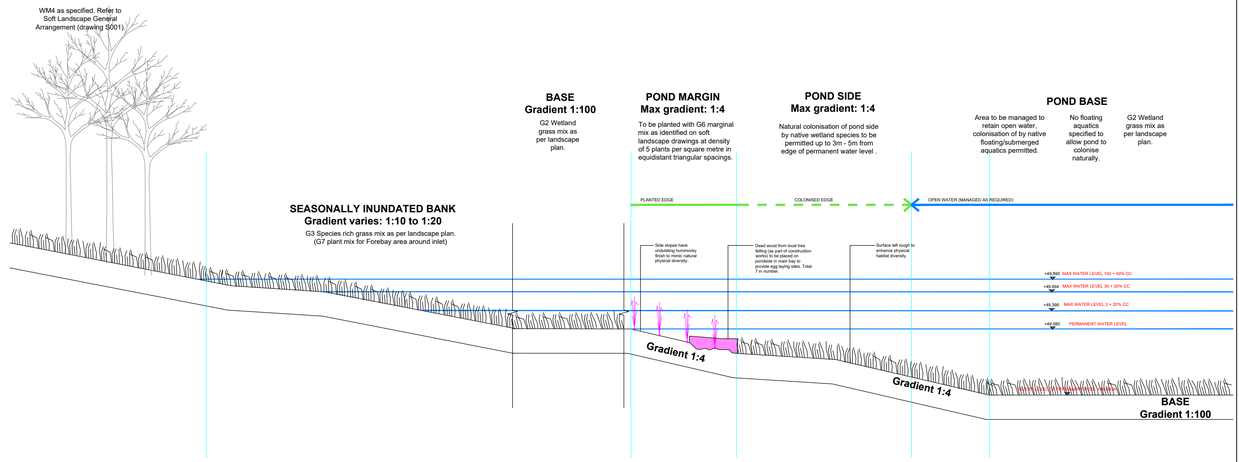
APPENDIX 14 SUSTAINABLE DRAINAGE SYSTEM DETAIL (EA3-OND-CNS-DRG-IBR-000011)



sheet

Detention Basin with Permanent Pond

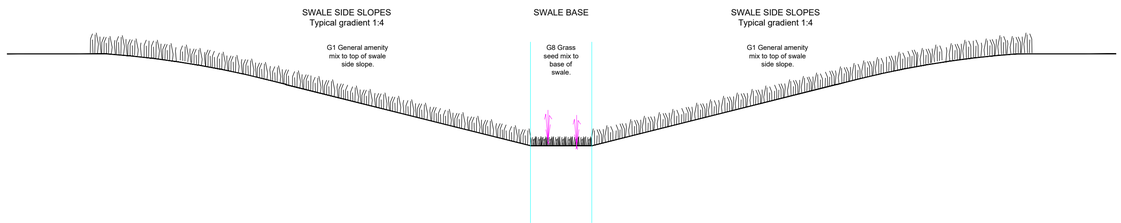
Scale: 1 : 200



02 sheet 000011

Typical Section Through Detention Pond

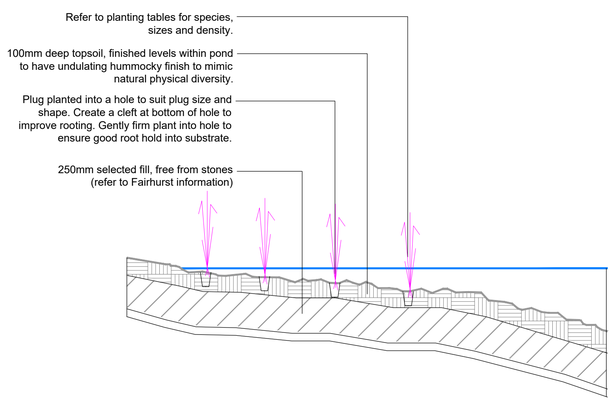
Scale: 1 : 50



03 sheet 000011

Typical Swale Section

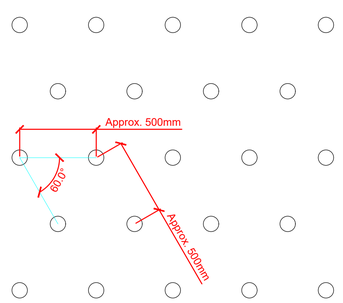
Scale: 1 : 50



04 sheet 000011

Typical G6 / G7 Aquatic Planting Typical Section

Scale: 1 : 20



G6 / G7 Marginal aquatic planting

5 plants per m2 planted roughly in equidistant triangular spacings as shown, approximately 500mm between plants. Actual planting layoiut to be more informal and avoiding straight lines.

05 sheet 000011

Typical G6 / G7 Planting Plan

Scale: 1 : 20

NOTES

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
03	SUDS pond updated.	rt	19.04.2022
02	SUDS pond updated.	rt	14.04.2022
01	SPR comments	jd	25.01.2022

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Client

ScottishPower Renewables

Project

East Anglia THREE Offshore Windfarm

Drawing Title

APPENDIX 14

SuDS Pond Detail

Scale Bar 0.5m 1.0m 1.5m 2m 2.5m

North

Scale:	**1:50@A1**	Date:	**DECEMBER 2021**
By:	**rt**	Status:	**INFORMATION**
Checked:	**jd**	Approved:	**bp**

Drawing Number **EA3-OND-CNS-DRG-IBR-000011** Rev **03**

Computer File: P:\2020\201527_EA3\plan\CAD\AUTOCAD\SHEETS

APPENDIX 15 TREE PLANTING AND CULTIVATION (EA3-OND-CNS-DRG-IBR-000012)

T1: Typical Standard/Heavy Standard Tree Planting in with short double stake.

Tree pit: Tree pit to be 50% larger than root ball in height and depth. Sides and base to be thoroughly broken up. Base to be broken up to depth of 200mm. Soil ameliorant worked into pit bottoms.

Backfill: Mixture of topsoil excavated from pit and additional topsoil as required.

Ameliorant/ Conditioner: Sanitized and stabilized compost if required.

Fertiliser: Slow release if required.

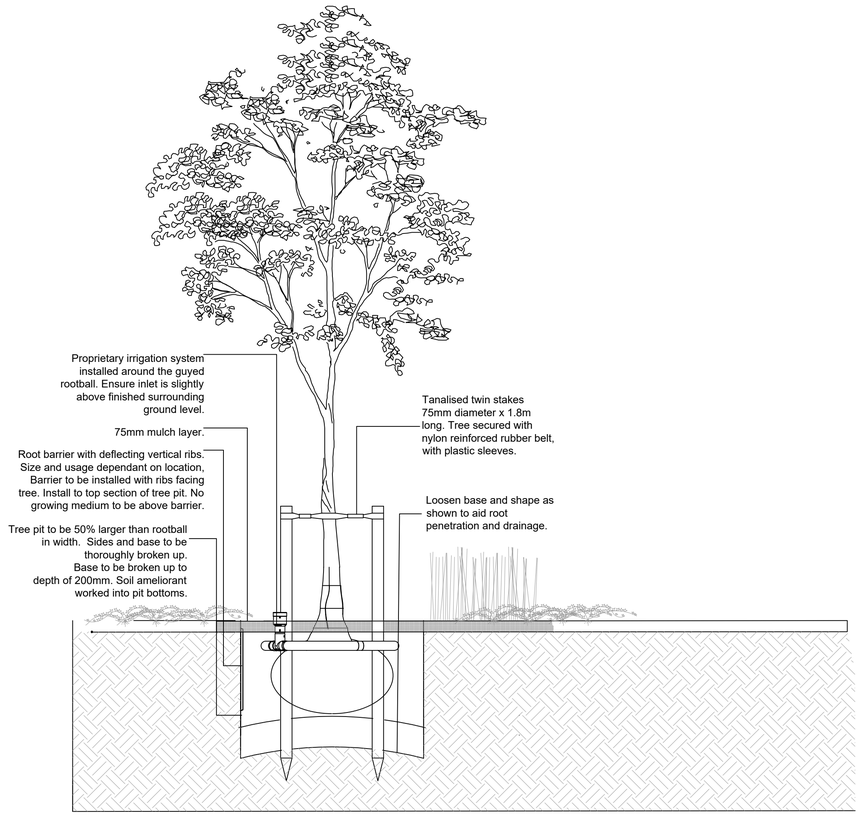
Irrigation and aeration: RootRain Urban (size to co-ordinate with rootball).

Staking system: 2 no. tanalised wooden stakes 75mm diameter x 1.8m long driven plumb into ground either side of rootball. Stake to extend approx 700mm above ground level.
Tree supported by nylon reinforced rubber belt, with plastic sleeves located at top of stakes. Width of belt and plastic sleeve size to suit tree size.

Root barrier: Where applicable ReRoot 600,1200 or 2000 to be used on one or two sides of tree pit, or to be installed remote from tree pit. ReRoot to be used in all situations where tree roots are in proximity to hard landscape surfaces, buildings and services. Where barrier requires joining an overlap of 300mm should be provided and ReRoot jointing tape used. No growing medium should extend above the root barrier.

Mulch: 75mm layer of well comnposted mulch to be provided to top of tree pit.

Accessories Supplier: Greenleaf, Haywood Way, Hastings, East Sussex, TN35 4PL or equal approved.



T1
sheet D003

Typical Standard / Heavy Tree Planting

Scale: 1 : 20

NOTES

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CDM INFORMATION

KEY PLAN

Issue	Revision	Initial	Date
01	SPR comments.	jd	25.01.2022

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Client
ScottishPower Renewables

Project
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Drawing Title
APPENDIX 15

Typical Details: Tree Planting

Scale Bar 0.2m 0.4m 0.6m 0.8m 1.0m

North

Scale:	**1:20@A1**	Date:	**DECEMBER 2021**
By:	**rt**	Status:	**INFORMATION**
Checked:	**jd**	Approved:	**bp**

Drawing Number
EA3-OND-CNS-DRG-IBR-000012

Rev
01

Computer File: P:\2020\201527_EA3plan\CAD\AUTOCAD\SHEETS

609000 609500 610000 610500

246500 246000

Track Track Track BULLEN LANE BULLEN LANE Track Track

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter

Works No.s Overview

Tye Lane Woodlands Farm Black Cottage Tye Lane Bullen Hall Farm Channel Hill Farm Burstallhill

69 65 64 67 62 63 66 68

EA THREE DCO Corridor
EA THREE Onshore Converter Station Layout Detail
EA THREE Onshore Converter Station Temporary Site Facilities Detail

EA THREE Converter Substation to National Grid Substation Cable Route
400kV AC Cable - Open Cut Section
400kV AC Cable - Ducted Section

EA THREE Onshore Converter Station Access Roads
Permanent
Temporary

EA THREE Cable Access Road
Haul Road
EA THREE Onshore Converter Station SUDs Pond
EA THREE Area to be Reprofiled

EA ONE Onshore Converter Station Access Road

Works No.s
65 62 66 63 67 64 68 69

GoBe consultants

Rev	Date	By	Comment
B	04/04/2022	PW	Second Issue
A	31/03/2022	JRS	First Issue

Original A3 Plot Scale 1:5,000

0 100 200 Metres

Onshore Converter Station Stage

Figure 1: Site Context Plan

Drg No	05356.00006.12.0001.1 ONCS Site Context Plan
Rev	2
Date	04/04/2022
Layout	N/A

Document Path: P:\05356 - GoBe Consultants Ltd\00006 East Anglia Three\Tech\GIS\Dwgs\Wking\EA3\Onshore Substation\ONCS and Commencement Master\5356.00006.12.0020.1 ONCS Site Context.mxd