



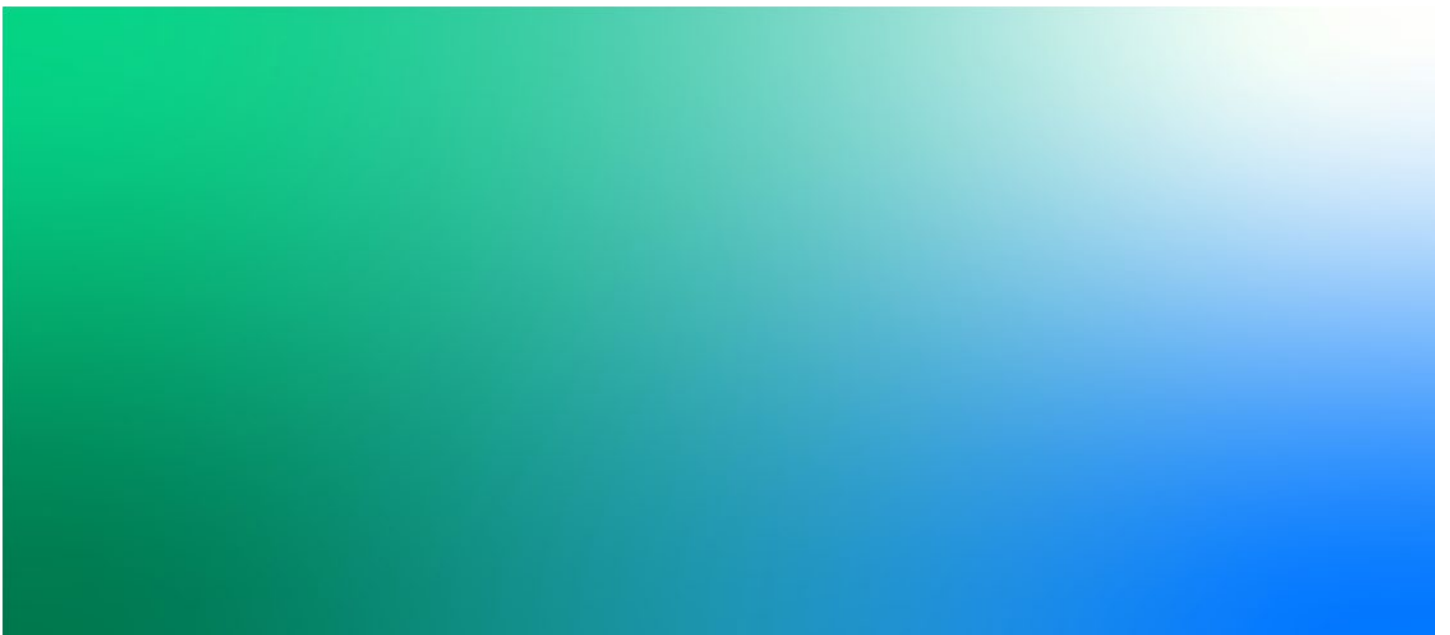
Preston and South Ribble FRMS

Landscape Specification

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Environment Agency

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Preston and South Ribble FRMS

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Author: A. RUFFELL
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Executive Summary

This Landscape Specification covers the Preston and South Ribble Phase 1 and 2 FRMS Landscape planting works.

The document is based upon the Environment Agency's 'Landscape Specification for Environment Agency Landscape Works Implementation and Establishment Aftercare Works' (2018).

It follows the Common Arrangement of Work Sections (CAWS) which defines an efficient and widely accepted arrangement for specifications and schedules of quantities for construction projects. The template comprises a comprehensive set of detailed work sections, all within a classification framework of Groups and Sub-groups and follows the National Building Specification (NBS) format for Landscape Works.

It consists of standard paragraphs arranged in work sections which are reproduced in project specifications to define performance of components, elements and services, and the quality of materials and workmanship required.

Within this Specification, sections of **Green** text are used to highlight clauses that have been amended or added to the specification by the Environment Agency and are not standard NBS clauses. **Blue** text highlights any wetland-related specification clauses amended or added by the Environment Agency and are not standard NBS clauses.

1. A33 Quality Standards / Controls

STANDARDS OF PRODUCTS AND EXECUTIONS

110A INCOMPLETE DOCUMENTATION

General: Where and to the extent that products or work are not fully documented, they are to be:

- Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.
 - Suitable for the purposes stated or reasonably to be inferred from the project documents.
- Contract documents: Omissions or errors in description and/ or quantity shall not vitiate the Contract nor release the Contractor from any obligations or liabilities under the Contract.
- In accordance with good construction practice.

125 GENERAL QUALITIES OF PRODUCTS/MATERIALS:

- Whilst most products specified are likely to be new, the Environment Agency welcomes innovation in assisting us to avoid purchase, and for re-use and recycling wherever practicable. The landscape contractor is expected to engage with the CA to offer substitutes or other sustainable solutions where opportunities arise. For products and materials specified to a British Standard, obtain certificates of compliance from manufacturers when requested by CA;
- Where a choice of manufacturer or source of supply is allowed for any particular product or material, the whole quantity required to complete the work will normally be of the same type, manufacture and/or source unless otherwise approved. Re-cycled or re-used products will be considered, particularly where consistency in finish may not be critical. Produce written evidence of sources of supply when requested by the CA;
- Ensure that the whole quantity of each product and material required to complete the work is of consistent kind, size, quality and overall appearance unless circumstances dictate that this may not be critical and that after discussion and agreement with the CA, a mix of products may be acceptable;
- Where consistency of appearance is desirable, ensure consistency of supply from the same source. Unless otherwise approved, do not use different colour batches where they can be seen together;
- If materials are prone to deterioration or have a limited shelf life, order in suitable quantities to a programme and use in appropriate sequence. Innovation and good materials management will also minimise waste.

126 SUSTAINABILITY OF PRODUCTS/MATERIALS

In order to minimise carbon emissions and other environmental impacts of specified construction products, the Environment Agency looks to:

- Increased percentage of re-used and recycled materials in projects;
- Local sourcing for minimal transport impacts;
- Ensure all timber is from legal and sustainable sources;
- Reduced waste and improve resource efficiency - our e:Mission Sustainability Plan target is to reduce the environmental impact of our supply chain (by intensity) by 20% by 2020;
- Reduced exposure to environmental risk;
- Demonstration of social responsibility and protect public image;
- Green procurement – buying the right product from the right suppliers;
- Encouraging the procurement of products/ materials which have packaging that can be re-used/ recycled.

128 PROPRIETARY PRODUCTS/ MANUFACTURERS RECOMMENDATIONS:

Handle, store, prepare and use or fix each product in accordance with its manufacturer's current printed or written recommendations/ instructions. Inform the CA if these conflict with any other specified requirement. Submit copies to the CA when requested;

The tender will be deemed to be based on the products as marketed and recommendations on their use current at the date of tender;

Obtain confirmation from the manufacturers that the products specified and recommendations on their use have not been changed since that time. Where such change has occurred inform the CA and do not place orders for, or use the affected products, without further instructions.

- 140A **CHECKING COMPLIANCE OF PRODUCTS/MATERIALS**
 Check all delivery tickets, labels, identification marks, and where appropriate, the goods themselves to ensure that all products comply with the project documents. Where different types of any product are specified, check to ensure that the correct type is being used in each location and in particular, check that:
 The sources, types, qualities, finishes and colours are correct and match any approved samples;
 All accessories and fixings which should be supplied with the goods have been supplied;
 Sizes and dimensions are correct. Where tolerances of component are critical, measure a sufficient quantity to ensure compliance;
 The delivered quantities are correct, to ensure that shortages do not cause delays in the work;
 The goods are clean, undamaged and otherwise in good condition, with any intact protective coverings and unbroken seals;
 Any materials which have a limited shelf life are not out of date.
- 145 **PROTECTION OF PRODUCTS/MATERIALS:**
 Keep from over-stressing and any other type of physical damage;
 Keep clean and free from contamination and staining;
 Keep dry and in a suitably low humidity atmosphere to prevent premature setting, moisture movement and similar defects. Where appropriate, allow free air movement around and between stored components;
 Prevent excessively high or low temperatures and rapid changes of temperature in the material;
 Protect adequately from rain, frost, sun and other elements as appropriate;
 Ensure that sheds and covers are of ample size, in good weatherproof condition and well secured;
 Keep different types and grades of materials separately and adequately ventilated;
 So far as possible, keep materials in their original wrappings, packaging's or containers, with unbroken seals, until immediately before they are used;
 Wherever possible, retain protective wrappings after fixing until shortly before Practical Completion;
 If it is unavoidable to purchase products/materials without protective wrappings or packaging, ensure that these are recycled/disposed of at an appropriate facility;
 Ensure that protective measures are fully compatible with and not prejudicial to the products/materials.
- 165 **SUSTAINABILITY OF PREVIOUS WORK AND CONDITIONS:**
 Before starting each new type or section of work, ensure that:
 Previous related work is appropriately complete, in accordance with the project documents, to a suitable standard and in a suitable condition to receive the new work;
 All necessary preparatory work has been carried out, including provision for services, damp proofing, priming and sealing.
- 175 **GENERAL QUALITY OF WORKMANSHIP**
 Operatives must be appropriately skilled and experienced for the type and quality of work;
 Inspect components/materials carefully before fixing or using and reject any that are defective;
 Fix or lay securely, accurately and in alignment;
 All proprietary materials/products shall be installed fully in accordance with the manufacturer's recommendations;
 Provide suitable, tight packings at screwed and bolted fixing points to take up tolerances and prevent distortion. Do not over tighten fixings;
 Adjust location and fixing of components so that joints that are to be finished with mortar or sealant or otherwise left open to view are even and regular;
 Ensure that all moving parts operate properly and freely. Do not cut, grind or plane pre-finished component to remedy binding or poor fit without approval;

Take all necessary precautions to prevent damage to the work from frost, rain and other hazards.

- 185 **COMPARATIVES:**
From time to time, the CA may require (the Contractor) to carry out comparative appraisals of alternative materials/procedures. In such cases, the contractor shall implement the items to be compared in a precisely controlled manner. Such that the particular areas of work involved and their implementation are exactly similar in every particular, other than the aspect to be compared;
Except as otherwise instructed, the treatment of the areas/items to be compared should be as close to normal practice, as modified by the general specification, as practicable;
Materials /procedures to be compared may not be varied in any particular by the Contractor from those specified. Special care should therefore be taken to order any necessary materials or make any necessary arrangements, in goodtime to avoid delays on site;
The Contractor shall ensure that implementation of such comparative trials is directly supervised on site by a competent foreman or manager;
The Contractor should also notify the CA at least two days prior to implementation to enable a representative of the CA to be present during implementation.

SAMPLES/APPROVALS:

- 210A **SAMPLES:**
Where approval of products or material is specified, submit samples or other evidence of suitability. Do not confirm orders or use materials until approval of samples has been obtained. Retain approved samples in good, clean condition on site for comparison with products and materials used in the Works. Remove when no longer required.
- 225 **APPROVALS:**
Where and to the extent that products, materials or work are specified to be approved or the CA instructs or requires that they are to be approved, the same must be supplied and executed to comply with all other requirements and in respect of the stated or implied characteristics either:
1. To the express approval of the CA or
2. To match a sample expressly approved by the CA as a standard for the purpose.

ACCURACY/SETTING OUT GENERALLY

- 320A **SETTING OUT:**
The Contractor shall be responsible for setting out and checking all levels and dimensions of the works shown on the drawings;
The Contractor shall carry out a site visit and measured survey to enable him to carry out the above checks and price accordingly;
Notify CA in writing of any discrepancies and obtain instructions before proceeding.
All setting out to be agreed with the CA prior to the commencement of work.
- 330A **APPEARANCE AND FIT**
Arrange the setting out, erection, juxtaposition of components and application of finishes (working within the practical limits of the design and the specification) to ensure there is satisfactory fit at junctions, that there are no practically or visually unacceptable changes in plane, line or level and that the finished work has a true and regular appearance;
Wherever satisfactory accuracy, fit and /or appearance of the work are likely to be critical or difficult to achieve, obtain approval of proposals or of the appearance of the relevant aspects of the partially finished work as soon as possible.

SERVICES GENERALLY**410A SERVICE REGULATIONS**

Any work carried out to or which affects new or existing services must be in accordance with the byelaws or regulations of the relevant statutory authority and entirely to their inspector's satisfaction.

425 EXISTING MAINS/SERVICES:

The landscape contractor will be provided with copies of any service plans. The contractor is reminded that they must follow their own health and safety arrangements for avoiding service strikes, as a minimum meeting the standards of HSE publication HSG 47– "Avoiding Danger from Underground Services". Reference should also be made to the EA's SHEW Code of Practice in relation to management of work around services.

The contractor shall confirm and mark the precise location of underground services in the field. The Contractor shall seek and conform to the guidelines laid down by each utility regarding work in the vicinity of each service.

SUPERVISION/ INSPECTION/ DEFECTIVE WORK**511 SUPERVISION:**

In addition to the constant management and supervision of the works provided by the contractor's person in-charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress.

520 PERSON-IN-CHARGE:

Give one week's notice to CA before changing the foreman-in-charge or site agent.

532 ACCESS FOR THE EMPLOYER AND HIS REPRESENTATIVES:

Provide at all reasonable times access to the Works during working hours and to places where work is being prepared for the contract by the Contractor or sub-contractor;
Access should be provided for routine maintenance of all existing grassed areas or shrub beds within the site boundary (if being maintained by others).

533 ACCESS FOR VEHICLES AND PEDESTRIANS TO PREMISES:

Provide access at all times to premises, through co-operation with landowners and tenants where applicable.

570 PROPOSALS FOR RECTIFICATION OF DEFECTIVE WORK/MATERIALS:

Within five working days of it becoming evident that the work or any materials or goods are not in accordance with the contract, the Contractor shall submit proposals to the CA for opening up, inspection, testing, making good or removal and re-execution;

The Contractor shall allow for the possibility that such proposals may be unacceptable to the CA, and that he may instruct removal from the site.

580 MEASURES TO ESTABLISH ACCEPTABILITY:

Whenever inspection or testing shows that the work, materials or goods are not in accordance with the contract, and measures (e.g. testing, opening up, experimental making good) are taken to help in establishing whether or not the work is acceptable, such measures:

1. Will be at the expense of the Contractor;
2. Will not be considered for grounds for an extension of time.

WORK AT/OR AFTER COMPLETION**710 WORK BEFORE COMPLETION**

General: Make good all damage consequent upon the Works.

Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.
 Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.
 Cleaning materials and methods: As recommended by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction.
 COSHH dated data sheets Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.
 Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges.
 Repaint badly marked areas back to suitable breaks or junctions.
 Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.

712 PAINTED SURFACES:

Touch up minor faults in newly painted/repainted work, carefully matching colour, and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.

715 MOVING PARTS:

Adjust, ease and lubricate moving parts of new work as necessary to ensure easy and efficient operation, including ironmongery.

730 MAKING GOOD DEFECTS

Make arrangements with the CA and give five working days' notice of the precise dates for access to the various parts of the works for purposes of making good defects. Inform CA when remedial works to the various parts of the works are completed.

751 ENVIRONMENT AGENCY TIMBER REQUIREMENTS

Ensure all timber purchased for use on Environment Agency projects is from legal and sustainable sources in compliance with the UK Government Timber Procurement Policy and complies with the EA specific requirements.

Appendix A contains the requirements of the UK Government Timber Procurement Policy Timber Procurement Advice Note (TPAN) 5th Edition and Environment Agency specific requirements.

Summary of Environment Agency Timber Purchasing Requirements

This instruction applies to all purchases of timber by Environment Agency staff, suppliers and their supply chains purchasing on our behalf

Timber Type Requirements

Softwood FSC /PEFC certified softwoods only [Note: coppiced material is exempt]

Temperate Hardwood

FSC/PEFC/certified temperate hardwoods only [Note: coppiced material is exempt]

Tropical Hardwood

Tropical hardwood will not be purchased unless it is an operational necessity.

A business case must be completed for all potential applications / uses of tropical hardwood and senior management approval will be needed before any purchases can be made. If tropical hardwood is purchased, it must be FSC / PEFC certified only with a full chain of custody.

Recycled Timber From a waste hierarchy and resource use perspective the purchase of recycled timber is preferable to the purchase of virgin timber.

Recycled timber is defined as timber which is being used for a different purpose than the purpose for which the tree was originally felled.

For recycled timber, the previous use must be established and documented [Note: this will be strictly monitored]. However, it is not necessary to prove legality or sustainability of the recycled timber.

Coppiced Material Coppiced material⁶ is exempt from the requirements for softwood and temperate hardwood if documentary evidence which demonstrates the following is obtained:

- The source of the coppiced material (full address/grid reference)
- The coppicer has legal rights to coppice the wood (e.g. letter from the landowner)

These requirements apply to all virgin timber and wood-derived products used for the Environment Agency including temporary site works and material supplied by suppliers.

Referenced above:

1 Forest Stewardship Council;

2 Programme for the Endorsement of Forest Certification Schemes;

3 E.g. If a beach groyne is removed and resawn to make fencing posts. If the beach groyne was removed and used again as a beach groyne somewhere else, this is ~~not~~ recycling and full chain of custody evidence is required.

4 If certified timber is not available, credible evidence must be obtained which demonstrates legality, sustainability and traceability through the supply chain [NB: this will be assessed in accordance with Category B checklists] Acceptance of timber supplied with Category B evidence and FLEGT⁵ licensed timber will be considered on a case by case basis, by exception.

5 It applies to all purchases of timber, regardless of the value, quantity, type being purchased (i.e. softwood, temperate hardwood, tropical hardwood, recycled timber, reused timber or coppiced timber) or the procurement route (i.e. purchasing card / SOP / contractors acting on our behalf). Full Chain of Custody evidence must be provided.

6 Short-rotation coppice is exempt from the requirements of the UK Timber Procurement Policy and falls under agricultural regulation and supervision rather than forestry.

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Summary of Environment Agency Timber Purchasing Requirements Version 3 November 2017

Note: Also refer to Appendix A for additional information on timber purchasing requirements Briefing Note on the use of Greenheart Tropical Hardwood (Feb 2017)

Key points

1. We will only purchase tropical hardwoods that have sufficient evidence of legality and sustainability.
2. This currently prohibits the purchase of new 'Greenheart' tropical hardwood unless it is sourced from Category A (FSC or PEFC) legal and sustainable sources.

Background

We have high-profile timber procurement requirements stating that we will only buy timber from legal and sustainable sources. This applies to purchases by the EA and our supply chain

We have a specific focus on the use of tropical hardwoods given the risks (sustainability and reputation) associated with illegal logging and deforestation. Tropical hardwoods are recognised as a renewable resource and are ideally suited to many marine and freshwater construction applications such as groynes, piers, landing stations, lock gates etc. However, tropical hardwood is a precious resource and therefore we should use it wisely for applications that warrant it.

Tropical hardwood will not be purchased for EA projects unless it is an operational necessity. We have rigorous processes in place, including a business case, to assess and approve proposed uses prior to purchase and use.

We commissioned research through the FCRM joint R&D programme to assess the performance of selected lesser used species (LUS) of tropical hardwoods for use in FCRM applications. The research, laboratory tests and field trials demonstrated that these species are suitable to be used in fluvial and marine applications. All timbers assessed are available from Category A certified (e.g. FSC or PEFC) legal and sustainable sources. The LUS technical report, published in 2010, informs our current approach to specifying performance criteria and considering of a range of species that meet the requirements.

Our timber procurement policy has been in place for over a decade and we expressed and continue to have a strong preference for 'Category A' evidence demonstrating legality and sustainability with full traceability (i.e. FSC or PEFC certified timber). Acceptance of timber supplied with Category B evidence and FLEGT licensed timber will be considered on a case by case basis, by exception.

Clarification on the use of Greenheart tropical hardwood

Of the species that we have commonly used, Greenheart (from Guyana) has not been available from Category A certified (e.g. FSC or PEFC) legal and sustainable sources. Furthermore, there is also currently insufficient Category B evidence (based on UK Government requirements) to prove it's from sustainably managed forests, though there is adequate evidence to prove legality. There was previously some confusion on whether Greenheart complies with the EA Timber Procurement requirements and associated target for 100% compliance. The confusion related to an exemption in the UK Government Timber Policy for specific works requiring particular tropical hardwoods where no sustainable source is available. We had been using Greenheart for projects where it was deemed to be an operational necessity and where no other suitable certified timber was available at the time.

However, at a National Engineering & Innovation Panel meeting in May 2015 a decision was made that we will not buy Greenheart or any other tropical hardwoods where there is insufficient evidence of legality and sustainability. This decision prohibited the purchase of new Greenheart for EA projects. Since this decision, Greenheart is now available in limited stocks from Category A (FSC or PEFC) certified sources and this can be considered for use on EA projects. Recycled Greenheart timber can be used where there is evidence and an audit trail to prove the previous use.

2. A34 Security / Safety / Protection

PROTECT AGAINST THE FOLLOWING:

267 BIOSECURITY MEASURES: CONTROL PROCEDURES

EA specific guidance

- Biosecurity are the measures we take to avoid the spread of invasive non-native species, diseases and parasites.
- Ensure that any work does not result in the spread of damaging organisms. The choice of clothing/ PPE, plant, equipment, soil management and waste disposal and methods of working must take this into consideration and avoid the risk of spread.
- You will ensure that all clothing/ PPE, plant and equipment will comply with the Check, Clean, Dry approach specifically following the guidance for [Biosecurity in the Field](#). The non-native species secretariat [website](#) has a variety of resources including identification sheets that may assist you.
 - **Check** - Check your plant, equipment and clothing for living organisms. Pay particular attention to areas that are damp or hard to inspect.
 - **Clean** - Clean and wash all plant, equipment, footwear and clothes thoroughly, preferably with hot water. If you do come across any organisms, leave them at the location where you found them.
 - **Dry** - Dry all plant, equipment and clothing - some species can live for many days in moist conditions. Make sure you don't transfer them elsewhere.
- Ensure soil and any medium that may contain damaging organisms is managed in accordance with [Regulatory position statement 178](#)
- If applicable, refer to the EA's Additional Guidance on the Management of Invasive Non-Native Plant Species (INNS).

Basic biosecurity principles

The statement below (or the most recent Arboricultural Association *'Biosecurity in Arboriculture and Urban Forestry Position Statement'*) outlines some basic biosecurity principles that should be adopted to reduce the unwanted introduction and spread of tree pests, diseases and invasive tree species:

1. Operatives and organisations undertaking work on or around trees should consider the reasonably foreseeable consequences of their activities. Adopting **biosecurity risk assessment** processes and **policy** commitments are prudent first steps;
2. Those undertaking work on or around trees have a responsibility to implement routine **biosecurity control measures** for all sites and specific measures for higher risk sites highlighted by the biosecurity risk assessment process. **T**his should include the cleaning and disinfection of clothing, PPE, tools, equipment and vehicles;
3. Arboricultural operations such as pruning, felling and planting should be planned, managed and supervised to minimise the movement of arisings and soil. All arisings must be **appropriately disposed of**;
4. Organisations working on sites with trees should ensure that their operatives understand biosecurity issues and comply with adopted biosecurity measures. **Training, guidance and supervision** should be provided when necessary;

5. Anyone designing, planning, or implementing planting projects should aspire to source **home grown** and nursed specimens avoiding, where possible, directly imported stock to reduce the risk of introduction of pests and diseases;
6. Anyone responsible for tree supply should ensure that trees and associated soil are supplied to customers **free of pest and disease** at all points in the supply chain. Consideration must be given to the latency period* and life cycles of all pests and diseases in order to achieve this. Special attention must be given to imported stock;
7. Good urban forestry practice involves managing tree populations to **increase species and genetic diversity** by focusing on the maintenance and establishment of trees with qualities suited to the site and the prevailing climatic conditions. Additionally, good species composition, age structure, stock quality and condition will help reduce the future loss of trees due to the introduction, hybridisation or spread of tree pests and diseases;
8. Anyone involved with trees must encourage and promote adherence to these guiding principles and above all **act as role models** in this regard.

** A period of time where a plant may be infected or infested by a particular pest or disease but where there are no physical symptoms that indicate ill health.*

Before entry to any site, the Forestry Commission website must be consulted to determine if the site is a confirmed infected site. Signs will be erected at confirmed sites. Providing the site is not within a "Plant Health Notice" area a pre-felling survey for Ash Die-back is not required, felled ash can be either burnt or chipped, but translocation of standing ash is not permitted. EA guidance recommends burning of felled ash as the best disposal option as it eliminates all risk. This must be confirmed and instructed as being acceptable by the CA as a standard "No Fires on Site" clause applies to all landscape contracts.

Prior to any site entry the following low risk biosecurity control measures are to be undertaken:

- Ensure footwear is clean prior to the visit (visually free from loose soil and plant debris). If necessary brush or wash in soapy water before the visit.
- Ensure that vehicles are cleaned regularly to remove any accumulated mud, especially from wheels and wheel arches
- Keep vehicular access to a minimum: do not enter areas unnecessarily and, where practicable, keep to established hard tracks

If entering a site where a damaging plant or tree pest/ disease is known or suspected to be present and there is a risk of spreading the pest/ disease further, the following high risk biosecurity control measures are to be undertaken:

- Clean and, where relevant, disinfect footwear with 'Propellar' (Manufactured and distributed by Evans Chemical Supplies: 01209 213643)
- Clean and, where relevant, disinfect tools with 'Propellar', particularly cutting equipment such as secateurs or knives after each time they are used and before moving on to the next plant or tree
- If vehicles have entered an area where a damaging tree pest is known or suspected to be present, and have been taken off hard roads, ensure that the tyres and wheel arches are adequately cleaned and disinfected with 'Propellar' well away from drains and water courses and before leaving the site.
- Avoid entry to the site by vehicle where possible, if entry by vehicle is essential try to park on hard standing where contact with the soil is kept to a minimum.
- A risk assessment and method statement for the use of the disinfectant 'Propellar' will be required.

If any disease symptoms are identified/ suspected on an unconfirmed site, report this to the NEAS Landscape Architect & Environmental Project Manager.

If any urgent tree works are carried out on a confirmed site, the cuttings and timber should be left on site in a safe position.

268 BIOSECURITY MEASURES: PROCUREMENT OF PLANT MATERIAL

To prevent the introduction of disease when planting new material on site, all plants and trees should be procured from nurseries/suppliers that have no confirmed infection and are HTA members with quality assurance certification in place.

Trees should be sourced from the Food and Environment Research Agency (FERA) confirmed Chalara Fraxinea free nurseries whenever possible. In addition, there is a requirement for the Environment Agency to see evidence of broader phytosanitary protection measures to help protect against the broader range of tree diseases and pests, such as the oak processionary moth, Pytophthora spp, etc. There is also a need to visually inspect plants for pests and diseases prior to purchase and use.

340A POLLUTION:

Take all reasonable precautions to prevent pollution of the site, the Works and the general environment, particularly control of entry of polluting matter and effluents into water courses including streams, rivers, waterways and public sewers as outlined in EU Directive 2008/1/EC and subsequent Environmental Permitting Regulations 2010. If pollution occurs, inform the appropriate authorities and CA without delay and provide them with all relevant information. All actual or potential environmental incidents must be immediately reported to the CA and PM and the appropriate authorities informed. The incident should be reported directly to the Environment Agency's pollution incident hotline on 0 800 80 70 60.

Please refer to A33:494 for key Pollution Prevention advice and Guidance (PPG) notes.

346 PESTICIDES/HERBICIDES:

1. The Contractor must ensure that all pesticides/herbicides to be used and the operatives using them both have the approval and conform to the latest legislation contained within Part III of the Food and Environment protection Act and the Control of Pesticides (Amendment) Regulations 1997.
2. Pesticides/herbicides shall be used only as and when recommended by a person having a certificate of competence to do so, as defined by the above Act. The work must be carried out by an Amenity Assured Contractor (refer to Clause 346 (4)), or in the case of the Landscape Framework, the landscape contractor will register with the Amenity Assured Contractor's Scheme within 6 months of acceptance onto the framework.
3. In addition, they shall be strictly applied in accordance with the manufacturer's recommendations, observing all precautions.
4. The Contractor shall notify the CA of each pesticide/herbicide to be used prior to application.

347 USE OF PESTICIDES/HERBICIDES

1. Use only where specified or approved, and then only suitable products as listed in the UK Pesticide Guide;

2. Where work is near water, drainage ditches and drains, comply with the Defra guidelines for the use of herbicides on weeds in or near watercourses and lakes. No herbicide may be applied on or near water without a valid herbicide application licence issued by the Environment Agency, allow sufficient time to obtain approval for this application. Proof of consent for each licence application must be provided to the CA prior to each herbicide application. Take special care to prevent spray drift into water bodies and adjoining land.

Guidance: <http://publications.environment-agency.gov.uk/pdf/GEHO0110BRZK-E-e.pdf>

Application form: <http://publications.environment-agency.gov.uk/pdf/GEHO0110BRZL-E-e.pdf>

It is also essential to ensure that groundwater quality is protected. Groundwater Source Protection Zones (SPZ's) are areas of groundwater where there is particular sensitivity to pollution risks due to the closeness of a drinking water source and how the groundwater flows. They are used to protect abstractions used for public water supply and other forms of distribution. Generally, the closer the activity is to a groundwater source, then the greater the risk. More information on SPZ's is available at: <http://www.environment-agency.gov.uk/homeandleisure/37833.aspx>

3. As a consequence, Picloram and other persistent biocides should not be used within the inner zone of a SPZ, and a risk based approach will be adopted when considering its use outside of the inner zone;

4. Observe all precautions recommended by the manufacturer and remove containers from site immediately they have been emptied or are no longer required;

5. ***The work must be carried out by an Amenity Assured Contractor (refer to Clause 346 (2))*** Amenity Assured Certification will give the assurance of high quality standards of operation and legal compliance, all endorsed by, registered with and verified by the combined resources of:

- BASIS (Registration) Ltd
- National Association of Agricultural and Amenity Contractors (NAAC)
- City and Guilds NPTC

The Amenity Assured standards are also endorsed by the Pesticide Safety Directorate, The Environment Agency, The Amenity Forum and the Crop Protection Association.

Operatives must hold a BASIS Certificate of Competence, or work under the supervision of a Certificate holder, and must be trained to PA6A and PA6AW as a pre-requisite. Proof will be required by the CA and also when applying for EA application licences;

6. It is envisaged that Glyphosate non-selective herbicide is likely to be used under this contract e.g. Roundup or similar approved. A non-persistent herbicide such as 2,4D-amine which is selective of broadleaved plants is useful for treating weeds where grass is being established. The type of herbicide shall be recommended by the contractor and approved by the contractor's own specialist advisor;

7. The specification and use of any herbicide is to be strictly in accordance with the Control of Pesticides (Amendment) Regulations 1997, the Control of Substances Hazardous to Health Regulations 2002, the Agriculture (Poisonous Substances) Regulations, the Poisons Act 1972, all as amended and any relevant Code of Practice issued by DEFRA;

8. Herbicide may be applied by glove, wick or knapsack sprayer. No spraying of herbicides shall take place in windy conditions and the Contractor will be responsible for reinstating any damage caused by drift of spray. Where a contact herbicide is used round plants in leaf, an adequate guard must be used or a suitable applicator used for spot treatment. All spraying equipment is to be carefully calibrated to prevent over or under dosing. The Contractor will be responsible for replacing any plants damaged by misplaced herbicide. Take special care to prevent spray drift into water bodies;

9. For full consent the Contractor must provide the CA with the name and NTCP Certificate number

of the herbicide operator at least 14 days before the first herbicide application. This is necessary for subsequent operations only if details change;

10. The Contractor must give 48 hours' notice to the CA prior to the use of herbicides;

11. Weed control may be required for injurious weeds as follows: Broad leafed dock; Curled dock; Common ragwort; Creeping thistle and Spear thistle; in addition to the invasive plant species: Himalayan Balsam; Giant hogweed and Japanese knotweed. In addition, invasive aquatic plants include New Zealand Pigmy weed also known as Australian swamp croton, Water fern also known as Fairy fern, Floating pennywort, Water primrose and Parrot's feather. If any of the above are found, the Landscape Clerk of Works should be advised immediately and a method statement provided;

12. For total weed control, weed treatment shall achieve total die-back of weeds and shall not allow any significant re-growth (less than 5%) within 6 months of application. In the case of selective weed control there shall be not more than 5% re-growth during the season. For site preparation, on topsoil heaps and in planting beds, a translocated, non-residual herbicide, approved for total weed control, shall be applied in accordance with the manufacturer's instructions. Weeds in planted areas and grassed areas shall be controlled using a selective translocated herbicide. The herbicide shall be applied during a period of active growth in accordance with the manufacturer's instructions. Return site visits to remedy treatment shortfalls within 6 months of the initial application will be deemed to be at the landscape contractor's expense.

360A NUISANCE:

Duty: Prevent nuisance from smoke, dust, rubbish, vermin and other causes, in accordance with Part III of the Environmental Protection Act.

Surface water: Prevent hazardous buildup on site, in excavations and to surrounding areas and roads.

475 TRAFFIC MANAGEMENT

The Contractor shall provide, erect and maintain such traffic signs, lamps, barriers and traffic signals and such other measures as may be necessary in accordance with the recommendations contained in the Code of Practice— Safety at Street Works and Road Works, second edition 2002. The Contractor should allow for these measures. All traffic safety measures proposed should be submitted to the Local Authority for approval, after approval has been obtained from the local police authority. Contractors working on adopted highways need to be licensed by the relevant authority. Should the landscape contractor deem it necessary to work within the highway, including footway, then the CE should be advised as part of the Risk Assessments and Method Statements (RAMS).

476 PARKING

The Contractor's and employee's vehicles will be restricted to within the site boundary or as otherwise agreed by the CA. Parking shall not be permitted to damage existing grass or other surfaces. Any such damage shall be made good prior to Practical Completion at the latest, and if necessary again at Certificate of Making Good at Contractor's own cost.

477 RUBBISH

Remove from site rubbish and debris from time to time and keep the site and Works clean and tidy. Remove all rubbish, dirt and residues from voids and cavities in the construction before closing in.

3. D20 Excavating and Filling - Ribble Sidings Wetland Pond/Scrape Area (Provisional Item)

To be read with Preliminaries/ General conditions

GENERALLY/THE SITE

- 150 EXISTING SERVICES, FEATURES and STRUCTURES
 Services: See section A12 of the main contract specification.
 Site features to be retained: See section A12 for details.
 Structures: See section A34 for details of protection.

CLEARANCE / EXCAVATING

- 164 TREE ROOTS
 Protected area: Do not cut roots within an area which is the larger of:
 - The branch spread of the tree.
 - An area with a radius of half the tree's height, measured from the trunk.
 Excavation in protected area:
 - Method: Contractor's choice.
 - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
 Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
 Cutting:
 - Make clean smooth cuts with no ragged edges.
 - Pare cut surfaces smooth with a sharp knife.
 - Treatment of cut roots: Not required.
 Backfill: Cover with original topsoil and water copiously. Where necessary, as dug material to be enriched with amelioration as section Q28.
- 168 SITE CLEARANCE
 Timing: Before topsoil stripping, if any.
 General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
 Treatment: Apply a suitable non-residual herbicide to areas to receive planting.
- 169 MATERIALS ARISING
 Topsoil and subsoil to be stored separately and used to topsoil/subsoil flood embankments or spread and levelled locally on site. Levels to match surroundings. Do not raise soil level within the root spread of existing trees that are to be retained. Exact locations to be agreed with the CA.
- 170 REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS
 Identification: Clearly mark trees to be removed.
 Small trees, shrubs and hedges: Cut down
 Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas
 Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.
- 220 STRIPPING TOPSOIL
 BS3882:2015 Topsoil
 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.
 Remove to full depth of topsoil profile

Give notice where the depth of topsoil is difficult to determine.

- Handling: Handle topsoil for reuse or sale in accordance with clause 225.
- Around trees: Do not remove topsoil from below the spread of trees to be retained.
- Site storage: Keep separate from excavated subsoil.

220A STRIPPING TOPSOIL / Scrapes / Ribble Sidings

In accordance with BS 3882:2015 Topsoil and BS 4428:1989 Code of practice for general landscape operations. Prior to the commencement of the excavation works, strip topsoil from proposed pond and scrape areas. Remove topsoil to an average depth of 300mm and keep separate from excavated subsoil. Subsoil to be removed to an average depth of 300- 1200mm or as required to create the excavated pond and scrape areas. Depth of each pond/scrape area to be as detailed on drawing ENV0000009C-JAC-ZZ-42X-DR-L-0002. All areas to be seeded with species rich grassland to have topsoil removed and reused within planting beds / amenity grassland areas. The Contractor is to give notice where the depth of topsoil is difficult to determine. No topsoil is to be removed from below the spread of trees to be retained.

Handling: Handle topsoil for reuse or sale in accordance with clause 225.

Around trees: Do not remove topsoil from below the spread of trees to be retained.

Site storage: Keep separate from excavated subsoil.

221 TREATING TOPSOIL

Treatment: Apply a suitable translocated non residual herbicide.

Timing: Not less than two weeks before excavating topsoil.

225 HANDLING TOPSOIL

Standard: To BS 3882.

Aggressive weeds:

Species: Included in the Weeds Act, section 2 or the Wildlife and Countryside Act, Schedule 9, part II.

Give notice: Obtain instructions before moving topsoil.

Earthmoving equipment: Select and use to minimize disturbance, trafficking and compaction.

Contamination: Do not mix topsoil with:

Subsoil, stone, hardcore, rubbish or material from demolition work.

Other soil, or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.

Oil, fuel, cement or other substances harmful to plant growth.

Other classifications of topsoil.

Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.

270A FOUNDATIONS GENERALLY

Give notice if:

A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.

The formation contains soft or hard spots or highly variable material.

Make advance arrangements with CA for inspection of formations for the following:

Foundations

Service trenches

Roads and other pavings

Topsoiled areas

Pond/Scrape areas

Trim excavations to required profiles and levels, and remove all loose material.

310 UNSTABLE GROUND

Generally: Ensure that the excavation remains stable at all times.

Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.

Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

320 RECORDED FEATURES

Recorded foundations, beds, drains, manholes, etc.: Break out and seal drain ends.

Contaminated earth: Remove and disinfect as required by local authority.

330 UNRECORDED FEATURES

Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

370 UNDERGROUND STRUCTURES IN LANDSCAPE AREAS

Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth.

Minimum depth below finished levels:

Grass, ground cover and perennial planting: 500 mm.

Shrub planting: 750 mm.

Within 2 m of tree planting: 1000 mm.

Walls and slabs remaining: In every 10 m² of wall or slab, make a drainage hole at least 600mm diameter.

DISPOSAL OF MATERIALS

410 EXCAVATED TOPSOIL STORAGE

Storage: Stockpile in temporary storage heaps sufficient topsoil to carry out subsequent topsoiling operations or as directed by CA.

415 EXCAVATED TOPSOIL REMOVAL

General: Remove from site as directed by CA.

420 TOPSOIL STORAGE HEAPS

Location: as directed or agreed by CA.

Height (maximum): 2m.

Protection:

Do not place any other material on top of storage heaps.

Do not allow construction plant to pass over storage heaps.

Prevent any compaction and contamination of topsoil heaps.

Do not form bunds within tree root zone or within canopy zone.

421 TOPSOIL STORAGE HEAP TREATMENT

Treatment: Treat with suitable herbicide at appropriate times to prevent establishment/ seeding of weeds.

441 SURPLUS SUBSOIL

Excavated material: If required, stockpile in temporary storage heaps.

Retained material: Spread and level surplus subsoil on site.

Locations: as directed by CA.

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

Remaining material: Remove from site.

450 WATER

Generally: Keep all excavations free from water until:

Formations are covered.

Below ground construction are completed.

Basement structures and retaining walls are able to resist leakage, water pressure and flotation.

Drainage: Form surfaces of excavations and fill to provide adequate falls.

Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

454 GROUND WATER LEVEL, SPRING OR RUNNING WATER

Give notice: If it is considered that the excavations are below the water table.

Springs/ Running water: Give notice immediately if encountered.

POND/SCRAPE LINERS

455A RAWMAT LINER TO PONDS / SCRAPE (PROVISIONAL ITEM)

RAWMATHDB Type P1 (1m x 5m) pond/scrape liner or similar approved. Rawell Environmental Ltd 0151 632 5771.

Excavate 2no. pond/ scrape areas to final depths and gradients as detailed on drawings ENV0000009C-JAG-ZZ-42X-DR-L-0002 and 0003. Setting out to be undertaken by the Contractor and to be agreed with the CA prior to the commencement of the works. Excavations to allow for 300mm depth of sub -base (in accordance with section Q20), the Rawmat Liner and 200mm depth of subsoil dressing to liner.

Surface of sub base for pond/scrape areas (plus 0.5m overlap beyond -0.25m contour on drawings or as agreed with the CA) to be thoroughly compacted to provide a firm smooth surface free from all debris, roots, sharp objects and stones larger than 32mm.

Supply and install Rawmat in accordance with manufacturer's recommendations.

Sealed overlaps to be in accordance with manufacturer's instructions/recommendations with no transverse joints on slopes. Edges of mat to be secured as recommended by manufacturer. Once Rawmat has been installed and approved by CA, 300mm of previously excavated and screened subsoil to be laid over the membrane surface. The 2no. pond /scrape areas to be filled with water so that they are 0.5m deep.

455B PUDDLED CLAY LINER TO PONDS / SCRAPE (PROVISIONAL ITEM)

Excavate 2no. pond/scrape areas to final depths and gradients as detailed on drawings ENV0000009C-JAG-ZZ-42X-DR-L-0002 and 0003. Setting out to be undertaken by the Contractor and to be agreed with the CA prior to the commencement of the works. Excavations to allow for 300mm depth of puddled clay and 200mm depth of washed stone/shingle top dressing over the clay. Allow for 0.5m overlap beyond -0.5m contour. Levels to marry in with surrounding finished graded levels. Clay to be kept wet at all times to prevent cracks to form. Any cracks to be resealed by re puddling. The 2no. pond / scrape areas to be filled with water so that they are 0.5m deep.

930 IMPORTED CLAY PUDDLE FOR POOL LINER (PROVISIONAL ITEM)

Clay for clay puddle shall be good naturally occurring plastic clay free from sand, gravel, boulders, loam, roots or other organic matter and impervious to water. A sample shall be submitted to the CA for approval before use, and during use as required.

All puddle clay shall comply with the following criteria:

The material shall be defined as firm clay in accordance with the recommendation of the British Soil classification system for engineering purposes to BS5930, BS EN ISO 14688 and BS EN ISO 146882 as approved with the CA.

The liquid limit shall not be less than 35%

The coefficient of permeability of the remoulded soil shall not be greater than 1×10^{-7} m/sec.

A ball of clay of diameter 75 to 100mm shall still be intact after being immersed in water for 24 hours.

The clay shall be reworked on site and water added if directed by the CA to produce a smooth homogenous puddle clay with a moisture content of 1.0 to 1.03 times the plastic limit. Reworking of the clay shall be carried out in such a manner as to prevent contamination of the clay.

The clay shall be placed and compacted by a method approved by the CA prior to commencement.

The completed clay lining shall be a continuous, firm, compact homogenous plastic mass of puddle free from voids, laminations, imperfections or any deleterious material which could possibly affect its water properties.

Where clay puddle is to be joined with existing clay puddle, the existing clay shall be cut back and benched to form a good key between the existing and new clay puddle.

4. Q10 Kerbs / edging / channels / paving accessories

To be read with Preliminaries/ General Conditions.

- 110A PROPRIETARY PRECAST CONCRETE EDGINGS – MILLER PARK
 Standard: To BS EN 1340.
 Manufacturer: Marshalls or similar approved by CA.
 Product reference: n/ a.
 Size (width x height x length): 50x150x915 mm.
 Special shapes: transitions, drops.
 Finish: as cast.
 Colour: natural unless otherwise advised by CA.
 Bedding: as clause 540.
 Joints generally: narrow filled as clause 630.
 To be set flush with surrounding surfaces as shown on the typical edging detail on drawing ENV000009C-JAC-ZZ-ZZ-DR-L0030.
- 210 TIMBER EDGING – RIBBLE SIDINGS AND ALLOTMENTS
 Type: Tanalised, double vacuum treated softwood. See earlier reference to timber policy.
 Size: 38x150mm, nailed to stakes with galvanised clout nails.
 Stakes: 50x50x450mm driven into the ground at 1200mm centres and at ends of each board.
 Recessed 10mm below finished board level.
 Special shapes: Cut to lengths to suit radius of curving paths.
 Finish: Natural.
 Colour: n/ a.
 Joints: Max. 2mm gap.
 Other requirements: Desired service life 20 years.
- 210 FLEXIBLE ALUMINIUM EDGING – MILLER PARK
 Type: Dural Durosol or similar approved.
 Edging to separate colours and lettering of resin bound surfacing. Edging to be applied directly to the resin bound surfacing asphalt base with strong adhesive mastic as per the resin bound surfacing manufacturer and installers recommendations.
 Edging to sit flush with surrounding surfaces. All surrounding surfaces to be made good.
- 250 MATERIAL SAMPLES
 Samples representative of colour and appearance of designated materials: Submit before placing orders.
 Designated materials: Resin bound surfacing, Clay/ concrete kerbs.

LAYING

- 510A LAYING KERBS, EDGINGS AND CHANNELS
 Cutting: Neat and accurately with a masonry saw accurate and without spalling. Form neat junctions.
 Long units (450 mm and over) minimum length after cutting: 300 mm.
 Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
 Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
 Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.
 Keep exposed faces of units clean and free from concrete and mortar droppings.
- 515 LAYING TIMBER EDGINGS
 Cutting: Neat and accurate. Cut ends to be sanded to a smooth finish. Form neat junctions.

Use standard 800mm lengths for all straight stretches of path and apply maximum length practical to achieve smooth radius for curved stretches.

Bedding of units: Positioned true to line and levelled along top and front faces.

Securing of units: Stakes to be positioned at regular 600mm intervals on straight sections and spacing reduced as appropriate on curved stretches, to achieve smooth radius.

520 ADVERSE WEATHER

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

Standard: To BS 85002.

Designated mix: Not less than GEN0 or Standard mix ST1.

Workability: Very low.

540 CEMENT MORTAR BEDDING

General: To section Z21.

Mix (Portland cement:sand): 1:3.

Portland cement: Class CEM I 42.5 to BS EN 197.

Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).

Bed thickness: 12-40 mm.

547 BEDDING/BACKING OF UNITS ON FRESH CONCRETE RACES

Standard: To BS 75336.

600 RADIUS KERBS/CHANNELS

Usage: Radii of 15 m or less.

610 ANGLE KERBS

Usage: Internal and external 90° changes of direction.

Cutting of mitres: Not permitted.

620 ACCURACY

Deviations (maximum):

Level: ± 6 mm.

Horizontal and vertical alignment: 3 mm in 3 m.

630 NARROW MORTAR JOINTS

Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.

Joint width: 3 mm.

650 SEALANT MOVEMENT JOINTS

Joint filler: Compressible cellular rubber or plastics compatible with specified sealant.

Filler installation: Built in as work proceeds, extending through haunching and foundation.

Filler positioned accurately to fully support sealant at the recommended depth below exposed faces of units.

Joint width: 20mm.

Sealant: Contractor's choice to be approved by CA.

Colour: sample to be approved by CA.

Sealant application: method to be approved by CA.

5. Q20 Granular sub-bases to roads / pavings

To be read with Preliminaries/ General Conditions.

110 THICKNESSES OF SUB-BASE/ SUBGRADE IMPROVEMENT LAYERS

Thicknesses: As specified in the following related sections:

- Q23: Gravel/hoggin/ woodchip roads/ pavings
- Q24: Interlocking brick/ block roads/ pavings
- Q25: Slab/brick/sett/ cobble pavings

120A CHECKING CALIFORNIA BEARING RATIO (CBR) OF SUBGRADES

Subgrade variation: If material appears to vary from that stated in the site investigation report, obtain instructions from the CA before proceeding.

130 HERBICIDES

Type: suitable systemic herbicide.

Application: To subgrade of footpaths, roads and stone paving areas as directed by CA.

140 EXCAVATION OF SUBGRADES

Final excavation to formation or sub formation level: Carry out immediately before compaction of subgrade.

Soft spots and voids: Give notice.

Old drainage and service trenches: Give notice

Wet conditions: Do not excavate or compact when the subgrade may be damaged or destabilised.

145 PREPARATION AND COMPACTION OF SUBGRADES

Timing: Immediately before placing sub-base.

Soft or damaged areas: Give notice.

Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/ pavings when in use.

Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

150 SUBGRADES FOR VEHICULAR AREAS

Preparation and treatment: To Highways Agency 'Specification for highway works', clauses 616 and 617.

210 HIGHWAYS AGENCY TYPE 1 UNBOUND MIXTURE FOR SUB-BASE

Material: Type 1 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 803.

Recycled aggregate: To be agreed with Site Supervisor or CA.

211 GRANULAR MATERIAL

Quality: Of a known suitability for use in sub-bases, free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to BS 812-111 or a resistance to fragmentation of LA50 for the Los Angeles test to BS EN 1097-2, and in any one layer only one of the following:

Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.

Crushed concrete, crushed brick or tile, free from plaster, timber and metal.

Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.

- Natural gravel.
- Natural sand.

Filling: Spread and levelled in 150mm maximum layers, each layer thoroughly compacted.

- 225 **PLACING OF MATERIAL WITH HIGH SULFATE CONTENT**
 Standard: To Highways Agency 'Specification for highway works', clauses 801.2 and 801.3.
 Separation distance (minimum): 500mm.
- 230 **PLACING GRANULAR MATERIAL GENERALLY**
 Preparation: Loose soil, rubbish and standing water removed.
 Structures, membranes and buried services: Ensure stability and avoid damage.
- 240 **LAYING GRANULAR SUBBASES FOR VEHICULAR AREAS**
 General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
 Standard: To Highways Agency 'Specification for highway works' clause 802.
 At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.
- 241 **LAYING GRANULAR SUBBASES FOR VEHICULAR AREAS**
 Proposals: Well in advance of starting work submit details of:
 - Maximum depth of each compacted layer.
 - Type of plant.
 - Minimum number of passes per layer.
 General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
 At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.
 Defective areas: Remove loose, segregated or otherwise defective areas to the full thickness of the layer and lay and compact new material.
 Sub-base surface after compaction and immediately before overlaying: Uniformly well closed and free from loose material, cracks, ruts or hollows.
- 250 **LAYING GRANULAR SUBBASES FOR PEDESTRIAN AREAS**
 General: Spread and levelled.
 Compaction:
 Timing: As soon as possible after laying.
 Method: By roller or other suitable means, adequate to resist subsidence or deformation of the sub base during construction and of the completed paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.
- 310 **ACCURACY**
 Permissible deviation from required levels, falls and cambers (maximum):
 Subgrades:
 Roads and parking areas: +20-30 mm.
 Footways and recreation areas: ± 20 mm.
 Sub-bases:
 Roads and parking areas: +10-30 mm.
 Footways and recreation areas: ± 12 mm.
- 325 **BLINDING**
 Locations: Surfaces to receive sand bedded interlocking brick or block paving to sections Q24 and Q25.
 Material: Sand, fine gravel or PFA.
 Finish: Close, smooth, compacted surface.
- 330 **COLD WEATHER WORKING**
 Frozen materials: Do not use.
 Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and re-compact if not damaged after thawing.
- 340 **PROTECTION**

Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
Subgrades and subbases: Prevent degradation by construction traffic, construction operations and inclement weather.

360 APPROVAL OF SUB BASES

Notify the CA giving 48 hours' notice of completion of sub-base to permit inspection. No further construction may proceed prior to inspection and approval by CA.

6. Q23 Gravel / Hoggin / Woodchip / Resin Bound Roads / Pavings / Overlays

To be read with Preliminaries/ General conditions.

TYPE(S) OF SURFACING

- 110A TYPICAL HARD BINDING GRAVEL/ CRUSHED STONE FOOTPATH – PERMEABLE SURFACE AT RIBBLE SIDINGS, ALLOTMENT ENTRANCE, AND ALLOTMENT ACCESS PATH (Allotment access path is a PROVISIONAL ITEM)
 Drawing reference(s): ENV0000009C-JAC-ZZ-42X-DR-L-0002, ENV0000009C-JAC-ZZ-ZZ-DR-L0028
 Granular sub-base: As section Q20 clause 211, thickness 150mm.
 Blinding to sub-base: 25mm coarse sand compacted to seal all interstices but allow free drainage.
 Wearing course: Predominantly angular material free from clay, but with sufficient grit to enable compaction.
 Gravel: Crushed Cotswold stone or other specified
 Size: Screened to 10mm to dust only
 Source: ARC Type 2 Horcott Pit origin (01285 712834 or similar approved)
 Thickness: 25mm.
 Base course: Predominantly angular material free from clay, but with sufficient grit to enable compaction.
 Gravel: Crushed Cotswold stone or similar approved.
 Size: Screened to 40mm to dust only
 Source: ARC Type 2 Horcott Pit origin (01285 712834 or similar approved)
 Thickness 100mm.
 Laying: Compact all layers as clause Q23/380A
- 180A RESIN BOUND SURFACING: MILLER PARK
 Drawing reference(s):
 Landscape drawing ENV0000009C-JAC-ZZ-ZZ-DR-L0030,
 Engineering GA drawings: ENV0000009C-JAC-ZZ-41C-DR-C-001 and,
 ENV0000009C-JAC-ZZ-00-DR-RD-0001/002.
 Edging as detailed in section Q10
 Sub-base refer also to section Q20
 Supplier: Sureset Resin Paving (tel. 01985 841180) Unit 32, Deverill Road, Sutton Veny, Warminster BA12 7BZ or similar approved.
 Supply and install permeable resin bound surfacing, and associated concrete and flexible aluminium edging in accordance with the manufacturer's instructions summarised below.
 Sub-grade
 Topsoil stripped back until organic and vegetative materials has been removed.
 Thickness of sub-base required is dependent on sub-grade soil conditions and expected loading. If plastic or silty sub-base layer is present (CBR<2%) then a granular capping layer may be necessary. Any sub-base should be laid in a damp condition and compacted using multiple passes of a vibrating plate compactor or suitable vibrating roller.
 Capping / improvement layer: In one or more layers
 Membrane: Geotextile separation membrane to prevent upward migration of fine soil particles.

Sub-base:

Compacted thickness: As section Q20 clause 211, thickness 300-600mm minimum depth of well compacted type 3 granular sub-base to SHW clause 805 or 4/40mm grade crushed concrete aggregate to BS EN12620 or locally available secondary or recycled aggregate which comply with the above specification Blinded with 2/6.3mm graded crushed concrete aggregate to BS EN12620.

Road-base:

Laid in well compacted layers. A 100mm minimum depth of maximum AC 120mm open bin asphalt concrete max 100 / 150 pen to BS EN13108:2006 (Bituminous Macadam) or (recommended BBA approved polymer modified binder)

Asphalt Binder Course

Laid in well compacted layers.

A minimum depth of maximum AC 10 open graded asphalt. Max 100 / 150 pen to BS EN13108-1:2006 (Bituminous Macadam) or (recommended BBA approved polymer modified binder).

Surface course:

3mm aggregate size, standard depth of 18mm. Colours as detailed on drawing

Setting out:

To be agreed with the CA prior to commencement of works. Surfacing laid to falls detailed on the engineering drawings and to marry in with existing levels.

The contractor is to arrange for the lettering to be created using a template provided by Sureset or similar approved.

Existing manhole covers to be incorporated into the resin surfacing advice to be provided by the surfacing manufacturer.

Finished level of surfacing to be flush with surrounding surfaces and tie in with existing levels and drainage falls. Fall of surfacing to be agreed with the project engineer prior commencement of works. All surrounding surfaces to be made good.

LAYING**310A TIMBER EDGING**

Type: Tanalised, double vacuum treated softwood. See earlier reference to timber policy.

Size: 38x150mm, nailed to stakes with galvanised clout nails.

Stakes: 50x50x450mm driven into the ground at 1200mm centres and at ends of each board.

Recessed 10mm below finished board level.

Special shapes: Cut to lengths to suit radius of curving paths.

Finish: Natural.

Colour: n/a.

330 HERBICIDE TO PAVING (Refer to Section A clause 346 and 347)

Type: suitable systemic herbicide.

Weeds and moss: Grub up.

Application: To subgrade of footpaths, roads and stone paving areas as directed by CA.

340A LAYING GENERALLY

Remove all loose material, foreign matter and standing water from surfaces to receive paving materials.

Form neat junctions with and prevent damage to adjacent work.

Ensure surfacing materials do not block channels, gullies etc.

Lines and levels of finished surfaces to be the specified falls and accuracy to prevent ponding.

Finished surface to have an even overall texture. Leave in a clean state upon completion.

Do not allow rollers to stand on paving or adjacent grassed areas at any time.
Do not use paving as a building platform or for storing/mixing or preparing materials.
Avoid contamination or marking of adjacent surfaces or soft landscape with tar, asphalt or bituminous materials.

350 COLD WEATHER WORKING

Frozen materials: Do not use.

Freezing conditions: Do not lay pavings.

Cold bituminous surface dressings: Do not apply when ambient temperature is below 10°C.

Other dressings and overlays: As manufacturers' recommendations.

360 DRAINAGE FALLS

1. Sealed surfaces: Falls and cross falls (minimum): 1:40
Camber (minimum): 1:50

2. Unsealed surfaces (minimum): 1:30

370A LAYING GRANULAR SURFACES IN VEHICULAR AREAS

Permissible deviation from the required levels, falls and cambers (maximum) +/- 20mm (+/- 3mm adjacent to gullies/manholes)

General: Spread and level in 150mm maximum layers. As soon as possible thereafter, compact each layer with a roller weighing not less than 5.4 tonnes load per metre width of roller or equivalent plant.

Dry weather: Lightly water all layers during compaction.

380A LAYING GRANULAR SURFACES IN PEDESTRIAN AREAS

Permissible deviation from the required levels, falls and cambers (maximum) +/- 12mm (+/- 3mm adjacent to gullies/manholes)

General: Spread and level in 100mm maximum layers. As soon as possible thereafter, compact each layer with a roller weighing not less than 2.5 tonnes load per metre width of roller or equivalent plant.

Dry weather: Lightly water all layers during compaction.

390A PROTECTION FROM TRAFFIC AND PLANT

Restrict all access to paved areas as necessary to prevent damage from traffic and plant.

Defer laying of final surfacing until as late as possible in the contract.

400 MAINTENANCE OF PAVEMENTS

Keep the pavement surface free of weeds by chemical or physical means as appropriate throughout the contract and maintenance period. Refer to Clause Q35: 910.

7. Q25 Slab / brick / sett / cobble pavings

To be read with Preliminaries/ General Conditions.

PRODUCTS

Must all be sourced from sustainable sources.

- 200 CUTTING AROUND FURNITURE: Paving shall continue as close as possible to fixed site furniture avoiding cut pavers less than one third full size by cutting back into the pattern. In situ concrete infill, coloured to match paving, will be permitted to a maximum width of 100mm around curved edges of less than 200mm radius.
- 305 GRANULAR MATERIAL FOR LAYER OVER EXISTING BASES
Material: as Q20 Clause 211.
- 312 SLAB PAVING: Bed so that rocking does not occur or develop. Bed on the following:
Dry mix mortar. Mix: 3:1 Sand; cement. Lay on a full bed of dry mortar. Do not wet. Paving pattern: staggered.
Mortar spots. Mix: 3:1 Sand; cement. Lay each slab on 5Nr. Spots of semi dry mortar.
- 315A CONCRETE FLAGS (MILLER GARDENS, drawing no. ENV000009C-JAC-ZZ-ZZ-DR-L0021 SHEET 9)
Granular subbase: As section Q20. Thickness 150mm.
Laying and jointing: bound construction on mortar, site category IV to BS 7533-4.
Laying course: full mortar bed, nominal thickness after compaction: 15-25mm.
Mortar: As section Z21, Mix: 1:3 cement:sand.
Slabs standard: To BS EN 1339.
Manufacturer: Marshalls (tel: 0345 302 0600, email: comm.sales@marshalls.co.uk) or similar approved.
Product reference: Saxon Paving 600mm x 600mm x 50mm with Saxon edging (916 x 150mm x 50mm).
Colour: Buff.
Finish: as cast.
Nominal sizes: as specified on drawings.
Jointing: Mortar filled as work proceeds. Width 6mm. Finish neat flush profile, mortar as section Z21, mix 1:3 cement:sand.
Patio edging: Marshalls Saxon buff coping 600 x 136 x 50mm. Installed around the perimeter of the paving in accordance with manufacturers recommendations so that the 50mm wide top of the edging is flush with the adjacent Saxon paving.
Levels: 1:40 fall away from the new flood wall or as approved by the CA.
Supply and install slabs and edging in accordance with the manufacturers recommendations.
- 365 GEOTEXTILE SHEET
Manufacturer: Terram or similar approved.
Product reference: as directed by the CA.
Recycled content: TBC.

EXECUTION

- 610 MATERIAL SAMPLES: Samples representative of colour and appearance of designated materials:
Submit before placing orders.
- Designated materials: as directed by CA.
-
- 615 CONTROL SAMPLES
Sample areas: Complete as part of the finished work.
- Types of paving: concrete flags and stone setts.
- Location: as directed by CA.

- Size (minimum): 5 m².
 - Included features: edgings or soldier course features.
- Approval of appearance: Obtain before proceeding.

620 ADVERSE WEATHER

General:

- 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.
- Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.

Paving with mortar joints and/ or bedding:

- Protect from frost damage, rapid drying out and saturation until mortar has hardened.

Paving laid and jointed in sand:

- Stockpiled bedding sand: Protect from saturation.
- Exposed areas of sand bedding and uncompacted areas of sand bedded paving: Protect from heavy rainfall.
- Saturated sand bedding: Remove and replace, or allow to dry before proceeding.
- 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.

625A LAYING PAVINGS - GENERAL

Appearance: Smooth and even lines and levels with regular joints and accurate to line, level and profile.

Falls: Regular falls to prevent ponding.

Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.

- Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.

Slopes: Lay paving units upwards from the bottom of slopes.

Paving units: Free of mortar and sand stains.

Cutting: Cut units cleanly and accurately with a masonry saw, without spalling, to give neat junctions with edgings and adjoining finishes. Finished paving to have an even appearance with even joint widths.

Refer to clause 315A.

630 LEVELS OF PAVING

Permissible deviation from specified levels:

- Generally: ± 6 mm.

Height of finished paving above features:

- At gullies: +6 to +10 mm.
- At drainage channels and kerbs: +3 to +6 mm.

635 REGULARITY OF PAVED SURFACES

Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface):

- Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.
- Precast concrete flags or natural stone slabs: 3 mm.

Difference in level between adjacent paving units (maximum): 2 mm.

Sudden irregularities: Not permitted.

640 COLOUR BANDING

General: Unless premixed by manufacturer, select from at least 3 separate packs in rotation to avoid colour banding.

645 PROTECTION

Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.

Materials storage: Do not overload pavings with stacks of materials.

Handling: Do not damage paving unit corners, arrises, or previously laid paving.

Mortar bedded pavings: Keep free from traffic after laying:

- Pedestrian traffic (minimum): 4 days or as directed by CA.
- Vehicular traffic (minimum): 10 days or as directed by CA.

Access: Restrict access to paved areas to prevent damage from site traffic and plant.

650 CEMENTITIOUS BASES AND SUBBASES

General: Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

655 CONDITION OF SUBBASES/ BASES BEFORE SPREADING LAYING COURSE

Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.

Granular surfaces: Lay and compact so as to be sound, clean, smooth and close textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.

Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.

Sub-base/ Roadbase level tolerances: To BS 75337, Annex A.

Levels and falls: Accurate and within the specified tolerances.

Drainage outlets: Within 0-10 mm of the required finished level.

Features in sand bedded paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.

Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS7533-4.

665 PLANING AND REPAIRS TO EXISTING BASES

Existing macadam/ asphalt surfaces: Plane to required levels.

Repairs: make good all areas as necessary following planing including any areas of sub-base exposed including reinstatement, blinding and compaction as specified.

Building up existing surfaces to required levels: to suit finished levels as illustrated on the drawings.

685 LAYING GEOTEXTILE SHEET OVERLAYS

Location: Immediately below sand bedding course.

Laying: Fit neatly at edge restraints and other features that interrupt sand bedding course, e.g. drainage fittings, channels, manholes and kerbs.

Edge detail: Turn sheet up to form an upstand against features, height not less than thickness of sand bedding.

Width: as directed by CA.

Jointing: Lap by 200mm.

8. Q28 Topsoil, growing media and ameliorants

To be read with Preliminaries/ General Conditions.

270 UK GOVERNMENT BUYING STANDARDS FOR SOIL PRODUCTS

Soil products standards

IMPACT AREA	MANDATORY	BEST PRACTICE
Soil improvers	Soil improvers must not contain peat	Soil improvers should comply with the EU Ecolabel criteria (see pages 3 to 7 of attached web link specification)
Organic Ingredients	Organic ingredients must be derived from the processing & /or re-use of waste materials	Same as the mandatory standard
Media Products	Growing media must not contain peat	Growing Media Products should comply with the EU Ecolabel criteria (see pages 3 to 7)

Please also refer to EU Ecolabel criteria for soil products. The specification for soil products can be found at:

<http://www.defra.gov.uk/sustainable/government/advice/public/buying/products/gardening/index.htm>

Where information is contained within the wider specification clauses, in particular clause Q28:315A, the expected standard to be adhered to will be that of the ecolabel ecological criteria in the above web link, except where the standard of the specification exceeds it in which case that standard shall apply.

300 PREPARATION MATERIALS GENERALLY

- Purity: Free of pests, disease, and fungus.
- 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.
- Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - Corrosive, explosive or flammable.
 - Hazardous to human or animal life.
 - Detrimental to healthy plant growth.
- Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
- Objectionable odour: None.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

300A PREPARATION OF UNDISTURBED TOPSOIL Purity: Free of pests, disease, and fungus.

- **General: Prepare as necessary for subsequent cultivations operations. Hard ground: break up thoroughly.**
- **Ground covered with turf or thick sward: Plough or dig over to full depth of topsoil.**

315A IMPORTED TOPSOIL TO BS 3882

- **Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.**
- **Standard: To BS 3882.**
- **Grade: General Purpose for all planting and amenity grass seeded areas.**
 Low fertility for species-rich grassland areas on the flood embankment areas (remaining species-rich grassland areas to have no topsoil)
- **Source: Contractor's choice.**
- **Soil reaction: 6.0 to 7.5pH**
- **Stone content: Free to slightly stony.**
- **Maximum size of stones in any dimension: 50mm**
- **Free of weed seeds, roots of perennial weeds, sticks, subsoil and foreign matter.**
- **Obtain approval of a sample load of not less than 5m³. Retain for comparison with subsequent loads which shall be from the same source unless otherwise agreed. The CA shall have the right to reject any subsequent deliveries which are not comparable with the sample, including any topsoil that has been spread without prior permission. Also refer to Clause Q28 660.**
- **Topsoil analysis: The Contractor shall provide a detailed analysis of a representative sample of the topsoil to be used, proving adherence to the topsoil specification in this Clause Q28:315A and giving levels of all major nutrients. This analysis is to be carried out by an approved soil laboratory, including information detailing each of the relevant parameters given in BS 3882. The soil sample shall be obtained by mixing soil from 5 different areas within the source site. No topsoil will be accepted without such analysis.**
- **Zootoxic elements shall not exceed the following concentrations:**

CHEMICAL SYMBOL	CONCENTRATION MG/KG
As	40
Cd	15
Cr	1000
Pb	2000
Hg	2

Phytotoxic elements shall not exceed the following concentrations:

CHEMICAL SYMBOL	CONCENTRATION MG/KG
Cu1	30
Ni	70
Zn	300

B(Water soluble)	3
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Electrical conductivity shall not exceed 1500 ms/cm (micro Siemens per centimetre) in a 1:2 (grams soil: ml water) extract.

Organic matter content to be not less than 4% (volume: weight).

Zootoxic elements shall not exceed the following concentrations:

CHEMICAL	CONCENTRATION MG/KG
Nitrogen	2000
Extractable Phosphorous	40
Extractable Potassium	240
Extractable Magnesium	100

360A SANITISED AND STABILISED COMPOST

- Standard: In accordance with PAS 100.
- Supplier: Local source.
- Product reference: for approval by CA
- Type: Sanitized and stabilized compost.
- Horticultural parameters:
 - pH (1:5 water extract): 7.0-8.7.
 - Electrical conductivity (maximum, 1:5 water extract): 200 mS/cm.
 - Moisture content (m/m of fresh weight): 35-55%.
 - Organic matter (minimum): 25%.
 - Grading (air dried samples): 99% passing 25 mm screen, and 90% passing a 10 mm screen mesh aperture.
 - Carbon:Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.
- Composting Association certification: Required.
- Submit: Declaration of analysis.
- Additional analyses: Not required.
- Samples: Supply 5 kg sample before ordering.
- Application rate: As directed by CA
- Timing: Apply prior to cultivation.

450 PEAT

Peat or products containing peat: Do not use.

610 TOPSOIL ANALYSIS

Soil to be analysed: Imported topsoil as agreed with CA.

Soil analyst: Contractor's choice as agreed with CA

Samples: Collect in accordance with BS 3882.

Submit:

Declaration of analysis: In accordance with BS 3882 Annex E.

Report detailing soil analyst's recommendations.

- 620 **IMPORTING TOPSOIL**
 Give notice: Before stripping topsoil for transfer to site.
 Notice period: 7 days
- 625 **SAMPLE LOADS OF IMPORTED TOPSOIL**
 General: Deliver to site a sample load of not less than 5 m³.
 Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
 Notice period: 7 days
- 650 **NOTICE**
 Give notice before:
- Setting out.
 - Spreading topsoil.
 - Applying herbicide.
 - Applying fertilizer.
 - Visiting site during maintenance period.
- Period of notice: 7 days.
- 660 **GRADING SUBSOIL**
 General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
 Areas of thicker topsoil: Excavate locally.
- 665A **SUBSOIL SURFACE PREPARATION**
 General: Excavate and/ or place fill to required profiles and levels.
 Loosening:
- Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
 Remove from site: arisings, contaminants and debris.
 Where the surface is uneven or irregular, adjust by blade grading and /or local filling provided the final depth or topsoil will not be less than specified.
- 670 **INSPECTING FORMATIONS**
 Give notice: Before spreading topsoil for planting beds.
 Notice period: 10 days.
- 675 **PREPARATION OF UNDISTURBED TOPSOIL**
 Standard: In accordance with BS 4428
 Grading and cultivation: Grade to smooth flowing contours and cultivate to depth and tilth suitable for subsequent treatments.
 Hard ground: Break up thoroughly.
 Clearing: Remove visible roots and large stones with diameter greater than 50 mm.
 Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
 Fallow period (minimum): As directed by CA.
 Weed control: At appropriate times treat with a suitable translocated non residual herbicide.

675A SUBSOIL TREATMENT

All planting and seeding areas to be ripped using a ripping tine or subsoil plough. The minimum depth of treatment shall be 450mm unless otherwise agreed with the CA. The extent of areas to be ripped is to be agreed with the CA prior to the commencement of the works.

The spacing between the tine furrows shall be close enough to cause the uplifting and fracturing of the soil throughout the profile to the minimum treated depth and shall be determined by the soil type and conditions and the type of subsoiler used.

Approximate spacings shall be as follows:

- Conventional subsoiler alone – 600mm;
- Winged subsoiler alone – 750mm
- Winged subsoiler with leading tines – 1.0m

680 SURPLUS TOPSOIL TO BE RETAINED

Generally: Spread and level on site:

Locations: Any areas where topsoil is required for new planting.

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

685 SURPLUS TOPSOIL TO BE REMOVED

Generally: Remove from site topsoil remaining after completion of all landscaping work.

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

690 TOPSOIL STORAGE HEAPS

Location: As directed by CA

Height (maximum): 2m

Width (maximum): as directed by CA

Protection:

- Do not place any other material on top of storage heaps.
- Do not allow construction plant to pass over storage heaps, including during formation of the heaps.
- Prevent compaction and contamination, by fencing and covering as appropriate.

700 GRADING OF TOPSOIL

Topsoil condition: Reasonably dry and workable.

Contours: Smooth and flowing, with falls for adequate drainage.

Hollows and ridges: Not permitted.

Finished levels after settlement: 25 mm above adjoining paving, kerbs, manholes etc.

Give notice: If required levels cannot be achieved by movement of existing soil.

705 HANDLING TOPSOIL

Aggressive weeds: Give notice and obtain instructions before moving topsoil.

Plant: Select and use plant to minimize disturbance, trafficking and compaction.

Contamination: Do not mix topsoil with Subsoil, stone, hardcore, rubbish or material from demolition work or other grades of topsoil.

Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.

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 as defined by BS 1377-2.

710A SPREADING TOPSOIL

Temporary roads/surfacing: Remove before spreading topsoil.

Layers:

- Depth (minimum): 100 mm for seeding/turfing
- Depth (minimum): 300 mm for shrub planting
- Gently firm each layer before spreading the next.

Depths after firming and settlement (minimum): As indicated in sections Q30 and Q31 or on drawings.

Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 LOOSE TIPPING OF TOPSOIL

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.

Depths after settlement (minimum): As directed by CA

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

Shrub beds crowned at nominal 1 in 3 side slope to achieve smooth flowing contours

Above adjoining paving or kerbs: 30mm

Below dpc of adjoining buildings: Not less than 150mm

Shrub areas: Lower than adjoining grass areas by 30mm

Within root spread of existing trees: Unchanged.

Adjoining soil areas: Marry in.

Thickness of turf or mulch: Included.

920 DOCUMENTATION

Timing: Submit at handover.

Contents: Full description of all soil components

Record of source for all soil components.

Analyst's report for each test carried out.

Record drawings showing the location of all soils by type and grade.

Number of copies: As directed by CA

9. Q30 Seeding / Turfing

To be read with Preliminaries/ General conditions.

GENERAL INFORMATION/REQUIREMENTS

115 SEEDED AND TURFED AREAS

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

120A CLIMATIC CONDITIONS

- General: Carry out the work while soil and weather conditions are suitable for the relevant operations.
- **Frozen or snow covered soil: Give notice before seeding/ turfing**

145 WATERING

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

150 WATER RESTRICTIONS

- 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

Give notice before:

- Setting out.
- Applying herbicide.
- Applying fertiliser.
- Preparing seed bed.
- Seeding or turfing.
- Visiting site during maintenance period.
- Importing topsoil.

Period of notice: 1 week.

170 SETTING OUT

Boundaries: Mark clearly.

Delineation: In straight lines or smoothly flowing curves as shown on drawings.

PREPARATION

205 PREPARATION MATERIALS

General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

Certification of source, analysis, suitability for purpose and absence of harmful substances: Submit.

Give notice: before ordering or using.

- 210 **HERBICIDE FOR ALL GRASSED AREAS**
 Type: Suitable for suppressing perennial weeds.
 Timing: Allow fallow period before cultivation.
 Duration: As manufacturer's recommendation **NB. Require Control of Pesticides (Amendment) Regulations 1997 certification to specify herbicides.**
- 210A **HERBICIDE / WEED CONTROL:** Apply a suitable type to perennial weeds and allow period of time to elapse as recommended by manufacturer before cultivation. Also refer to A34 Clause 346. Weed control to be carried out by hand pulling, strimming or herbicide as directed by the CA. For the purpose of this contract hand pulling of weeds around the base of new planting will be the predominant method of weed control. Strimming or herbicide will be instructed only if weeds become invasive. No herbicide may be applied on or near water without the prior consent of the Environment Agency. It is envisaged that no herbicide other than Glyphosate shall be used under this contract e.g. Roundup or similar approved.
- 231 **PEAT**
 Peat or products containing peat: Do not use.
- 250A **CULTIVATION FOR TURFED/GRASS SEEDED/WILD FLORA SEEDED AREAS:**
 Compacted topsoil: Break up to full depth.
 Soil ameliorant/ Conditioner/ Fertiliser: Fully incorporate into topsoil to a depth as directed by CA subject to treatment
 Tilth: Reduce topsoil to a tilth suitable for seeding.
 Depth: 100mm
 Particle size (maximum): 30mm
 Material brought to the surface: Remove stones and clay balls larger than 25mm in any dimension, roots, tufts of grass, rubbish and debris. Also see final cultivation in clause 280.
- 251 **CULTIVATION FOR TREE AND SHRUB SEEDED AREAS:**
 Compacted topsoil: Break up to full depth.
 Soil ameliorant/ Conditioner/ Fertilizer: Fully incorporate into topsoil to a depth as directed by CA subject to treatment
 Tilth: Reduce topsoil to a tilth suitable for seeding.
 Depth: 100mm
 Particle size (maximum): 30mm.
 Material brought to the surface: Remove stones and clay balls larger than 25 mm in any dimension, roots, tufts of grass, rubbish and debris. Also see final cultivation in clause 280.
 Broadcast fertiliser in accordance with Q31:335.
- 260 **GRADING**
 Topsoil condition: Reasonably dry and workable.
 Contours: Smooth and flowing, with falls for adequate drainage.
 Hollows and ridges: Not permitted.
 Finished levels after settlement: 30 mm above adjoining paving, kerbs, manholes etc.
 Blade grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than minimum as stated on drawings.
 Give notice: If required levels cannot be achieved by movement of existing soil.
- 270 **FERTILISER FOR SEEDED AREAS EXCEPT WILD FLOWER MEADOWS** ADONIS City Grassland
 Type: Slow release for approval by CA
 Application: Before final cultivation and three to five days before seeding/turfing.
 Coverage: Spread evenly at 70 g/m² or other rate approved by the CA.
- 280 **FINAL CULTIVATION**
 Timing: After grading and fertilizing.

Seed bed: Reduce to fine, firm tilth with good crumb structure.

Depth: 25 mm.

Surface preparation: Rake to a true, even surface friable and lightly firmed but not over compacted.

Remove surface stones/earth clods exceeding:

General areas: 38 mm.

Fine lawn areas: 10 mm.

Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

290 PREPARATION FOR HYDRAULIC SEEDING (PROVISIONAL ITEM)

Clearance: Remove rubbish, and stones with any dimension exceeding: 50mm

Herbicide:

General weeds: suitable herbicide.

Pernicious weeds: suitable herbicide.

Grading: Smooth, flowing levels.

Cultivation: Ensure grass roots can penetrate substrate.

Finished surface: Ribbed or rough textured.

Reinforcement: as shown on drawings.

Fixing: as shown on drawings.

291 BAC SPORT PITCH REINSTATEMENT

Sport pitch reinstatement and associated drainage works, turfing and seeding to be undertaken by an approved and suitably qualified specialist sports pitch contractor as a separate contract To include decompaction of all sports pitch areas disturbed by the works, topsoiling, preparation, regrading and reinstatement of sports pitch levels and drainage construction reinstatement to match existing, to tie in with the existing sports pitches.

300 SEEDING

305 CERTIFICATES: The Contractor shall provide the CA with certificates from the seed supplier indicating germination rate and species purity together with copies of each delivery note. These documents must be in the possession of the CA prior to seeding commencing. Each bag label must be passed to the CA as proof of origin.

307 TESTING:

The CA reserves the right to have the seed mixture tested for purity and germination at an independent testing laboratory, the cost of which shall be borne by the Contractor.

The CA reserves the right to check with the supplier that the seed is as specified.

Any costs or delays incurred in rectifying any inconsistencies thus revealed shall be the sole liability of the Contractor, including herbicide treatment, re-cultivation and reseedling.

308 GENERALLY

Seeds in all locations should comply with the Flora Locale campaign to encourage the use of local provenance seed to protect the local genetic integrity of plants.

313 GRASS SEED AMENITY GRASS AREAS and REINSTATEMENT AREAS (Amenity Grassland)

Mixture: EG22

Supplier and reference: Emorsgate Seeds or similar approved.

Tel: 01553 829028

Web: wildseed.co.uk

Email: enquiries@emorsgateseeds.com

Address: Limes Farm, Tilney All Saints, Kings Lynn, Norfolk PE34 4RT

Rate of application: 25g/m²

- 313A **GRASS SEED GRASS AREAS NEXT TO SPORTS PITCH (PROVISIONAL SPORTS GRASS SEED DRAINAGE REINSTATEMENT SHEET 10)**
 Mixture: SOS Mix
 Supplier and reference: Barenbrug (tel. 01359 272000) or similar approved.
 Web: <https://www.barenbrug.co.uk/sport/products/football-rugby/sos>
 Email: info@barenbrug.co.uk
 Address: 33 Perkins road, Rougham Industrial Estate, Bury St Edmunds, Suffolk, IP30 9ND
 Rate of application: 40g/m²
- 315A **GRASS SEED GRASS AND WILDFLOWER MEADOW SEEDS (Tussock Seed Mix– Redi Rok)**
 Mixture: EM10 Tussock Mixture.
 Supplier and reference: Emorsgate Seeds or similar approved.
 Tel: 01553 829028
 Web: wildseed.co.uk
 Email: enquiries@emorsgteseeds.com
 Address: Limes Farm, Tilney All Saints, Kings Lynn, Norfolk, PE34 4RT
 Rate of application: 4g/m²
- 315B **GRASS SEED GRASS AND WILDFLOWER MEADOW SEEDS (Species-rich grassland)**
 Mixture: EM2 Standard General Purpose Meadow Mixture.
 Supplier and reference: Emorsgate Seeds or similar approved.
 Tel: 01553 829028
 Web: wildseed.co.uk
 Email: enquiries@emorsgteseeds.com
 Address: Limes Farm, Tilney All Saints, Kings Lynn, Norfolk, PE34 4RT
 Rate of application: 4g/m²
- 315C **GRASS SEED GRASS AND WILDFLOWER MEADOW SEEDS (Flowering lawn seed mix- Ribble Sidings)**
 Mixture: EL1 Flowering Lawn.
 Supplier and reference: Emorsgate Seeds or similar approved.
 Tel: 01553 829028
 Web: wildseed.co.uk
 Email: enquiries@emorsgteseeds.com
 Address: Limes Farm, Tilney All Saints, Kings Lynn, Norfolk, PE34 4RT
 Rate of application: 4g/m²
- 315D **GRASS SEED GRASS AND WILDFLOWER MEADOW SEEDS (Wet meadow– Ribble Sidings)**
 Mixture: EM8 Meadow Mixture for Wetlands
 Supplier and reference: Emorsgate Seeds or similar approved.
 Tel: 01553 829028
 Web: wildseed.co.uk
 Email: enquiries@emorsgteseeds.com
 Address: Limes Farm, Tilney All Saints, Kings Lynn, Norfolk, PE34 4RT
 Rate of application: 4g/m²
- 317A **GRASS SEED REINFORCED GRASS SEEDS**
 Mixture: EG22
 Supplier and reference: Emorsgate Seeds or similar approved.
 Tel: 01553 829028
 Web: wildseed.co.uk
 Email: enquiries@emorsgteseeds.com
 Address: Limes Farm, Tilney All Saints, Kings Lynn, Norfolk, PE34 4RT

Rate of application: 25g/m²

- 319 **QUALITY OF SEED FOR ALL GRASSED AREAS**
 Freshness: Produced for the current growing season.
 Certification: Blue label certified varieties.
 Standard: EC purity and germination regulations.
 Official Seed Testing Station certificate of germination, purity and composition: Submit when requested. Samples of mixtures: Submit when requested.
- 330 **SOWING**
 General: Establish good seed contact with the root zone.
 Method: To suit soil type, proposed usage, location and weather conditions during and after sowing.
 Distribution: Spread seed evenly at the specified rates applied in two equal sowings in transverse directions.
 Lightly harrow or rake to cover seed.
 On light soils, roll and cross roll after seeding using alightweight roller.
- 335 **GRASS SOWING SEASON**
 Grass seed generally: April to June or August to October.
- 340A **PREEMERGENT HERBICIDE WEED CONTROL:**
 Standard: Pesticide Safety Directorate approved.
 Application rate: In accordance with manufacturer's written recommendation.
 Timing: Implement suitable weed control immediately after sowing in accordance with Clause A34:346/347 and Q30: 210/210A.
- 352 **EDGES TO SEEDED AREAS ADJACENT TO PLANTING BEDS AND TREE PITS**
 Timing: After seeded areas are well established.
 Edges: Clean straight lines or smooth curves.
 Mulch and soil: Draw back to permit edging.
 Arisings: Remove.
 Completion: Re-spread soil and mulch.
- 360 **GERMINATION:** If the seed fails due to any cause, the Contractor shall at his own cost be required to make good the soiling and repeat the seeding until a good sward is obtained. Grass areas will only be accepted as reaching practical completion when germination is satisfactory and all weeds have been removed (all injurious and invasive weeds have been removed in areas with wild flowers).

HYDRAULIC SEEDING (PROVISIONAL ITEM) FLOOD EMBANKMENT

- 371 **GENERAL:** The Contractor or his subcontractor shall apply the hydra-seed mix in a workmanlike manner as specified below.
- 372 **SPECIALIST CONTRACTOR:**
 The hydraulic seeding shall be carried out by a specialist subcontractor selected by the contractor and approved by the CA as suitable for this type of work.
- 373 **MULCH:** The mulch or bulking agent shall be of an approved type and applied at an agreed rate of Kg/Ha (g/m²) for the approval of the CA.
- 374 **BINDER:** The binder shall be an approved supplier and an agreed rate of Kg/Ha (g/m²) approved by the CA.
- 375 **FERTILISER:** The NPK fertilizer shall be from an approved supplier and applied at an agreed rate of Kg/Ha (g/m²) for the approval of the CA.

- 376 SEED MIX: TBA
- Supplier: To be approved by the CA
 - Mixture: To be approved.
 - Reference: Seed supplier's reference.
 - Rate of application: Rate of Kg/ha (g/m²) for CA's approval.

PROTECTING/CUTTING

- 505 **PROTECTION: Prevent disturbance of seeded/ turfed areas by pedestrians, vehicles etc. prior to practical completion.**
- 510 **PROTECTIVE FENCING**
 Fencing type: Chestnut pale fencing to BS 1722-4.
 Height: 1.1 m
 Erection: On completion of seeding/ turfing.
 Removal: After planting is well established and as agreed with CA. Fencing to remain the property of the contractor.
- 530A **FIRST (INITIAL) CUTS OF GRASSED AREAS (PRE PRACTICAL COMPLETION)**
 Timing: When grass is reasonably dry.
 Height of initial growth: 75 mm.
 Preparation:
 Debris and litter: Remove.
 Stones and earth clods larger than 25 mm in any dimension: Remove
 Height of cut: Two cuts, each reducing growth to 40 mm. Avoid any root pulling.
 Mower type: Contractor's choice.
 Arisings: Box arisings from site.
- 540A **INITIAL ESTABLISHMENT CUTS OF GRASSED LAWNS (PRE-PRACTICAL COMPLETION)**
 Timing: When grass is reasonably dry;
 Height of initial growth: 50 mm;
 Preparation:
 Debris and litter: Remove;
 Stones and earth clods larger than 25 mm in any dimension: Remove;
 Height of first cut: Two cuts, each reducing growth to 35 mm. Avoid any root pulling;
 Mower type: Contractor's choice;
 Arisings: Remove from site.
- 590 **CLEANLINESS**
 Soil and arisings: Remove from hard surfaces.
 General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

- 601 **PRACTICAL COMPLETION CERTIFICATE FOR SEEDED/ TURFED GRASS AREAS**
 Before a Certificate of Practical Completion or letter accepting 'The Works as complete' is issued, the following conditions must be fulfilled:
- Complete germination of grass seed with a weed free sward (refer to Clause 360);
 - All work must be fully completed and in accordance with the specification on the day named in the Certificate. Sectional Completion will be at the discretion of the CA;

- The contractor is responsible for any protection and maintenance as specified herein, required before practical completion at his own cost. The work shall be completely in accordance with the specification in a weed free and clean and tidy condition on the day named in the certificate;
- All hard surfaces should be swept and litter free.

602 RECTIFICATION PERIOD (DEFECTS LIABILITY PERIOD)

All soft landscape works will be subject to a rectification period (formerly known as the defects liability period) from the date of Practical Completion. During these periods the contractor will be required to carry out maintenance operations as specified, and make good all defects and work which in the opinion of the CA is unsatisfactory.

MAINTENANCE

605 MAINTENANCE

Duration: Carry out the following operations from practical completion of seeding/ turfing until the end of the rectification period or maintenance period as instructed by the CA. See also Q35.

610 FAILURES OF SEEDING/TURFING

Duration: Carry out the following operations from completion of the seeding until: The end of the rectification period and maintenance period.

Defective materials or workmanship: Areas that have failed to thrive.

Exclusions: Theft or malicious damage.

Method of making good: Re-cultivation and reseeding/ returfing.

Timing of making good: The next suitable planting season.

620A MAINTAINING GENERAL GRASSED AREAS

- Maximum height of growth at any time: 75 mm.
- Preparation: Before each cut remove all litter and debris.
- Cutting: As and when necessary to maintain grass to a maximum height of 35mm.
- Arisings: Box off unless otherwise directed.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Trimming: All edges.
 - Arisings: Remove unless otherwise directed
- Weed control: Substantially free of broad leaved weeds.
 - Method: Application of a suitable selective herbicide.
- Stones brought to the surface: Remove regularly.
 - Size: Exceeding 25mm in any dimension.
- Areas of settlement: Make good
- At the end of each cut, trim all grass edges, around the base of trees, manholes etc., and remove arisings. Sweep all adjoining hard areas clear of cuttings and remove.
- Watering: As required (see Clause Q30: 625).

623 MAINTAINING GRASSED LAWNS

As Clause 620A above, except:

Maximum height of growth at any time: 50 mm.

Maintain grass to a maximum height of 25mm.

625 WATERING:

Water all seeded/turfed areas if there is no rain within 72 hours of seeding/turfing . Repeat every two days for turf and every week following germination for seeded areas until practical completion is achieved, or the dry conditions cease, if sooner. The topsoil shall be thoroughly soaked at each watering. Refer to Clause Q35:155A.

- 650 MAINTAINING GRASSED AREAS WITH PERENNIAL WILD FLOWERS
 Preparation: Before each cut remove all litter and debris.
 Height and frequency of cut in first growing season:
 Time of first cut: June/ July.
 Height of first cut: 50mm.
 Frequency of subsequent cutting (minimum): Twice per year.
 Height of growth permitted (maximum): 150 mm until established.
 Height and frequency of cut in second growing season:
 Time of cut: First cut in late August/Early September and second cut between October and December.
 Height of cut: 50 mm.
 Trimming: All edges.
 Arisings: Remove.
 Watering: As required.
- 680A MAINTENANCE FERTILISER FOR ALL GRASSED AREAS EXCEPT WILDFLOWERS (Amenity Grassland)
 Duration: Carry out the following operations from the completion of seeding of the sward until: The end of the rectification period.
 March application: Slow release 15:10:10 N/P/K Spring turf fertilizer.
 Manufacturer: Contractor's choice to be approved
 Application rate: 35g/m2 or equivalent to manufacturer's recommendation and CA's approval.
 September application: Slow release 5:10:10 N/P/K Autumn turf fertilizer.
 Manufacturer: Contractor's choice to be approved
 Application rate: 50g/m2 or equivalent to manufacturer's recommendation and CA's approval.

10. Q31 External planting

To be read with Preliminaries/ General Conditions.

GENERAL INFORMATION/ REQUIREMENTS

112A SITE CLEARANCE GENERALLY

General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.

Stones: Remove those with any dimension exceeding 25 mm.

Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

Vegetation: Clear scrub and herbaceous material to ground level using suitable approved tools and remove arisings.

Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

Additional requirements: Apply a suitable non-residual herbicide to all planting areas.

118 SOIL CONDITIONS

Soil for cultivating and planting: Moist, friable and (excepting aquatic/ marginal planting) not waterlogged.

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

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

Strong winds: Do not plant.

121 INSPECTION OF PLANT MATERIAL

CA shall retain the right to inspect and pass all plant material before delivery to site at source of supply (bare root stock prior to lifting at nursery) unless otherwise agreed;

If so specified, the contractor will arrange for the CA or a representative to select and tag specimen trees and/ or shrubs at the nursery of origin. Any such tags are to be retained intact on the tree or shrub until removed by the CA or a representative after planting;

The contractor shall collect together and/ or label all specified stock ready for inspection by the CA prior to delivery to site, excepting those previously selected and tagged by the CA;

The CA or a representative shall be invited to inspect the plant stock thus assembled at least 3 days prior to delivery on site;

Any seeds or plants selected for planting schemes must comply with local provenance standards stipulated by Flora Locale or other competent authorities such as Natural England or the Forestry Commission and must not include non-native species particularly those listed within Schedule 9, Wildlife & Countryside Act 1981. The design and detail of soft landscaping projects should be agreed well ahead of the expected planting date. This allows suppliers time to collect and multiply suitable stock if required. A supplier should be selected who can identify the origin of their stock;

The CA reserves the right to reject any plants which in his/ her opinion do not meet the specification requirements;

The contractor will replace material rejected at no extra cost.

122 IDENTIFICATION OF PLANT MATERIAL

The CA reserves the right to mark for identification purposes using aerosol paint or such other method as he/ she thinks necessary, any materials which in his/ her opinion are not in accordance with the Contract.

No claims will be entertained for losses alleged to have resulted from such marking.

123 GUARANTEES

All plants including replacements are to be guaranteed for one month from the date of planting, or until the end of the rectification period, whichever is the later.
 Prices quoted are to include supply and plant initially and any necessary replacement planting. All tree stakes and ties are to be replaced immediately if in the opinion of the CA they are defective at any time during the contract period.
 On termination of the general rectification period, all continuing guarantees shall be assigned to the Environment Agency.

124 SETTING OUT

The contractor is responsible for setting out planting beds and tree pit positions of all trees, large feathered and above, prior to planting on site according to drawings and any other relevant information supplied.

The outline of planting beds and their internal dimensions are as indicated.

The CA reserves the right to adjust the exact position of plants after setting out prior to planting.

The contractor is to report any apparent discrepancy immediately to the CA. Work only to resume on such an area after the error is resolved. Any error in setting-out is to be made good at the contractor's expense.

125 TIMES OF YEAR FOR PLANTING

Deciduous trees and shrubs: Late October to late February.

Conifers and evergreens: September/ October or April/ May.

Herbaceous plants (including marginal): September/ October or March/ April.

Container grown plants: At any time if ground and weather conditions are favourable.

Watering and weed control: Provide as necessary.

Spring flowering dried bulbs, corms and tubers in early autumn, - 2nd week September to end of October inclusive or as approved

Summer and Autumn flowering bulbs at the time approved by the CA.

Colchicum (crocus): July/ August.

Green bulbs: After flowering in spring.

Wildflower plugs: Late August to mid-November or March/ April.

Aquatic plants: May/ June (preferred) or September/ October.

130A MECHANICAL TOOLS

Restrictions: Do not use within 500 mm of tree and plant stems.

Use hand tools around trees and plants and in confined spaces where it is impractical to use machinery.

145 WATERING

Quantity: Wet full depth of topsoil.

Application: Even and without damaging or displacing plants or soil.

Frequency: As necessary to ensure establishment and continued thriving of planting.

150 WATER RESTRICTIONS

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

Give notice before:

- Setting out.
- Applying herbicide.
- Applying fertilizer.
- Delivery of plants/ trees.
- Planting shrubs.

- Planting trees into previously dug pits.
- Watering.
- Visiting site during maintenance period.

Period of notice: 1 week.

165 PREPARATION, PLANTING AND MULCHING MATERIALS

General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

Certification of source, analysis, suitability for purpose and absence of harmful substances: Submit.

Give notice before ordering or using.

200A 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, disease, discoloration, weeds and physiological disorders.

Budded or grafted plants: Bottom worked.

Root system and condition: Balanced with branch system.

Standard: The National Plant Specification or as otherwise agreed.

Species: True to name.

Origin/ Provenance: Regional or British provenance.

Definition: Origin and Provenance have the meaning given in the National Plant

Specification and should comply with the local provenance standards stipulated by Flora Locale.

Written evidence of British provenance shall be provided to the CA prior to planting. If regional provenance plant material of the same quality can be secured this should take precedence.

205 BULBS/CORMS AND TUBERS GENERAL

To BS3936, Part 9

Supplied free from obvious pests, diseases and physiological disorders, materially undamaged, not shriveled and true to name;

Each bulb or corm is to exhibit one central crown or predominant shoot and be of a mature and well ripened age, (i.e. capable of flowering in first season's growth);

Bulb and corm size is to be representative of the mature species and the size (circumference) given in the schedule of quantities;

Handling: Remove from packaging immediately;

Storage: Permitted only when necessary;

Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit;

Duration: Minimum period;

Temperature: 18-21°C.

215A PLANTS/ TREES SPECIFICATION CRITERIA

Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification or as otherwise agreed.

235 CONTAINER GROWN PLANTS/ TREES

Growing medium: With adequate nutrients for plants to thrive until permanently planted.

Plants: Centred in containers, firmed and well watered.

Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.

Hardiness: Grown in the open for at least two months before being supplied.

Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

238A COIR ROLL/LOGS

Supplied pre-seeded and pre-planted to the locations and layout as specified on the Contract Drawings.

The logs are to be a minimum of 300mm diameter x 3.0m in length and are to be fixed by staking alternately to either side of the log at 0.8m centres.

The manufacturer of the roll/logs is to be Salix (tel 0370 3501852, www.salixrw.com) or similar approved. The planting specification of the rolls/logs shall be to the Planting Specification contained on the Contract Drawings. Coir rolls to be secured together in accordance with the suppliers recommendations.

Staking of coir rolls/logs: Position chestnut stakes, 1.2m long x 75mm diameter at 0.8m centres along both sides of the logs and drive into the ground. Consolidate material around the stake after backfilling to ensure integrity of the stake. Cut to approximately 100mm above finished level of the coir roll/log. Driven posts: Prevent damage to heads of posts when driving. Neatly finish post tops after installation.

243 TIMBER STAKES

Supplied to the locations, layout and dimensions as specified on the Contract Drawings.

- To be used in conjunction with coir rolls, faggots and willow spilling.
- The manufacturer of the timber stakes is to the Landscape Contractor's discretion
- Driven posts: Prevent damage to heads of posts when driving. Neatly finish post tops after installation.
- Willow stakes to be cut from species such as Crack Willow or White Willow.
- Hardwood timber stakes to be English Oak or Sweet Chestnut.
- Pealed stakes
- Stakes, 300mm, 1 m, 1.5m or 2.5m long x 40mm, 60mm, 100mm or 120mm diameter.
- Drive into the ground. Consolidate material around the stake after backfilling to ensure integrity of the stake
- For all timber items follow EA Procurement Policy, refer to EA Timber Requirements A33:751

245 LABELLING AND INFORMATION

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:

Full botanical name.

Total number.

Number of bundles.

Part bundles.

Supplier's name.

Employer's name and project reference.

Plant specification, in accordance with scheduled National Plant Specification categories.

Additional information: Submit on request: Impact of pest/ disease and propagation method and dates. Details of origin.

246 LABELLING AND INFORMATION

Standard: To BS 3936.

- 255 PLANTS/ TREES RESERVED AT SUPPLIER'S PREMISES
 Types/ Species: As plant schedule.
 Pre-delivery inspection: Give notice.
 Labelling: Identify inspected plants/ trees as reserved for use on this project.
- 260A PLANT/ TREE/AQUATIC / MARGINALS/SUBSTITUTION
 The contractor is to inform/advise the CA at the time of tendering any difficulty in supply of specified plant material.
 The contractor is to tender a realistic price for any such plant material at the time of tender.
 Acceptable and written approval of species or variety substitutions of equal quality and cost are to be determined between the CA and contractor immediately after tender.
 If between the date of tendering and date of planting, certain plants are no longer available, it is the contractor's responsibility to provide satisfactory evidence to the CA at the earliest opportunity.
 Substitutions are to be determined as above and approved in writing.
 Submit alternatives, stating:
 Price and difference from specified plants/ trees.
 Approval: Obtain before making any substitution.
- 265 PLANT HANDLING, STORAGE TRANSPORT AND PLANTING
 Standard: To HTA 'Handling and Establishing Landscape Plants'.
 Frost: Protect plants from frost.
 Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
 Plant packaging: Black polyethylene bags.
 Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
 Planting: Upright or well balanced with best side to front.
- 265A PLANT/TREE HANDLING/STORAGE AND TRANSPORT:
 Comply with CPSE 'Handling and establishing landscape plants' (obtainable from the Horticultural Trades Association) Part I, Part II and Part III, paragraphs 1.3.3 to 1.3.6, 3.0, and 4.0.
- Handle plants/trees with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle. Trees and shrubs to be carefully and adequately packed and protected to survive transport to the site without damage in loading, transit or unloading. Prices Tendered to include for packing, delivery to site and unloading.
- No plants or trees are to be delivered to site until the preparation of their planting areas and positions are practically complete. 48 hours' notice of expected delivery shall be given to the CA. Where there is unavoidable delay between delivery and planting, heel-in bare-rooted plants in a prepared trench and pack moist soil around the roots.
- Pots and other protective materials not to be removed until immediately prior to planting and plants shall not be subjected to adverse conditions such as exposure to drying winds. Plants which suffer damage through any cause or which suffer drying of roots prior to planting will not be accepted and shall be replaced. Pots and other protective materials shall be disposed of after planting. Where delay in planting means that plants in containers are likely to dry out, watering must be carried out as necessary and as agreed by the CA before the plants are removed from their containers.
- Dip all bare-root transplants in root dip according to supplier's recommendations, immediately after lifting and placed/stored in plastic bags until immediately prior to planting, in accordance with Q31:362.
- Spread roots out evenly of bare root stock

Backfill for bare root plants to be firmly heeled around the plant collar.

All plant material in full leaf, (i.e. all evergreens at all times and late spring planted for deciduous material) to have all the leaf area fully dipped in containers full of approved anti-desiccant solution mixed according to the manufacturer's instructions. Carry out immediately the plants arrive on site or at the nursery immediately prior to their collection. Provide evidence that this operation has been carried out on request.

Carefully prune damaged roots, branches or shoots. Replace trees or shrubs if major damage has occurred.

Refirm all plants if lifted by frost during the contract period.

Protect plant roots between lifting and delivery from adverse conditions such as water logging or prolonged exposure to drying winds or frosts.

280 TREATMENT OF TREE WOUNDS

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

285 PROTECTION OF EXISTING GRASS

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

290 SURPLUS MATERIAL

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

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

300A HERBICIDE TO CLEAR OVERGROWN AREAS TO BE PLANTED

Locations: All planting areas.
Type: Suitable for suppressing perennial weeds.
Timing: Allow fallow period before cultivation.
Duration (minimum): As manufacturer's recommendation.

305 WEED CONTROL FOR INVASIVE NON-NATIVE WEEDS

Locations: All planting areas.
General: Prevent weeds from seeding and perennial weeds from becoming established, by Methods approved by CA and in accordance with EA code of practice where applicable.

335 GENERAL FERTILISER SLOW RELEASE

Locations: All planting areas.
Manufacturer: Contractor's choice for CA's approval.
Product reference: Contractor's choice.
Application: Spread evenly.
Timing: Immediately before cultivation.
Rate: to manufacturer's recommendation, or as outlined below to approval of CA:
70 grams/m² for tree and shrub seeded areas.
70 grams/m² for shrub beds as a top dressing.
50 grams/bare root shrub at time of planting.

70 grams/whip or transplant at time of planting.
 100 grams/small feather.
 100 grams/light feather or large feather.
 140 grams/standard or selected standard.
 250 grams/extra heavy standard or heavy standard

- 341 PEAT
 Do not use peat or products containing peat.
- 361 PEAT FREE COMPOST PART OF BACKFILL MATERIAL
 Locations: All ornamental planting areas.
 Type: Sanitized and stabilized compost.
 Manufacturer/ Supplier: Contractor's choice.
 Product reference: Contractor's choice.
 Standard: To PAS 100.
 Horticulture parameters:
 pH (1:5 water extract): 7.0-8.7.
 Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
 Moisture content (m/m of fresh weight): 35 -55%.
 Organic matter content (minimum): 25%.
 Grading (air dried samples): 99% passing 25 mm screen, and 90% passing 10 mm screen mesh aperture.
 Carbon: Nitrogen ratio (maximum): 20:1.
 Texture: Friable.
 Objectionable odour: None.
 Composting Association certification: Required.
 Application: Spread evenly.
 Timing: Apply prior to cultivation.
 Rate: 270 litres per extra heavy tree pits
 80 litres per 5m² planting bed.
 Or as otherwise directed by CA.
 Other requirements: Local source.
- 362 ROOT DIP AT PLANTING
 Product name: Alginure root dip or similar equivalent approved by the CA.
 Manufactured by Alginure Products Ltd or similar approved
 All bare root plants to be dipped (entire root system and lower 150mm of stem) in root dip solution prior to planting in accordance with manufacturer's recommendations.
- 375A CULTIVATION
 Compacted topsoil: Break up to full depth. Avoid disturbance of subsoil.
 Cultivation: Loosen, aerate and break up soil into particles of 28 mm size.
 Depth: 300mm.
 Timing: Within a few days before planting.
 Weather and ground conditions: Suitably dry.
 Surface: Leave regular and even.
 Levels: As shown on drawings to suit final levels.
 Incorporate compost at a rate of 12 litres per m² by mechanical means or by hand (ornamental shrub planting only).
 Incorporate slow release fertiliser into the top 300mm of topsoil at a rate of 70 grams per m² by mechanical means or by hand.
 Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 38 mm.
 Reduce top 50mm of topsoil to a fine tilth.
 Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

PLANTING SEEDLING TRANSPLANTS / SHRUBS / AQUATICS / MARGINALS / HERBACEOUS PLANTS / BULBS

- 400A Planting layout: To be as shown on drawings.
Density: As shown on planting schedules.
- 405A **PLANTING PITS**
Timing: Excavate 1-2 days (maximum) before planting.
Sizes: Sufficient size to accommodate roots when fully spread or root ball and 75mm deeper than root system.
Pit bottom improvement. Break up to a depth of 150 mm, incorporating 25 g of slow release fertilizer per planting pit.
- 413 **COIR FIBRE ROLLS**
Install to manufacturers recommendations. Exact locations to be agreed with the CA.
- 471 **NATURALISED HEDGES**
Planting: In trenches large enough to take full spread of roots. Set out plants evenly as scheduled.
Protection: refer to Clause 487A.
- 475 **BACKFILLING MATERIAL**
A previously prepared 50:50 mixture of topsoil and peat free compost to PAS100 to depth of trench / planting pit.
- 480 **AFTER PLANTING**
Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
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.
Ameliorant / Conditioner: TBC by CA.
Fertilizer: TBC by CA.
- 485A **MULCHING PLANTING BEDS, ORNAMENTAL PLANTING BEDS AND HEDGEROW**
Material: Amenity grade bark mulch.
Purity: Free of pests, disease, fungus and weeds.
CA to inspect sample load which shall be retained for comparison with subsequent loads. No mulch shall be spread prior to sample being approved. The CA shall reserve the right to reject the sample or any subsequent loads which do not in his/her opinion match the approved sample.
Preparation: Clear all weeds. Only spread when the soil is moist. Water soil thoroughly if the weather is dry.
Coverage: 75 mm depth.
Finished level of mulch: to suit final topsoil levels or as directed on site.
- 487A **PROTECTION**
Tree shelters
Green, UV stabilised polypropylene with 2 ratchet tie attachments. Flared rim to reduce abrasion with twin wall construction. 75-105mm diameter, 750mm high.
- Shrub shelters,
Shrub shelters in the form of biodegradable translucent plastic tubes 130-160mm diameter, 750mm high, shall be used. The top edge of shelters shall be formed to prevent abrasion damage to the enclosed plants.
- Spiral guards

Clear/transparent, recycled PVC, photodegradable, 50mm diameter, 750mm high. Wrapped around the lower stem of feathered, standard, selected standard and heavy standard trees Bamboo cane support inside guard where required.

Shelters shall be fixed using softwood or hardwood stakes. Dimensions shall be 1000mm x 25mm x 25mm with a four-way point or as approved prior to use. Ensure the stake is below the flared rim at the top of the shelters and is inserted into the ground to at least one third of the stake height. Push the shelter lightly into the ground to remove the gap at the base.

All shelters, spiral guards and associated stakes or cane supports to be removed from plants and recycled during or at the end of the 5 year establishment aftercare period as part of the contracted works.

489 PLANTING BULBS:

Planting carried out by the use of a trowel, bulb auger or spade. On no account must a dibber be used, to prevent a hollow triangular cavity remaining under the bulb after planting.

Prior to planting, take all necessary measures to prevent fungal and eelworm attack during the first growing season.

Depth guide – soil covering of 2 x depth of bulb as measured from crown, to be used for planting depth.

Bulbs etc to be arranged in natural groups and care taken to ensure same depth planting for each group of bulbs, to promote uniform flowering.

Bulbs etc to be placed on a layer of coarse sand and tree planting compost/topsoil mixture.

PLANTING TREES

505A TREE PITS

Shall be excavated to at least the minimum dimension for the size of tree as indicated on the table below (unless detailed differently on project specific drawings, if so, confirm size with CA):

Tree size	Semi-mature	Extra heavy standard	Heavy standard	Selected standard	Standard	Light standard	Large feather
Minimum tree pit size	1500 x 1500 x 1000	1200 x 1200 x 750mm	1000 x 1000 x 750mm	900 x 900 x 600mm	900 x 900 x 600mm	750 x 750 x 600mm	750 x 750 x 600mm

Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.

Pit bottoms: With slightly raised centre. Break up to a depth of 200 mm.

•Pit sides: Scarify.

Backfilling material: Back fill in top 300mm of the pit with mix of 50% topsoil (existing or to BS3882:2015) and 50% peat-free organic planting compost with a pH of 6.5-7.5. Incorporate 'Enmag' slow release fertiliser tablets in accordance with manufacturer's recommendations. Lower depth of pit to be back filled with site won sub soil.

Accessories: Fit irrigation / ventilation tube with cap and chain (to be approved) to each tree.

Additional accessories to be provided as shown on drawings.

513 LINER TO TREE PITS

Tree pits within 3 metres of underground gas pipes, electric cables or drains shall be lined to prevent root damage with the following:

- Product: Tektaroot or similar approved
- 1500mm dia x 900mm deep x 3mm thickness
- 1200mm dia x 900mm deep x 3mm thickness

514 IRRIGATION PIPE

During backfilling operations, in stall a 100mm diameter perforated UPVC flexible pipe with sealed/stoppered lower end and a removable upper cap, black colour, connected with a proprietary fixing to the pipe.

Coil once around the rootball at half its depth.

Open end to protrude 50mm above finished soil level.

Pipe to be filled with fresh water to overflowing.

535A STAKING GENERALLY

Stakes: To BS 4043. Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.

Nails: To BS 1202 1, galvanized, minimum 25 mm long and with 10 mm diameter heads.

Stake sizes as per table below:

Tree size	Semi-mature*	Extra heavy standard	Heavy standard	Selected standard	Standard feather	Light feather	Large feather
Minimum diameter	125mm <i>half round</i>	100mm	100mm	75mm	75mm	75mm	75mm
Overall length	2.0m	2.0m	2.0m	1.8m	1.8m	1.6m	1.6m
Height above ground	0.5m	0.5m	0.5m	0.5m	0.3m	0.3m	0.3m
No. of stakes per tree (As per Clauses 555 and 575)	2	1-2	1-2	1	1	1	1

*Staking not required if underground guying is used.

575 LONG DOUBLE STAKING FOR ROOT BALLED TREES

Staking: Drive stakes vertically at least 300 mm into bottom of pit on either side of tree position before planting.

Backfilling: Consolidate material around stakes.

Firmly fix on windward side of tree and as close as possible to stem.

Ties: Reinforced rubber buckle ties with spacers.

Tying: Secure tree firmly but not rigidly to stakes.

586A TREE BACKFILLING MATERIAL

Composition: Previously prepared 50:50 mixture of topsoil and peat free compost to PAS100.

Fertilizer: Slow release fertiliser.

Application rate: To manufacturer's recommendations.

590 MULCHING TREES

Material: Amenity grade bark mulch.

Purity: Free of pests, disease, fungus and weeds.

Preparation: Clear all weeds. Water soil thoroughly.

Coverage: In a circular area of 500 mm radius measured from the tree stem.
 Finished level of mulch: 30 mm below adjacent grassed or paved areas.

596 TREE PROTECTION
 Refer to clause 487A.

WOODLAND/MATRIX/BUFFER ZONE PLANTING (GISHWICK BOTTOMS)

600 WOODLAND WORK GENERALLY

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.
 Safety: Comply with Arboriculture and Forestry Advisory Group Safety leaflets.

605 EXISTING VEGETATION/ WEED CLEARANCE

Surface vegetation clearance: In areas shown on drawings, using suitable non-residual herbicide to form tree circles measuring 1m diameter or if directed screen an area 1m diameter around each planting location.
 Arisings: Remove.

625 CULTIVATION

General: Cultivate along planting lines or general areas as directed to make suitable for planting.
 Soil within root spread of trees to be retained: Do not plough or cultivate.

635 NOTCH PLANTING IN UNCULTIVATED GROUND

Notching: Make a vertical 'I', 'L', 'T' or 'H' notch adjacent to ripping furrows at spacing specified.
 Depth: To accommodate full depth and spread of roots.
 Planting: Soak all bare root plants in water/root dip solution immediately before planting, in accordance with Q31:362. Scatter 50 grams slow release fertilizer in accordance with Q31:335 into the planting notch at the time of planting.
 Plant tree upright at nursery level, close notch with the root collar at ground level and firm well in.
 Prune all plants back to bud nearest 200mm at planting or as agreed with CA.
 All plants to be well watered in within 72 hours of planting.
 Tree/shrub protection as per clauses 487 A

680 SETTING OUT

Planting density: As shown on 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.. Group sizes as indicated on drawings or as directed on site.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

701A PRACTICAL COMPLETION CERTIFICATE FOR EXTERNAL PLANTING

Before a Certificate of Practical Completion or letter accepting 'The Works as complete' is issued, the following conditions must be fulfilled:

1. All work must be fully completed and in accordance with the specification on the day named in the Certificate. Sectional Completion will only be at the discretion of the CA.
2. The contractor is responsible for any protection and maintenance as specified herein, required before practical completion at his own cost. The work shall be completely in accordance with the specification in a weed free and clean and tidy condition on the day named in the certificate.
3. All planted material shall be healthy and correctly located.
4. All hard surfaces should be swept and litter free.

702 RECTIFICATION PERIOD (DEFECTS LIABILITY PERIOD)

All soft landscape works will be subject to a rectification period (formerly known as the defects liability period) from the date of Practical Completion. During these periods the contractor will be required to

carry out maintenance operations as specified and make good all defects and work which in the opinion of the CA is unsatisfactory.

703 FAILURES OF PLANTING

Post Practical Completion maintenance of the planting is to be carried out by the landscape contractor as specified in this section and also in section Q35. Any trees/shrubs/plants which are dead, dying, or otherwise defective at the end of the rectification period will be regarded as defects due to materials or workmanship not in accordance with the contract. They must be replaced by approved equivalent trees/shrubs/plants at the next suitable planting season unless otherwise instructed. This will not apply if the defects are caused by malicious damage after Practical Completion.

704 WARRANTY OF EXTRA HEAVY TREES

The contractor is to provide a five (5) year warranty on the survival of trees to cover the cost of their replacement in the event of death by natural causes.

Evidence of the warranty to be provided to the Environment Agency on in advance of the commencement of maintenance operations.

Trees to be replaced to species, sizes and form as originally specified/supplied.

Commencement of warranty shall be at Practical Completion.

This clause is additional to clause 703.

710A MAINTENANCE DURING RECTIFICATION PERIOD

Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period or as otherwise directed.

Frequency of maintenance visits: In accordance with the agreed maintenance schedule

740 CLEANLINESS

Soil and arisings: Remove from hard surfaces and grassed areas.

General: Leave the works in a clean tidy condition at completion and after any maintenance operations.

750A PLANTING MAINTENANCE GENERALLY

Weed control: Maintain weed free area around each tree and shrub.

Diameter (minimum): The larger of 1 m or the surface of original planting pit.

Keep planting beds clear of weeds: By use of approved non-residual herbicides.

Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambium and no hollows.

Take care not to reduce depth or effect of mulch.

Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.

Staking: Check condition of stakes, ties, guys and guards.

Broken or missing items: Replace.

Rubbing: Prevent.

Ties: Adjust to accommodate growth.

Damage to bark: Cut back neatly with sharp knife. Prevent further damage.

Frequency of checks: At each scheduled maintenance visit.

Allow for removal of stakes, cross bars and ties upon completion of the maintenance operations upon direction of the CA

Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/shrubs.

Trees: Spray crown when in leaf during warm weather if directed to do so.

Timing: After dusk.

Watering: During establishment, ensure that sufficient water is applied to maintain healthy growth, this shall be included in the Contractor's rates.

755 PLANTING MAINTENANCE FERTILISER

Time of year: March or April.

Fertiliser: Slow release.

Manufacturer: Contractor's choice to be approved.

Product reference: Contractor's choice to be approved.

Application: Evenly spread, carefully incorporating below mulch materials.

Application rate: As per Clause Q31: 335 or to manufacturer's recommendations.

760 PLANTING MAINTENANCE PRUNING

General: Prune to promote healthy growth and natural shape.

Dead, dying, diseased wood and suckers: Remove.

Timing: In accordance with the agreed maintenance schedule.

Trees: Favour a single central leading shoot.

Arisings: Remove.

780 MAINTENANCE INSTRUCTIONS

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

Timing: At end of the maintenance period.

Watering: Ensure that soil is thoroughly moistened prior to re-mulching, applying water where necessary.

Planting beds: Remulch.

Depth (minimum): 75 mm.

Trees: Remulch.

Depth (minimum): 75 mm.

11. Q35 Landscape Maintenance

To be read with Preliminaries/ General conditions. This maintenance specification is for work post Practical Completion.

GENERALLY

100 ESTABLISHMENT MAINTENANCE PROGRAMME

The contractor shall supply a site specific establishment maintenance programme to the CA for approval before the granting of Practical Completion, encompassing the proposed frequency of maintenance visits and key operations envisaged at each visit;

The contractor shall include for maintaining all grassed areas, shrub beds and planted trees within the site boundary, and along any site boundary fencing, from the date that the site is made available to the contractor until the date of full completion of works;

Appropriate nesting bird checks should be undertaken (also refer to Q35:220 for grass cutting); Invasive plant species checks should be undertaken before each maintenance operation;

The contractor is to complete each maintenance visit to specification within 1 week of each programmed visit date specified in the maintenance programme.

101 ESTABLISHMENT MAINTENANCE SCHEDULE SHEET

A standard Establishment Maintenance Schedule Sheet is provided at the rear of this document. Within three (3) working days of completion of each programmed visit, the contractor must complete, sign and return a photocopy of the standard sheet to the CA (or alternative agreed representative).

The CA may from time to time issue a replacement Establishment Maintenance Schedule Sheet with covering instruction as necessary, at least one week prior to a scheduled visit listing additional items for specific attention, but not excluding items of the contract unless so instructed. This Sheet will be signed and returned instead of the standard sheet within 3 working days of completion of the programmed visit. Any item agreed to be additional work must be quoted for and authorised before commencement.

Only ticked items on the Establishment Maintenance Schedule Sheet, signed and returned by the contractor, and subsequently confirmed as satisfactorily undertaken by the CA will be authorised for payment. Late submission of this form shall not be accepted and visits are unlikely to be authorised for payment.

110 NOTICE

Give notice before:

Application of herbicide.

Application of fertiliser.

Watering.

Each site maintenance visit.

Period of notice: One week minimum.

115 UNAUTHORISED MAINTENANCE VISITS

Any additional maintenance visit for which the contractor has not received a specific written request from the CA shall not be authorised for payment.

120 PLANTING MAINTENANCE GENERALLY

During the maintenance period specified, carry out maintenance of the contract areas as follows:

Make visits as agreed in the programme (Clauses Q35:110) and for specific operations during the rectification period (Clauses Q31: 710A-790), and beyond (Q35: 125-930);

Additional visits: In addition to the foregoing visits, the contractor may be required to make such other visits as may be deemed necessary for rectification of damage or as may be necessary to maintain the planted areas in a healthy and thriving condition;

Any damage to planting by the contractor shall be made good at the contractor's own cost.

125 WEED CONTROL

Beds, fence lines and hard surfaces shall be kept free from annual and perennial weeds by manual and/or chemical methods;

Pesticides to be strictly in accordance with Clause A34: 346 and 347. Proprietary brands of contact, translocated and residual herbicides only to be used;

If in the opinion of the CA, weed control methods have not been carried out effectively, including any herbicide applications, the contractor will be required to return between planned maintenance visits to carry out further weed control measures at his own expense within seven (7) days of notification and will be expected to submit a completed Establishment Maintenance Schedule Sheet;

Persistent weeds shall be forked out, including roots, unless damage will be caused to shrubs, in which case chemical control may be used, applied with a weed wipe or similarly controlled non-sprayed applicator. All weeds over 200mm height to be removed by hand operation;

The use of any herbicide shall be deemed to be included within tendered rates for maintenance. All herbicides shall have an approved dye added to indicate coverage.

130 REINSTATEMENT

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

140 CONTROL OF MAMMALIAN PESTS

Specialist firms: Submit proposals.

- Method: Submit proposals.

155A WATERING

The Contractor shall inspect the site at regular intervals and determine when watering is necessary and on so doing undertake watering if required and as necessary for the continued thriving of all plants and grassed areas;

The Contractor shall be held responsible for any losses incurred due to a failure on his part to undertake a watering visit. This being of key importance during periods of drought;

The Contractor shall include for provision of hoses, bowsers, water carts and sprinkler attachments and any water charges in the price quoted for watering;

Water the beds and tree pits until entire depth of topsoil/backfill mixture is saturated;

The Contractor shall quote at the time of tendering his rate for watering the entire site on the above basis;

Application: Do not damage or loosen plants;

Compacted soil: Loosen or form depressions, to direct water to root zone.

160A WATER RESTRICTIONS

General: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. The contractor will be required to arrange to collect and apply second class water by bowser or other means from an approved source, deliver to sites and apply as specified. Obtain CA's approval before using a supply other than mains water. During imposed drought

situations, different water companies have different approaches to use of water for landscape schemes, the contractor should contact the relevant company to confirm approach.

170 DISPOSAL OF ARISING

General: Unless specified otherwise, and to CA's approval, dispose of arisings as follows:

Biodegradable arisings: Compost on site where facilities available.

Grass cuttings: Remove from site.

Tree roots and stumps: Remove from site.

Shrub and tree prunings: Remove to recycling facility.

Litter and non-biodegradable arisings: Remove from site.

180A CHIPPING OR SHREDDING

General: Not permitted on site unless requested and approved by CA.

181 MECHANICAL EQUIPMENT

General: Minimize.

Prohibited equipment: Flails not to be used on tree planting.

Timing: As approved by CA.

190A LITTER

During the course of each maintenance visit, the contractor is responsible for removal and disposal of all deleterious items, litter, fallen branches, and other rubbish leaving the site in a clean and tidy state. Hard surfaces adjoining planted areas shall be swept clear of soil, mulch, other arisings and litter at each maintenance visit.

Graffiti and fly posted bills shall be removed as directed and instructed by the CA.

195 PROTECTION OF EXISTING GRASS / OTHER SURFACES

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

197 CLEANLINESS

Soil and arisings: Remove from hard surfaces.

General: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

198 CONTROL OF JAPANESE KNOTWEED

1. Any treatment, removal, or excavation works in the vicinity of Japanese Knotweed must be undertaken in conjunction with a Management Plan for Japanese Knotweed. This will be provided to the contractor by the CA prior to the commencement of works.
2. The Contractor will be required by the Management Plan to provide a schedule for control and monitoring activities. Relevant information will also need to be provided by the contractor for recording in the Herbicide records and Waste records sections of the Management Plan.
3. The Environmental Protection Act 1990 (EPA 1990) contains a number of provisions concerning "controlled waste", which are set out in Part II. Any Japanese Knotweed contaminated soil or plant material that is to be discarded is likely to be classified as controlled waste. The most relevant provisions are in sections 33 and in section 34 (Duty of Care). Refer to the Environment Agency Code of Practice "Managing Japanese Knotweed on development sites".
4. Avoid spreading rhizomes by following the guidance given within the Code of Practice. If you spread rhizome into the environment, you may be liable to prosecution under the Wildlife and Countryside Act 1981.
5. Operations: Spot treat in August-September during suitable weather conditions and when plants are growing vigorously to the approval of the CA, or as otherwise identified in the Management Plan.
Herbicide: To be approved.

Application: To manufacturer's recommendations.

Arisings: Remove to licensed tip in accordance with current C.O.S.H.H. Regulations and the EPA 1990.

6. The contractor is reminded that the Control of Pesticides (Amendment) Regulations 1997 requires any person who uses a pesticide to take all reasonable precautions to protect the health of human beings, creatures and plants, safeguard the environment and in particular avoid the pollution of water. For application of pesticides in or near water, approval from the Environment Agency must be sought before use, allowing appropriate time for a licence to be obtained.

GRASSED AREAS

210 MAINTENANCE OF GRASSED AREAS

(Initial cuts pre Practical Completion refer to Clause Q30: 505–601)

General: Maintain turf in a manner appropriate to the intended use.

Soil and grass:

Condition: Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.

Water logging and compaction: Prevent.

Damage: Repair trampling, abrasion or scalping.

Ornamental areas: Maintain reasonably free from excessive thatch, weeds, frost heave, worm casts and mole hills.

Edges: Neat and well defined, in clean straight lines or smooth flowing curves.

Litter and fallen leaves: Remove regularly to maintain a neat appearance.

220 GRASS CUTTING GENERALLY

Before mowing: Remove litter, rubbish and debris.

Before mowing (01 March – 31 Aug): ensure appropriate nesting bird checks have been undertaken. If any nesting birds are present, inform CA and obtain instruction before proceeding.

Finish: Neat and even, without surface rutting, compaction or damage to grass.

Edges: Leave neat and well defined. Neatly trim around obstructions.

Adjoining hard areas: Sweep clear and remove arisings.

Drought or wet conditions: Obtain instructions.

225 TREE STEMS

Precautions: Do not use mowing machinery closer than 500 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.

235 BULBS AND CORMS IN GRASSED AREAS

Before flowering: Do not cut.

Interval between end of flowering and start of grass cutting (minimum): To approval of CA.

250 LEAF REMOVAL

Operations: Collect fallen leaves.

Special requirements: To approval of CA.

Disposal: Off site.

265A MOWING GENERAL AREAS

Refer to Clause Q30: 620A. (Refer also to clause Q35:220)

272 MAINTAINING GRASSED AREAS WITH WILD FLOWERS

Preparation: Before each cut remove litter and debris.

Height and frequency of cut in first growing season:

Time of first cut: June/July.
 Height of first cut: 50mm.
 Frequency of subsequent cutting (minimum): Twice per year.
 Height of growth permitted (maximum): 150 mm until established.
 Height and frequency of cut in second growing season:
 Time of cut: First cut in late August/Early September and second cut between October and December.
 Height of cut: 50 mm.
 Trimming: All edges.
 Arisings: Remove.
 Watering: As required.

285A TOP DRESSING

- Refer to clause Q30:680A

290 ROLLING

Location: As directed.
 Timing: After first cut of season.
 Roller: Type to be approved by CA.
 Operations: Consolidate turf and reduce frost heave.

295 SPIKING

Location: As directed.
 Timing: To approval of CA.
 Operations: Aerate the soil and improve surface water penetration.
 Depth (minimum): 75mm.

300 SCARIFYING

Location: As directed.
 Timing: To approval of CA.
 Operations: Relieve thatch conditions and remove dead grass.
 Depth (maximum): 50mm.
 Arisings: Remove from site.

305 HARROWING

Location: As directed.
 Timing: As approved by CA.
 Operations: Aerate soil and remove worm casts.
 Type of harrow: Chain harrow or drag mat.

307 HOLLOW TINIING

Location: As directed.
 Timing: As approved by CA.
 Depth: 125mm.

309 EDGES TO SEEDED AREAS

Location: Planting beds and around newly planted trees.
 Timing: After seeded areas are well established.
 Edges: Cut to clean straight lines or smooth curves. Draw back soil to permit edging.
 Arisings: Remove.

310 REFORMING GRASS EDGES

Location: As directed.
 Edges: Draw back soil and reform edges to clean straight lines or smooth flowing curves, sloping slightly back from vertical.

- 330 **SELECTIVE HERBICIDE**
 Location: As directed.
 Herbicide: Suitable herbicide for use and as notified to CA.
 Areas not to be sprayed: As directed.
- 340 **SPOT WEEDKILLING IN ROUGH GRASS AREAS**
 Herbicide: Suitable for use.
 Operations: Spot treat injurious weed species listed in the Weeds Act 1959 and Wildlife and Countryside Act 1981.

FERTILISER APPLICATION

- 350 **FERTILISER- SPRING APPLICATION**
 Type: Slow release to be approved.
 Application rate : As per Clause Q31: 335 or to manufacturer's recommendation.
- 360 **FERTILISER- AUTUMN APPLICATION**
 Type: Slow release to be approved.
 Application rate: As per Clause Q31: 335 or to manufacturer's recommendation.
- 375 **PEST CONTROL**
 Location: As directed.
 Treatment: To be notified to CA.
 Manufacturer: Suitable supplier to be notified to CA.
 Product reference: As applicable.
 Timing: To be approved by CA.
- 381 **REINSTATEMENT OF WORN OR DAMAGED LAWNS**
 Worn or damaged areas: Make good by returfing or reseeding:
 Returfing standard: To BS 7370-3, Clause 12.2.
 Reseeding standard: To BS 7370-3, Clause 12.6.
 Turf or seed: To match existing in appearance and quality.
 Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

SHRUBS/TREES/WOODLAND/HEDGES/WETLAND AREAS

- 500 **ESTABLISHMENT OF NEW PLANTING**
 Duration: 5 years as detailed in section 4 of the LHEMPs (Document References: ENV0000009C-JAC-ZZ-ZZ-SP-L-0001 and 0003)
 Weed control:
 Method: Keep planting beds clear of weeds by approved herbicide or full thickness of mulch where specified.
 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.
 Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
 Trees: When in leaf, spray crowns during warm weather if directed to do so.
 Timing: After dusk.
 Watering: To ensure establishment and continued thriving of planting.
- 502 **ESTABLISHMENT OF NEW PLANTING FERTILISER**
 Time of year: March or April.
 Type: Slow release to be approved.
 Spreading: Spread evenly. Carefully lift and replace any mulch materials.

Application rate: As per Clause Q31: 335 or to manufacturer's recommendation.

- 510 **TREE STAKES AND TIES**
 Inspection/ Maintenance times: As scheduled and immediately after strong winds.
 Stakes:
 Replace loose, broken or decayed stakes to original specification. If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
 Ties:
 Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing. Where chafing has occurred, reposition or replace ties to prevent further chafing.
 Removal of stakes and ties: At end of fifth year of maintenance or when instructed.
 Fill stake holes with lightly compacted soil.
- 520 **REFIRMING OF TREES AND SHRUBS**
 Timing: After strong winds, frost heave and other disturbances.
 Refirming: Tread around the base until firmly bedded.
 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.
- 523 **SHRUB PROTECTION**
 Loose or defective tubes / protection: Adjust, refix or replace to original specification and to prevent chafing.
 Removal: When instructed or on final maintenance visit. Confirm with CA before removal.
- 525 **TREE GUARDS**
 Loose or defective guards: Adjust, refix or replace to original specification and to prevent chafing.
 Removal: When instructed or on final maintenance visit. Confirm with CA before removal.
- 530 **TREE SHELTERS**
 Loose or defective shelters: Adjust, refix or replace shelter and / or stake to original specification and to prevent chafing.
 Removal: When instructed or on final maintenance visit. Confirm with CA before removal.
- 540 **PRUNING GENERALLY**
 Pruning: In accordance with good horticultural and arboricultural practice.
 Removing branches: Do not damage or tear the stem or bark.
 Wounds: Keep as small as possible and cut cleanly back to sound wood.
 Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
 Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
 Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well-balanced natural appearance.
 Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
 Disease or infection: Give notice if detected.
 Growth retardants, fungicide or pruning sealant: Do not use unless instructed.
 Arisings: Remove off site to suitably licensed recycling facility or tip unless otherwise instructed.
- 545 **PRUNING OF EXCESSIVE OVERHANG**
 Timing: When instructed.
 Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
 Special requirements: None.

- 555 PRUNING TREES AND SHRUBS
Standard: To BS 73704.
Special requirements: None.
- 575 PRUNING ORNAMENTAL SHRUBS
General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
Suckers: Remove by cutting back level with the source stem or root.
- 580 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES
Time of year:
Winter flowering shrubs: Spring.
Shrubs flowering between March and July: Immediately after the flowering period.
Shrubs flowering between July and October: Back to old wood in winter.
Rose bushes: Early spring to encourage basal growths and a balanced, compact habit.
- 615A HEDGE MAINTENANCE
No trimming or clipping shall take place during the bird nesting season. The bird nesting season to apply to this contract is March to August inclusive. Once established hedgerows to be cut biennially in February where safety and sightlines are not compromised. Hedges to be cut at the same time each 2nd year. Standard trees within hedgerows to be protected from lopping during hedge cutting by 2no. 2m stakes on either side of tree pit. Hedges to be cut so that they have straight sides and a flat top.

All *Salix fragilis* to be assessed for pollarding to a height of 3m above ground level during year 3 of the maintenance period and findings reported to CA. Implementation to be subject to agreement with the CA. All arisings to be removed off site to a licensed tip.
Hedge height to be maintained at 1.2m high or as agreed with the CA. Shrub Mix A to be maintained at a height of 1.0m or as agreed with the CA.
- 620A REMOVAL OF DEAD PLANT MATERIAL
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.
Removal: Within one week of notification.
Replacement: Wholly dead plants shall be retained until the rectification site visit for replacement in the next suitable planting season, unless otherwise advised by the CA.
- 635A REINSTATEMENT OF SHRUB HEDGE/ TREE/ WOODLAND/ HERBACEOUS AREAS Annually
Dead, damaged plants and missing plants: Remove at next making good defects.
Mulch/ matting materials:
Carefully move to one side and dig over the soil, leaving it fit for replanting.
- Do not disturb roots of adjacent plants.
Replacement plants:
Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
Additional requirements: Water in thoroughly.
Dressing: Slow release fertiliser: Type: To be approved.
Application rate: As per Clause Q31: 335 or to manufacturer's recommendation.
Timing: Replacements to be planted in the first planting season after failures have been identified.
- 645 WEED CONTROL GENERALLY
As per Clause Q35:125. In addition:
Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm height.
Adjacent plants, trees and grass: Do not damage.
- 650 HAND WEEDING

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

670 WEED CONTROL WITH SUMMER HERBICIDE

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

680 SOIL AERATION

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

690 MAINTENANCE OF LOOSE MULCH

Refer to Clause Q31: 485A and 590.
 Thickness (minimum): 75 mm.
 Top up: As scheduled and/or instructed.
 Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
 Weeding: Remove weeds growing on or in mulch by hand weeding. This operation shall occur on the last maintenance visit prior to handover and completion. If fertiliser is specified, it should be applied prior to mulching in accordance with Clause Q31: 335.

720A THINNING AND COPPICING

Thinning operations shall be undertaken by means that avoid the need for pruning or crown lifting of retained plants, particularly to those on the outer edges. Trees or shrubs to be coppiced shall be new native bare root planting 1m -4m height, 3-6 years old. Species to include willow spp, hawthorn, blackthorn, hazel, birch and dog rose or as directed. Thinning should be undertaken in maximum 5 year cycles.

Thinning shall be carried out throughout the identified planted areas. Unless otherwise stated, thinning shall favour the retention of the strongest trees and those that offer the longest future useful life. Adequate spacing shall be created between the trees and shrubs to promote healthy future development of the crowns of the remaining trees. Edge treatment shall favour the maximum retention of lower branches and an understorey of younger trees or shrubs where these are present. All plants to be thinned shall be cut down to between 25 - 30 mm of ground level parallel with the slope of the ground.

Plants to be coppiced shall be cut down to 50 mm above ground level if being coppiced for the first time. If coppiced previously, the plants shall be cut back to the previous point of coppicing but with the cuts positioned outside the branch collar. The final wound surface shall be smooth and angled to allow water runoff. Cut surfaces shall not be treated with herbicide.

Coppiced arisings shall be neatly stacked on site or chipped/extracted as scheduled.

TREE WORK

810 TREE WORK GENERALLY

Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
 Protection: Avoid damage to neighbouring trees, plants and property.

Standards: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.

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.

Appearance: Leave trees with a well balanced natural appearance.

Chain saw work: Operatives must hold a Certificate of Competence.

Tree work: ***To be carried out by an approved member of the Arboricultural Association following the good practice and guidance in BS 5837.***

811 ARBORICULTURE: GENERALLY

All work specified in this Clause shall be undertaken in accordance with BS 3998, except that cuts and wounds shall not be treated with a fungicidal sealant, bitumen or latex paint, unless otherwise stated. Where permission has been obtained to carry out any work under this Contract on trees covered by a Tree Preservation Order or in a Conservation Area. A copy of the consent will be made available to the contractor.

The Contractor shall comply with the current Forestry and Arboriculture Safety & Training Council (FASTCO) recommendations in relation to all aspects of the arboricultural works.

If any defect is found within a tree during the course of carrying out work which would render the specified work inappropriate or inadequate, the Contractor shall cease work and notify the Contract Administrator (CA) who shall agree any appropriate alternative action which is to be taken. Where such a defect constitutes an imminent threat to public safety or property, the Contractor shall take appropriate action to exclude the public from the area of danger, notify the Contract Administrator immediately, and protect the location until the CA issues further instructions.

No tree work shall be carried out during periods of extreme weather except in emergency situations. Except in an emergency incident, the removal of live wood from any species shall not be undertaken during periods of severe frosts. In such cases, the work carried out shall be the minimum required to render the tree safe or to allow removal from the carriageway.

Except in an emergency incident, tree surgery, felling, thinning and coppicing operations shall only be undertaken within the dormant season and outside the bird nesting season.

All mature trees shall be checked for bat roosts in any cavities, before arboricultural works are carried out. Any bat roosts shall be reported to the Contract Administrator and no works shall be carried out on any tree in which bat roosts are located without further written instructions from the Contract Administrator. The inspection for bat roosts and any subsequent action thereon must be carried out by appropriately licensed personnel.

All tools shall be surface sterilised with methylated spirits after use on trees which are known or suspected to be diseased.

When using tower wagons or cranes the Contractor shall ensure that manufacturer's safety limits are not exceeded. Demountable towers shall have all fastening brackets secured and shall only be used on the appropriate vehicle.

Climbing irons shall not be used in the pruning of live trees and shall only be used during felling or dismantling operations when this is necessary during emergency works.

No trees are to be used as winch anchors without the prior consent of the Contract Administrator and these shall be protected. Alternative types of winch anchor may be used provided they are appropriate for the conditions prevailing at the Site and the task to be undertaken and are of a recognised arboricultural type.

812 TREE SIZE CATEGORIES

(Category A to G) reflect the extent to which tree surgery and felling works will be regarded under the Contract as being affected by the tree size and habit. Trees are categorised by Tree Size Factor, which is calculated from the following formula:

Tree Size Factor = Height x Mean Crown Spread x Branch Density Factor

Height and Mean Crown Spread measurements should be taken to the nearest metre, as follows:

(a) Height of tree measured in metres from ground level to the apex of the crown;

(b) Mean Crown Spread is calculated by adding the measurements in metres of the spread of the tree’s crown along the north-south and east-west axes and dividing by two. The Branch Density Factor is 1.0 or 1.25 depending on species, as listed below:

Normal species: Branch Density Factor = 1.0

- Maples (Acer species & cultivars)
- Horse-chestnut (Aesculus species & cultivars)
- Alder (Alnus species & cultivars)
- Birch (Betula species & cultivars)
- Sweet Chestnut (Castanea species & cultivars)
- Beech (Fagus species & cultivars)
- Ash (Fraxinus species & cultivars)
- Walnut (Juglans species & cultivars)
- Pine (Pinus species & cultivars)
- Plane (Platanus species & cultivars)
- White poplar (Populus alba)
- Black Poplar (Populus nigra)
- Aspen (Populus tremula)
- Balsam Poplar (Populus balsamifera)
- Wild Cherry (or Gean) (Prunus avium & cultivars)
- Japanese Cherry (Prunus ‘Kanzan’)
- Pear (Pyrus species & cultivars)
- Pedunculate Oak (Quercus robur)
- Turkey Oak (Quercus cerris)
- Red Oak (Quercus rubra)
- False Acacia (Robinia pseudoacacia)
- Willow (Salix species & cultivars)
- Larch (Larix species & cultivars)

Heavy species: Branch Density Factor = 1.25

- Hornbeam (Carpinus betulus)
- Hawthorn (Crataegus species & cultivars)
- Cypress (Chamaecyparis species & cultivars)
- Crab Apple (Malus species & cultivars)
- Columnar poplar (Populus alba ‘Fastigiata’)
- Italian Poplar (Populus nigra ‘Italica’)
- Japanese Cherry (Prunus ‘Amanogawa’)
- Purple Cherry (Prunus cerasifera ‘Nigra’)
- Bird Cherry (Prunus padus & cultivars)
- Holm Oak or Holly Oak (Quercus ilex)
- Columnar Pedunculate Oak (Quercus robur ‘Fastigiata’)
- Rowan and Whitebeam (Sorbus species & cultivars)
- Lime (Tilia species & cultivars)
- Yew (Taxus baccata & cultivars)

The species lists above reflect average circumstances and should be used for all evaluation and other purposes in connection with the Contract.

Tree Size Factors

The Tree Size Factors should be classified into the following categories which take into account how proportionate increases in tree size affect tree surgery:

Tree Size Factor Tree Size Category

Tree Size factor	Tree Size Category
34	A

35 - 70	B
71 - 125	C
126 - 200	D
201 - 340	E
341 - 450	F
451 - 650	G

Trees may be identified for arboricultural works by contract documentation and/or using numbered metal identity tags or paint marks.

The specification calls for thinning to favour the most vigorous trees. Whilst this is normal practice in production forestry it may be inappropriate depending on its location. In some places vigorous species, such as Sycamore or Goat Willow, may have been planted as a nurse, a windbreak or to offer an early screen, with the intention of removing them when more desirable slower-growing species have established. In other cases the most suitable species for the local landscape setting may not have been considered at the time of planting. Where available, reference should be made to the planting designer's long-term intentions or management plan when specifying species for retention. Otherwise, the most typical species in the local landscape should generally be retained.

Typical subjects for Scrub Control may include:

- (i) Shrubs such as bramble, gorse, broom, hawthorn, rose, goat willow, privet and snowberry.
- (ii) Tree species including sycamore, poplar, willow and ash, and pine and birch in heathland areas.

813 TREE SURGERY

Tree size categories reflecting the extent to which tree surgery and felling works shall be carried out are provided in the contract documentation.

Each tree shall be individually considered and the general description of work to be undertaken shall be interpreted in relation to the species, shape, size, character and condition of each individual tree.

All operations shall be carried out so as to leave a wellbalanced tree crown.

The Contractor shall prune back all dead, damaged or diseased wood to its point of origin. The cutting of the branch shall not damage the branch collar if taken off at a main limb or on the bole. The triple cut method shall be used when carrying out the pruning operation and the final wound shall be smooth and free of snags.

All damage to main limbs or boles shall be cleaned to remove damaged or diseased tissue back to, but not into, live wood or bark. The final wound shall be smooth and free of snags.

The repair of major bark wounds (over 75 mm in diameter or length) shall consist of the removal of dead, damaged and loose bark and in addition any splintered wood back to the line of newlyforming callus growth ensuring that no live tissue is damaged. The size of the wound shall be kept to a minimum and its final shape shall be, as far as possible, rounded and free from sharp corners.

Both wet and dry cavities shall be inspected and probed to determine the extent of decay and ascertain their significance in relation to the structure and safety of the tree or branch. Where possible, all accumulated debris and loose decayed wood shall be removed from such cavities and where specified, the opening of the cavity covered with a fine mesh wire netting to prevent a further build-up of debris.

This covering shall be secured with felt tacks in such a way that it does not prevent natural callus formation but allows easy removal for future inspection.

Regulative pruning shall be carried out in accordance with the Arboriculture Research Note 48/83/PATH and Arboriculture Research Note 116/93 as issued by the Arboricultural Advisory and Information Service. Pruning cuts shall wherever possible be made at a fork or at the main stem. All wounds shall be kept as small as possible. The final pruning cut shall be made so that both the branch, branch bark ridge and branch collar remain intact.

The Contractor shall carry out as part of tree pruning operations any of the following works as may be necessary on an individual tree:

- (i) Removal of basal sucker growths and epicormic growth from the trunk at ground level up to the base of the tree's natural crown.
- (ii) Repair of minor bark wounds on the trunk and main branches by the removal of any dead, damaged or loose bark back to undamaged tissue or to the line of newly forming callus growth. In either case the size of wound shall be kept to a minimum.
- (iii) Removal of any foreign objects from the tree where this can be done without inflicting any undue damage to the tree concerned.
- (iv) Removal of reverted branches from cultivars of tree species.
- (v) Severance of undesirable climbing plants at base of trunk.

Where crown lifting is directed, the lower branches and branchlets of the tree shall be removed to the height stated in order to increase the clearance under the canopy of the tree.

Where crown thinning is required, a proportion of secondary and small live branch growth throughout the crown shall be removed to produce as far as possible an even density of foliage around a well spread and balanced branch structure. Crossing, weak, duplicated and damaged branches shall be removed where this will not spoil the overall shape.

Where crown reduction or reshaping is required, the crown shall be reduced in size, whilst preserving as far as possible a natural shape. This may involve cutting back both main and subsidiary branches to a side bud or branch, to leave a flowing line without stumps.

815 ADDITIONAL WORK

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

820 PREVENTION OF WOUND BLEEDING

Standard: To BS 3998, clause 8.

825 PREVENTION OF DISEASE TRANSMISSION

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

830 CLEANING OUT AND DEADWOODING

Remove:

Dead, dying, or diseased wood, broken branches and stubs.

Fungal growths and fruiting bodies.

Rubbish, wind blown or accumulated in branch forks.

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

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

Climbing plants if instructed to do so.

835 CUTTING AND PRUNING GENERALLY

Tools: Appropriate, well maintained and sharp.

Final pruning cuts:

Chainsaws: Do not use on branches of less than 50 mm diameter.

Hand saws: Form a smooth cut surface.

Anvil type secateurs: Do not use.

Removing branches: Do not damage or tear the stem.

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.

Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.

Large branches: Remove only with prior approval.

Remove in small sections and lower to ground with ropes and slings.

Dead branches and stubs: When removing, do not cut into live wood.

Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.

Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 CROWN REDUCTION/ SHAPING

General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.

Operations: As agreed and approved by CA.

845 CROWN LIFTING

Clearances: Remove branch systems to give clearance.

Height: As agreed and approved by CA.

Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps

850 CROWN THINNING

Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.

Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown.

Quantity: As agreed and approved by CA.

Cutting: Make no cuts of more than as agreed and approved by CA.

Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.

Appearance: Leave a uniform and well balanced structure of branches and foliage.

855 CUTTING TREE ROOTS

Excavating: Use hand tools only.

Protected area: Do not cut roots within an area which is the larger of:

The branch spread of the tree.

An area with a radius of half the tree's height, measured from the trunk.

Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.

Cutting:

Cutting: Make clean smooth cuts with a hand saw.

Wounds: Minimize. Avoid ragged edges.

Finishing: Pare cut surfaces smooth with a sharp knife.

Backfilling:

Protection: Cover cut roots with clean sharp sand.

Material: Backfill with original topsoil.

860A REMOVING TREES, SHRUBS AND HEDGES

Standards: To BS 3998, Appendix A and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.

Existing services: Check below and above ground services. Give notice if they may be affected.

Shrubs and smaller trees: Cut down and grub up roots.

Tree stumps:

Removal: If specified. Tree stumps shall be grubbed out or chipped in situ (to approval of CA). Ground levels shall be made good with consolidated fill approved by the CA.

Protection: As appropriate unless otherwise instructed.

a. 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.

- Filling holes:

- Material: Use as dug material and/ or imported soil as required.

Finishing: Consolidate and grade to marry in with surrounding ground level.

Removal of arisings: Refer to clause A31:375. All arisings shall be carted away to a licensed tip. Prior to commencement of the works, the waste haulier's waste registration certificate or an authorised copy

shall be presented for inspection by the CA. All relevant highway and waste control regulations and local byelaws shall be observed.

861 TREE FELLING

Where straight felling is required, the whole tree shall be felled to within 100 mm of ground level, where necessary with the assistance of a powered or hand winch.

Where sectional felling is required, the tree shall be felled in sections of a size appropriate to the location, using ropes where necessary to lower the sections.

The height at which the stump shall be cut shall be as stated, either:

- (i) as close to the ground level as possible; or
- (ii) where the tree is growing in a hedge or fence line the stump shall be left level with the top of the hedge or fence; or
- (iii) at any other height stated.

The final cut shall leave the stump with a smooth, level surface.

Where required, stump treatment shall be carried out within 24 hours of felling. A stump-killing herbicide with colouring agent, shall be applied by means of drilling or frill girdling in the cambium zone of the cut stump. Any re-growth from the cut stump shall be treated during the following season.

Where required, the complete root, including buttress and surface roots arising from or near to its base, shall be removed, either by:

- (i) stump grinding to a minimum depth of 300 mm; or
- (ii) stump grubbing by means of excavation or winching.

Following removal of stumps by any means, the void shall be filled with topsoil to match existing levels in grassed areas. In paved areas the material shall be removed down to formation level to allow full reinstatement of the paved area. All arisings shall be disposed of as required.

862 CHIPPING ARISING

Dead or fallen branches and arisings from grubbing out, pruning and tree work may be chipped prior to removal, but only upon prior approval from the CA. Note that due to certain species releasing toxins on chipping, take all necessary protective measures for the safety of staff and the general public.

Arisings from Pruning, Cutting or Felling of Woody Plants

Any infected (diseased or pest) prunings or timber arisings shall be removed off Site immediately after cutting and burned or buried at a depth of no less than 2.0 m in a location to be approved in writing by the Contract Administrator, except diseased arisings affected by diseases described in Arboriculture

Research Notes or Arboriculture Research and Information Notes issued by the Arboricultural Advisory and Information Service, which shall be dealt with in accordance with the advice published in these Notes.

In the event of a plant disease epidemic, diseased arising shall be disposed of in accordance with the current recommendations of the Department for Environment, Food and Rural Affairs (DEFRA), or the Forestry Commission.

Healthy arisings shall be dealt with in one or more of the following ways, as required:

- (i) Removed off Site without chipping first;
- (ii) Chipping. All arisings shall be processed immediately using a wood chipper. All remaining arisings from thinning/coppicing that cannot be chipped shall be removed off Site;
- (iii) All arisings from chipping shall be removed off Site;
- (iv) Where chippings are to be retained on the Site, the chipper shall produce chippings in the size range 0-75 mm;
- (v) Where chippings are to be spread back onto the Site within areas of existing vegetation, without intending to suppress or kill the existing ground vegetation, the chippings shall be returned to within the boundary of the areas stated in Appendix 30/10 and spread to an even consolidated depth of 25 mm maximum;

- (vi) Where chippings are intended to act as a weedsuppressant mulch, they shall be spread over the pruned or coppiced plantations to a depth of 75 mm;
- (vii) Chippings which are excess to the requirements specified shall be removed off Site;
- (viii) Arisings of greater than 150 mm diameter shall be securely placed on Site in the locations stated for nature conservation purposes;
- ix) Where directed, the arisings from thinning and coppicing shall be windrowed on the centre of embankments or cuttings within the boundary of the area in which the work has taken place. Material shall not be dragged from one area to another. With cross-cutting and cut branches only the timber shall be windrowed. All side branches from the cut timber shall be removed and the timber reduced to 1 m lengths.

Windrows shall be formed in one of the following patterns, as required, keeping the arisings at least 500 mm away from the retained trees and shrubs:

- (a) For younger plantations windrows shall be 7m apart and a minimum of 3m from the edges of the plantation. The windrows shall be secure, with the material tightly packed and stacked to a height and width of between 0.5 and 1m;
- (b) For older plantations, windrows shall be 7 m apart and a minimum of 10 m from the edges of the plantation. The windrows shall be secure, with the material tightly packed and stacked to a height and width of between 1 and 1.5 m.

863 BURNING ARISINGS: No fires will be permitted on site.

864 DAMAGE TO EXISTING WORKS

The contractor shall reinstate or replace, to the satisfaction of the Contract Administrator, any work previously carried by others and damaged by the contractor, at his own expense. The contractor shall replace at his own expense any tree, shrub or other plant damaged as a result of non-compliance of the above. The replacement shall be of a comparable size of the same species and variety and of a similar shape.

865 BARK DAMAGE

Wounds:

Do not attempt to stop sap bleeding.

Bark: Remove ragged edges using a sharp knife.

Wood: Remove splintered wood from deep wounds.

Size: Keep wounds as small as possible.

Liquid or flux oozing from apparently healthy bark: Give notice.

870 CAVITIES IN TREES

Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.

Water filled cavities: Do not drain.

Sound wood inside cavities: Do not remove.

Cavity openings: Seek approval of CA.

872 MAINTENANCE OF ESTABLISHED TREES AND SHRUBS

Details available to the Contractor should include:

1. Locations of plants and planting areas to be maintained. Period(s) of time over which plants and planting areas shall be maintained (in months);
2. Any particular requirements for method of weed removal in cultivated beds and any alternative frequency for removal operations;
3. Method(s) and locations for disposal of healthy arisings;
4. Frequency of coppicing species grown for their colour;
5. Locations of any overgrown shrubs to be coppiced back;
6. Frequency of hedge cutting;

7. Extent of cutting back required if hedges have previously been unmanaged (i.e., if hedge is to be cut back more than "to previous cut". Any alternative shapes required for hedge cutting profiles and the locations where they are required;
8. Style of hedge laying required and locations where hedges are to be laid;
9. List of hedge species likely to be encountered in hedges on the Site and the manner in which they shall be treated;
10. Any alternative materials to be used for staking and/or binding;
11. The hardwood species to be used for stakes in straight hedges;
12. Any required staking arrangement for an alternative style of hedge laying;
13. Alternative method of disposing of hedge-laying arisings if they are not to be removed daily from Site;
14. Species and size of plants and planting density/pattern required to fill any significant gaps remaining in a hedge after it has been laid;
15. Species, size and locations of other 'individual trees to be maintained in accordance with sub-Clause;
16. Any requirement for tree wounds to be treated with a sealant; if so, state type to be used;
17. Record of any trees protected by Tree Preservation Order or located in a Conservation Area on which arboricultural works are to be carried out. Details of consultations with the Local Planning Authority and permissions obtained should be given;
18. Tree size categories which reflect the extent to which tree surgery and felling works shall be carried out;
19. State whether cavities are to be covered with a fine mesh wire netting;
20. Locations and identification of trees which require crown lifting and the height to which the lower branches and branchlets of the tree shall be removed;
21. Locations and identification of trees which require crown thinning;
22. Locations and identification of trees which require crown reduction or reshaping;
23. Locations and/or identification of trees which shall be straight felled;
24. Locations and/or identification of trees which shall be felled in sections;
25. Heights at which stumps shall be cut;
26. Locations and/or identification of trees where stump treatment is required;

WETLAND AREAS

875 BIOSECURITY MEASURES

Actions should be as follows:

1. Ensure an awareness of some of the priority non-native species.
2. Access and egress to the water body should be limited, preferably to a single point.
3. Any site may have invasive non-native species and diseases that can be spread by contaminated clothes and equipment, so good biosecurity is always important. Remember: everyone, every time, everywhere.
4. Where site visits are being undertaken to a site where an invasive non-native species is known to be present, measures should be in place to ensure that there is no risk of spreading it. Failure to do so risks prosecution under the Wildlife & Countryside Act 1981.
5. Risk can be reduced by reducing the contact time in which equipment is exposed to the water.
6. Anything that comes in contact with the water, including boots, could accidentally spread non-native species and should be carefully cleaned.
7. Plan visits so that the highest risk visit is the last one of the day.
8. Arrive at site with clean footwear and vehicle.
9. Ensure footwear is clean (visually from soil and debris) before leaving the site.
10. Ensure any vehicle is kept clean- in particular remove any accumulated mud before leaving the site.
11. Make use of any facilities provided on the site to clean footwear/equipment.
12. Keep access to a minimum. If practical do not take vehicles onto premises, keep to established tracks and park vehicles on hard standing.
13. Where possible avoid areas of livestock and areas with known plant disease.

Check, Clean, Dry disinfection procedure

Check- All clothing and equipment should be thoroughly inspected and any visible debris (mud, plant or animal matter) should be removed and left at the water body where it was found. Particular attention must be paid to the seams and seals of boots and waders. Any pockets of pooled water should be emptied.

Clean- Equipment should be hosed down or pressurewashed on site. If facilities are not available equipment should be carefully contained, e.g. in plastic bags, until they can be found. Washings should be left at the water body where the equipment was used, or contained and not allowed to enter any other watercourse or drainage system (i.e. do not put them down the drain or sink). Where possible, clean equipment should be dipped in disinfectant solution (e.g. Virkon) to kill diseases, but note this is unlikely to kill non-native species.

Dry - Thoroughly drying is the best method for disinfecting clothing and equipment. Boots and nets should be hung-up to dry. Equipment should be thoroughly dry for 48 hours before it is used elsewhere. Some nonnative species can survive for as many as 15 days in damp conditions and up to 2 days in dry conditions, so the drying process must be thorough.

880 MAINTENANCE OF PONDS AND WETLANDS

Location: Ribble Sidings

Clearance: Remove litter and debris at each maintenance visit.

881 INJURIOUS WEED SPECIES REMOVAL IN WETLAND AREA

Operations: Hand pull significant stands (greater than 1m²) of injurious weed species listed in the Weeds Act 1959 and Wildlife and Countryside Act 1981.

882 INVASIVE NONNATIVE WEED SPECIES REMOVAL IN WETLAND AREA

Operations: Remove invasive nonnative weed species listed in Schedule 9 of the Wildlife and Countryside Act 1981 (e.g. Parrot's Feather, Himalayan Balsam, and Giant Hogweed).

Time of year: September

Method: Hand pull or herbicide treatment.

Additional information: Appropriate licensing is likely to be required.

Only small sections should be cleared at a time.

Deposit arisings from pond and marginal clearance next to pond and leave for 24 hours to allow invertebrates to return to pond before relocating arisings to areas of low conservation value as instructed by Contract Administrator. Dredgings must not be left on the bank as bankside vegetation may be smothered.

893 INVASIVE NATIVE WEED SPECIES REMOVAL IN WETLAND AREA

Operations:

Remove invasive native weed species e.g. *Typha latifolia* from wetland area by hand pulling or hand raking.

Remove seed heads from *Typha latifolia* already present in all newly planted areas to control its spread.

Time of year: September

Additional information:

Only small sections should be cleared at a time.

Deposit arisings from pond and marginal clearance next to pond and leave for 24 hours to allow invertebrates to return to pond before relocating to areas of low conservation value as instructed by Contract Administrator. Dredgings must not be left on the bank as bankside vegetation may be smothered.

894 CONTROL OF JAPANESE KNOTWEED IN WETLAND AREA

Refer to clause Q35:198

897 MAINTENANCE OF COIR ROLLS

During the first 12 months maintenance period, carry out maintenance of coir rolls to the wetland side of reed bed planting areas including for defects rectification.

Make visits at approximately monthly intervals during the growing season, and as necessary to fulfil the requirements of this specification. Minimum number of visits shall be six, between March and October.

Coir rolls need to be free from invasive non-native species or their propagules. Ensure that there are no non-native species within pre-planted coir rolls.

Keep all coir logs clear of weeds by hand in March, May, July and September. Carry out additional weeding visits if necessary.

Cut back any damaged plant material and remove from site.

Prune plants at appropriate time to remove dead or dying and diseased material to promote healthy growth and natural shape. Dress cut ends exceeding 25mm diameter with fungicidal sealant.

Remove invasive non-native plants.

Advise Contract Administrator of any damage caused by vandalism or by others, as soon as possible.

Check the integrity and firmness of coir log stakes. Ensure stakes are securely anchored and in position. Ensure broken or missing stakes are replaced.

HARD LANDSCAPE AREAS/FENCING

910 HARD SURFACES AND GRAVEL AREAS

Herbicide: Apply a suitable foliar acting or residual herbicide. Allow recommended period for herbicide to take effect before clearing arisings.

Hard surfaces: Remove litter, leaves and other debris. Keep free of weeds and moss by the use of a suitable and approved chemical or physical means as appropriate.

Surface gutters and channels: Remove mud, silt and debris.

Drainage gullies: Empty traps and flush clean.

Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.

Repairs to flexible bituminous pavings: In accordance with the original paving specification or BS 7370 2, clause 4.12.

Stain removal: In accordance with BS 7370-2, table 4.

920 FENCING

Fences: Inspect and repair to maintain protection against rabbits/livestock.

12. Q40 Fencing

To be read with Preliminaries/ General Conditions.

FENCING SYSTEMS

All timber fencing is to be in accordance with the EA Timber Policy.

143 STRAINED STOCK PROOF WIRE MESH FENCING: (For sheep or cattle protection) – FISHWICK BOTTOMS To BS 1722: Part 2 - 2006

Drawing reference detail: [ENV000009C-JAC-ZZ-ZZ-DR-L0031 Sheet 19 Fishwick Bottoms Height:1350mm](#)

Mesh: BS 1722 Part 2, Table 2, Type HT 7/ 10/ 15 – Rectangular wire mesh, for sheep or cattle. (Type HT 8/ 80/ 15 for pigs or lambs - 1000mm high).

Top line wires: Height of top line wire – 1350mm. 8 horizontal wires. Line wire shall conform to BS 4102 zinc coated mild steel or zinc coated high tensile wire. Minimum nominal wire diameter of 2.5mm.

Barbed wire: To prevent damage to the fence by animals, 2No. 2xply strands of 16.5 gauge high tensile barbed wire to BS 4102, strained to 100-150kg tension should be attached to straining posts and intermediate posts by the means specified for line wire, i.e. using winding brackets and eyebolt strainers to straining posts and a single staple to intermediate posts. Care should be taken to avoid any untwisting of the wire as a result of overstraining.

Staples: to be 3cm x 8g galvanised.

Posts and struts:

Intermediate posts - 75mm diameter round, pointed for driving.

Straining posts - 150mm diameter round, pointed for driving.

Struts – 80mm to 100mm diameter round, pointed for driving, set at 45 degrees.

Maximum centres of posts:

Straining posts – 80m in straight runs and at all ends, corners, changes in direction over 25 degrees and acute variations in level.

Intermediate posts – at 3.5m centres

Method of setting posts:

Straining posts driven to a minimum depth of 1000mm.

Struts set at 45 degrees, notched one third of the distance from the top of the strainer and driven to a minimum depth of 600mm.

Intermediate posts driven to a minimum depth of 750mm.

Treatment of timber: Preservative in accordance with BS 1722-7:2006, Annex A.3.

Setting out of fencing: The landscape contractor shall locate and install the fencing before commencing planting.

Installation of fencing: The fencing shall be set out and erected in straight lines or smoothly flowing curves as shown on the contract drawings, with tops of posts following the profile on the ground. Posts set rigid and plumb and to specified depth, or greater where necessary to ensure adequate support; with correct fastenings and all components securely fixed.

Associated fixings: Include for mild steel winding bolts/ eyebolt strainers and associated fixings, all hot dipped galvanised to BS EN ISO 1461. Burr bolt threads to prevent removal of nuts. Cut off bolt heads, not more than 5mm to protrude beyond nuts.

340B MILD STEEL VERTICAL BAR STEEL RAILINGS

Standard: To BS 1722-9.

Height: 1800mm, 1400mm, 800mm, and 400 to 1400mm as specified on engineers drawings general arrangement drawing [ENV000009C-JAC-ZZ-42Z-DR-C-0001](#), and cross section drawings [ENV000009C-JAC-DZ-42A-DR-C-0001](#) to 0003.

Verticals: 10mm diameter vertical bar steel railings with flat top and square horizontal bars or similar approved.

Posts: max 2.8m centres or in accordance with the manufacturer's recommendations.

Treatment: galvanised, primed and powder coated finish to approved RAL colour 9005 Jet Black.
Method of setting posts/ stays/ legs: Set in 300 x 300 x 450mm ST4 mix in-situ concrete foundation or securely fixed to the flood wall, as recommended by the manufacturer.

Conformity: Submit manufacturer's and installer's certificates, to BS 1722-9.

Allow for extra posts and non-standard panel widths to accommodate changes in level and also any radii shown on the layout drawings.

Height of railings to be as detailed on the engineering drawings. Allotment fencing or combination of wall and fencing to be at least 1800mm high.

Supplier: Alpha Rail or similar approved. Supply and install in accordance with the manufacturers recommendations. Make good all surrounding surfaces.

- 430A PROPRIETARY FENCING RIBBLE SIDINGS POND FENCE
To BS 1722: Part 2 and 14.
Drawing reference detail: ENV000009C-JAG-ZZ-42X-DR-L-0002 Ribble Sidings.
Manufacturer: IAE , Tel 01782 339320, www.iae.co.uk or similar approved to approval of CA.
Product reference: Duex Perimeter fencing.
Height: 1230 mm.
Materials: Mild steel.
Treatment: galvanised, primed and powder coated finish
Finish: RAL colour 6005 Moss Green or as approved by CA
Centres of posts (maximum): in accordance with the manufacturer's instructions.
Method of setting posts: in accordance with the manufacturer's instructions. Make good all surrounding surfaces.
Layout of fencing to be agreed and to ensure access/gate gaps are wide enough to accommodate Timber Single Leaf Easy Access Gates and gate posts clause 533.
- 430A PALADIN FENCING BAC SPORT PITCH BOUNDARY and PENWORTHAM METHODIST CHURCH/ALLOTMENTS
To BS 1722: Part 2 and 14.
Drawing reference detail: ENV000009C-JAG-ZZ-ZZ-DR-L-0022 and ENV000009C-JAG-ZZ-ZZ-DR-L-0028 .
Manufacturer: CLD Fencing, Tel 08000 742 861 , www.cld-fencing.com or similar approved to approval of CA.
Product reference: Multiplus fencing.
Height: Penwortham Methodist Church and allotments: 1800mm or as detailed on general arrangement drawings ENV000009C-JAG-ZZ-42Z-DR-C-0001, and cross section drawings ENV000009C-JAG-DZ-42A-DR-C-0001 to 0003.
BAC Sports Pitch fencing to be fixed to top of flood wall, overall height of flood wall and fencing to be 2000mm
Materials: Rigid, welded steel wire mesh panels with paladin style variable aperture Galvanised RHS steel posts.
Treatment: galvanised, primed and powder coated finish
Finish: RAL 9005 Black
Centres of posts (maximum): in accordance with the manufacturer's instructions.
Method of setting posts: in accordance with the manufacturer's instructions. Make good all surrounding surfaces.
Location, height and layout of fencing to be agreed prior to ordering and installation.
Penwortham Methodist Church/Allotments fencing reinstatement and fence heights to be as specified on engineers drawings general arrangement drawing ENV000009C-JAG-ZZ-42Z-DR-C-0001, and cross section drawings ENV000009G JAG-DZ-42A-DR-C-0001 to 0003.
- 430B EXISTING GARDEN FENCING and GUTTERING REINSTATEMENT No. 20 AND 22 SOUTH END
Drawing reference: ENV000009C-JAG-ZZ-ZZ-DR-L-0022
Reinstate close boarded timber garden fencing, concrete fence posts and concrete ground board layout to property boundaries to match height and specification of existing fencing, upon completion

of the construction works. Make good all surrounding surfaces. To include replacement of guttering at No. 20 South End. Guttering to match existing and to be installed in accordance with the manufacturer's instructions.

- 430C **CLOSE BOARDED FENCE REINSTATEMENT. NO. 20 and 22 SOUTH END BOUNDARY WITH BAC SPORTS PITCH CAR PARK AND NEW FENCE TO WEST OF CHANGING FACILITIES (RE)**
 Replacement of existing removed for construction access)
 Drawing reference: ENV0000009C-JAC-ZZ-ZZ-DR-L-0022
 Reinstall 1800mm high existing timber fencing and fence posts to match existing upon completion of the construction works. All surrounding surfaces to be made good.
- 430D **WHITE WOODEN POST AND METAL BAR FENCING (Jacksons SilverRail Fencing)**
 Drawing reference: ENV0000009C-JAC-ZZ-ZZ-DR-L-0022
 Product: White wooden post and metal bar fencing. <https://www.jacksons-fencing.co.uk/fencing/footpath-r.o.w.-and-demarcation/silver-rail-fencing>
 Manufacturer: Jacksons Fencing Stowting Common, Ashford, Kent TN25 6BN, (tel. 0800 408 2234). or similar approved.
 Size: 900mm above ground level. Posts 125 x 75mm, corner post 125 x 125mm section. Allow 1 post per 2m
 Materials and colour: Posts to be planed pressure treated softwood stained white with a white powder coated galvanised top rail 41.5mm diameter
 Method of setting posts: in accordance with manufacturer's instructions
 Supply and install in accordance with manufacturer's instructions, Make good existing surfaces, all arising to be removed off site.
 Allow for removal of existing fencing off site and surrounding surfaces made good.
 Setting out to be agreed with the landowner and CA, and to allow space for 2 no. team shelters as shown on drawing ENV0000009C-JAC-ZZ-ZZ-DR-L-0022.
- 430E **SEA CADET COATED MESH FENCING AND GATE (PROVISIONAL)**
 Drawing reference: ENV0000009C-JAC-ZZ-41D-DR-C-0001 and ENV0000009C-JAC-ZZ-ZZ-DR-L-0022
 Coated mesh fence to match existing coated mesh boundary fence and fence post specification.
 Boundary fence panels to be moved and reused where possible.
 Existing 3m wide access gate to be relocated as shown on engineering GA drawing.
 All surrounding surfaces to be made good.

GATES, POSTS AND STILES

- 533 **TIMBER SINGLE LEAF "EASY ACCESS" GATE (PROVISIONAL ITEM)**
 Manufacturer: Centrewire Ltd. or similar approved.
 Mossfield Road, Adderley Green, Stoke-on-Trent. ST3 5BW
 Tel: 01782 339348
sales@centrewire.com
 Product Code ref. XX F0100110 01
 Format: One-way 90 degree self-closing timber gate set. Suitable for users of mobility vehicles due to the extra strength of the bottom two rails. An "Easy Latch" trombone handle provides easier access for all.
 Size: To manufacturer's specification.
 Materials: Planed softwood
 1.2m high x 1.5m wide single leaf gate with two gate posts, weathered 4x ways
 2-way "easy latch" with trombone handle as standard, 90 degree hinge kit.
 Hung on galvanised hinges with adjustable bottom eye.
 Treatment: Preservative in accordance with BS 17227: 2006 Annex A.3

Finish: As supplied unless a project specific finish is required.
 Fittings: Supplied with galvanised hinges and fittings by the manufacturer.
 Method of setting posts: 450 x 450 x 450mm ST4 concrete foundation for each post.
 Accessories: An optional gate stop should be incorporated into the hinge system to ensure the gate cannot be left open.
 Supply and install in accordance with manufacturer's instructions, make good all surrounding surfaces.
 Allow for 2 gates at Fishwick Bottoms for maintenance access. Exact location of gates to be agreed with the CA.

- 540A **TIMBER STILE – FISHWICK BOTTOMS (PROVISIONAL ITEM)**
 Drawing reference: ENV0000009C-JAC-ZZ-ZZ-DR-L0031 Sheet 19 Fishwick Bottoms
 Manufacturer: Centrewire Ltd. or similar approved.
 Mossfield Road, Adderley Green, Stoken-Trent. ST3 5BW
 Tel: 01782 339348
sales@centrewire.com
 Product Code ref. Ickfield Style Kit, ref XX F010 0114 01
 Posts: Three- 75 x 125mm x 1.8m. Two morticed to take 4 rails.
 Step treads: Two- 50 x 175mm x 1.2m fixed with countersunk screws.
 Lower step posts: Two- 100 x 100mm x 1.05m
 Upper step posts: Two- 100 x 100mm x 1.35m
 Rails: Four rails- 38 x 100 x 1150mm
 Timber: Softwood - project specific - see detail and earlier timber policy.
 Treatment of timber: Preservative in accordance with BS1722 -7: 2006 Annex A.3.
 Finish: As supplied unless a project specific finish is required.
 Method of setting posts: Excavate 525mm depth holes and install/backfill posts with well rammed excavated earth.
 Allow for 2no. stiles within new fencing. Location of stiles to be agreed with the CA.
- 540B **TEMPORARY TIMBER PEDESTRIAN GATE**
 Drawing reference: ENV0000009C-JAC-ZZ-ZZ-DR-L0022
 Product: Flat Top Featherboard Gate (231900) , RHH with galvanised ring latches and adjustable hinges, and 2 matching gate posts (641500) , and gate latch-deluxe 2-way lockable gate latch.
 All fixings to be stainless steel.
 Manufacturer: Jacksons Fencing Stowting Common, Ashford, Kent TN25 6BN, (tel. 0800 408 2234) . or similar approved.
 Size: 1.8m high x 1.0m wide
 Materials: Planed softwood
 Hung on galvanised hinges with adjustable bottom eye.
 Treatment: Preservative in accordance with BS 17227: 2006 Annex A.3
 Finish: As supplied unless a project specific finish is required.
 Fittings: Supplied with galvanised hinges and fittings by the manufacturer.
 Method of setting posts: in accordance with manufacturer's instructions or 450 x 450 x 450mm ST4 concrete foundation for each post.
 Supply and install in accordance with manufacturer's instructions, Make good existing fence panels where gate is fitted and replace adjacent panels if required. Make good all surrounding surfaces.
 Allow for removal and replacement fence panels at the end of the construction period. All arisings to be removed off site and surrounding surfaces made good.
- 540B **TEMPORARY TIMBER PEDESTRIAN GATE**
 Drawing reference: ENV0000009C-JAC-ZZ-ZZ-DR-L0022
 Product: STD Rye Gates and post (278 770BM)
 Twin leaf gate . with galvanised ring latches and integral hinges, and 2 matching galvanised gate posts (079093R) , and gate latch-deluxe 2-way lockable gate latch suitable for twin leaf gates.
 All fixings to be stainless steel.

Manufacturer: Jacksons Fencing Stowting Common, Ashford, Kent TN25 6BN, (tel. 0800 408 2234). or similar approved.

Size: 1.8m high x 3.1m width overall.

Materials: Planed softwood

Hung on galvanised hinges with adjustable bottom eye.

Treatment: Preservative in accordance with BS 17227: 2006 Annex A.3

Finish: As supplied unless a project specific finish is required.

Fittings: Supplied with galvanised hinges and fittings by the manufacturer.

Method of setting posts: in accordance with manufacturer's instructions.

Supply and install in accordance with manufacturer's instructions, Make good existing fence panels where gate is fitted and replace adjacent panels if required. Make good all surrounding surfaces.

Allow for removal and replacement fence panels at the end of the construction period. All arisings to be removed off site and surrounding surfaces made good.

550 WOOD

Standard: To BS 5709.

Wood: See earlier timber policy.

Treatment: As section Z12 and British Wood Preserving and Dampproofing Association Commodity Specification C3.

Type: N/A.

Adhesive: Synthetic resin to BS EN 301, type 1.

Workmanship: As section Z10.

Fittings: N/A.

- Method of fixing: As specified on drawings.

Accessories: As specified on drawings.

560 STEEL

Standard: To BS 4092.

Manufacturer: to approval of CA.

Product reference: N/A.

Materials and workmanship: As section Z11.

Jointing: Welded.

Finish as delivered: Hot dip galvanized to BS EN ISO 1461 after fabrication.

Fittings: as specified on drawings.

Method of fixing: as specified on drawings.

Accessories: as specified on drawings.

EXECUTION

710 INSTALLATION GENERALLY

Set out and erect:

Alignment: Straight lines or smoothly flowing curves.

Tops of posts: Following profile of the ground.

Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.

Fixings: All components securely fixed.

715 COMPETENCE

Operatives: Contractors must employ competent operatives.

Qualifications: Submit certification of training.

720 SETTING POSTS IN CONCRETE

Standard: To BS 8500-2.

Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.

Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250kg 20 mm nominal maximum size coarse aggregate, medium workability.

Admixtures: Do not use.

Holes: Excavate neatly and with vertical sides.

Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.

Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

730 EXPOSED CONCRETE FOUNDATIONS

Filling: Compact until air bubbles cease to appear on the upper surface.

Finishing: Weathered to shed water and trowelled smooth.

760 NAILED WOOD RAILS

Length (minimum): Two bays, with joints in adjacent rails staggered.

Fixing: Nail each length of rail to each post with two 100 mm galvanized nails.

Rails with split ends: Replace.

770 SITE CUTTING OF WOOD

General: Kept to a minimum.

Below or near ground level: Cutting prohibited.

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

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.

Thickness: Apply sufficient material to provide a zinc coating at least equal in thickness to the original layer.

790 SITE PAINTING

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

COMPLETION

910 CLEANING

General: Leave the works in a clean, tidy condition.

Surfaces: Clean immediately before handover.

920 FIXINGS

All components: Tighten.

Timing: Before handover.

930 GATES

Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.

13. Q50 Site / street furniture / equipment

To be read with Preliminaries/ General Conditions.

GATES, BARRIERS AND PARKING CONTROLS

190A BOLLARDS

Drawing reference: ENV000009C-JAC-ZZ-ZZ-DR-L0026

Manufacturer: Marshalls or similar approved.

Product reference: Rhino RT RDA SS Telescopic Bollard with matching static bollards where telescopic bollards are not required. Or similar approved.

Material: stainless steel, grade 316

Finish: brushed.

Colour: as cast.

Height above ground: 500mm.

Method of fixing: in accordance with the manufacturer's recommendations. Make good all surrounding surfaces.

190B TIMBER BOLLARDS

Drawing reference: ENV000009C-JAC-ZZ-ZZ-DR-L0021 and ENV000009C-JAC-ZZ-ZZ-DR-L0022

Manufacturer: Bollard Street (01942 246018) or similar approved.

Product reference: Timber Bollards to match existing. Square, hardwood with pointed 4 way pyramid top with twin rebate yellow reflective banding and 2 blue cycle route signs (highway specification) as per existing bollards. <https://bollardstreet.com/product/pointed-top-with-twin-rebate-with-sign/>

Height above ground: 900mm.

Method of fixing: in accordance with the manufacturer's recommendations. Make good all surrounding surfaces.

Location to be agreed with CA prior to installation.

190C REMOVABLE TIMBER BOLLARDS

Drawing reference: ENV000009C-JAC-ZZ-ZZ-DR-L0021 and ENV000009C-JAC-ZZ-ZZ-DR-L0022

Manufacturer: Bollard Street (01942 246018) or similar approved.

Product reference: HTB. RM Timber Bollards to match existing. Square, hardwood with pointed 4 way pyramid top with twin rebate yellow reflective banding and 2 blue cycle route signs (highway specification) as per existing removable bollards with hot dip galvanised mild steel host ground socked and profile lid. <https://bollardstreet.com/product/pointed-top-with-twin-rebate-with-sign/>.

<https://bollardstreet.com/product/removable-timber-bollard/>

Height above ground: 900mm.

Method of fixing: in accordance with the manufacturer's recommendations. Make good all surrounding surfaces.

Location to be agreed with CA prior to installation.

190D REMOVABLE BOLLARD

Drawing reference: ENV000009C-JAC-ZZ-ZZ-DR-L0023

Product: Double Rebated Concrete Filled Bollard with Bands to match existing electric bollard, Mild steel, semi-domed top, 150mm diameter..

Reference: SKU:MS.RDBOLDRB) Removable flush socketed.

<https://bollardstreet.com/product/double-rebated-with-bands/>

Colour: RAL 160 30 10 'Exclusive Green'

Height: 900mm above ground level.

Supplier: Bollard Street (tel. 01942 246018) or similar approved.

Layout: to be positioned to suit new arrangement of re-used electric bollard and controls, flood defence wall and gate as agreed with the CA and LPA prior to installation. And to avoid resin bound surfacing layout.

- 190 E EXISTING ELECTRIC BOLLARDS AND ASSOCIATED EQUIPMENT/CONTROL (PROVISIONAL ITEM)
 Drawing reference: ENV0000009G-JAC-ZZ-ZZ-DR-L0023
 Reinstall existing electric bollard and control equipment in accordance with the manufacturer's recommendations. Repaint bollard and control equipment with 2no. coats a suitable outdoor paint for metal surfaces, fully prepare surfaces in accordance with the paint manufacturers recommendations prior to painting. Colour to be RAL 160 30 10 'Exclusive Green'.
 Layout: to be positioned to suit new arrangement flood defence wall and gate as agreed with the CA and LPA prior to installation. And to avoid resin bound surfacing layout.

SITE AND STREET FURNITURE

- 220 A BENCHES- RIBBLE SIDINGS
 Drawing reference: ENV0000009G-JAC-ZZ-42X-DR-L0002
 Manufacturer: Goosefoot Street Furniture Ltd, Britannia House, Junction Street, Darwen BB3 2RB.
 Tel 01254 70021 or similar approved.
 Product reference: Magellan Timber Slatted Seat (GF5003) with armrests (GF504)
 Material and finish: Satin polished stainless steel frame and hardwood slats from renewable sources.
 See earlier timber policy for timber if appropriate.
 Size: 1800mm.
 Accessories/ Special requirements: Arm rests.
 Method of fixing: sub-surface (ref.-03) ground fixed.
 Supply and install in accordance with the manufacturer's instructions.
- 220 A BENCHES- BROADGATE GARDENS (Sheet 3) and RIVERSIDE (Sheet 8)
 Drawing reference: ENV0000009G-JAC-ZZ-ZZ-DR-L0015 and ENV0000009G-JAC-ZZ-ZZ-DR-L0020
 Manufacturer: Goosefoot Street Furniture Ltd, Britannia House, Junction Street, Darwen BB3 2RB.
 Tel 01254 70021 or similar approved.
 Product reference: Magellan Stainless Steel Seat (GF5001) with armrests (GF503)
 Material and finish: Satin polished stainless steel frame and hardwood slats from renewable sources.
 See earlier timber policy for timber if appropriate.
 Size: 1800mm.
 Accessories/ Special requirements: Arm rests.
 Method of fixing: sub-surface (ref.-03) ground fixed.
 Supply and install in accordance with the manufacturer's instructions.
- 220 A BENCHES- BAC SPORTS PITCHES
 Drawing reference: ENV0000009G-JAC-ZZ-ZZ-DR-L0022
 Manufacturer: Earth Anchors, Unit 3, The IO Centre, Salbrook Road Industrial Estate, Salfords, Surrey, RH1 5GJ. Tel 020 8684 9601 or similar approved.
 Product reference: Forest-Saver recycled plastic seats SKU 353
 Material and finish: Black legs with brown slats.
 Size: 1800mm.
 Accessories/ Special requirements: Rootfast anchor kit
 Supply and install in accordance with the manufacturer's instructions.
- 220 A PICNIC TABLE SEA CADETS
 Drawing reference: ENV0000009G-JAC-ZZ-ZZ-DR-L0014
 Manufacturer: Earth Anchors, Unit 3, The IO Centre, Salbrook Road Industrial Estate, Salfords, Surrey, RH1 5GJ. Tel 020 8684 9601 or similar approved.
 Product reference: Octagonal outdoor picnic table with below ground fixing. SKU703174
 Material and finish: Brown
 Size: covers 1700mm square area
 Accessories/ Special requirements: Rootfast anchor kit
 Supply and install in accordance with the manufacturer's instructions.

- 240A ~~LITTER BINS- RIBBLE SIDINGS~~
 Drawing reference: ENV0000009C-JAG-ZZ-42X-DR-L0002
 Manufacturer: Broxap Street Furniture or similar approved.
 Product reference: Derby Slimline Litter Bin BX45G 2596
 Material and finish: Galvanised steel primed and polyester powder coated.
 Colour: Sky Blue–RAL 5015.
 Accessories/ Special requirements:Pyramid Top, South Ribble Borough Council(SRBC)logo info as per standard SRBC litterbinsadded.
 Method of fixing: ground fixed.
- 240B ~~LITTER BINS- BROADGATE GARDEN(Sheet 3), RIVERSIDE (Sheet 8)~~
 Drawing reference: ENV0000009C-JAG-ZZ-ZZ-DR-L0015 and ENV0000009C-JAG-ZZ-ZZ-DR-L0020
 Manufacturer: Broxap Street Furniture or similar approved.
 Product reference: DerbyStandard Litter Bin BX45G 2550
 Material and finish: Galvanised steel, primed and polyester powder coated.
 Colour: Anthracite Grey–RAL7016.
 Accessories/ Special requirements:Flat Top, Preston City Council (PCC)logo info as per standard PCC litterbins added.
 Method of fixing: ground fixed.
- 275 ~~INTERPRETATION BOARD~~ **(PROVISIONAL ITEM)**
 Manufacturer: Noticeboards Online (01539 628309) or similar approved.
 Product and content to be agreed with the EA
 Method of fixing: Manufacturers recommendation, setting out to be agreed with CA.
 Treatment: Manufacturers recommendation.
 Location: To be agreed with the EA
- 276 ~~BIRD AND BAT BOXES~~
 Manufacturer: 3 Schwegler 2F bat boxes and 3 Schwegler 1B nest boxes (colour brown) or similar approved.
 Method of fixing: supply and install in accordance with the manufacturers recommendations.
 Location: To be agreed with the project ecologist and CAInstall boxes on the larger trees. Boxes should be placed out of reach of members of the public. The entrance of the box should have a clear flightpath to the box and the boxes should be positioned with a slight downward angle to provide protection from t he rain.
 Timing: Boxes to be installed in Autumn (September to November inclusive). Installing boxes in autumn can provide a winter refuge and potentially increase the chance of the box being used in spring. If the boxes are installed in spring or summer,they are unlikely to be used until the following year.
- 282 ~~CLUB TEAM SHELTER~~ **BAC SPORTS PITCHES**
 Drawing reference: ENV0000009C-JAG-ZZ-ZZ-DR-L0022
 Supplier: Mark Harrod (tel. 01785 630 250) or similar approved.
 Product reference: 2no. Aluminium Club Team Shelters 3.0m long. Reference:SH-004MH or similar approved.
 Material and finish: Heavy duty powder coated aluminium frame with treated wood slatted seating. End frames fully welded. 3mm thick shatter proof clear Perspex panels.
 Size:3.0m long (seats 6-7 people), 1..2m deep, 2.1m high
 Colour: White
 Accessories/ Special requirements:anchoring plates, below ground fixing.
 Supply and install in accordance with the manufacturer's instructions. Exactlocation to be confirmed with the landowner and CA. Make good all surrounding surfaces.
- 282A ~~EXISTING~~ **CRICKET SCOREBOARD**

Existing cricket scoreboard to be removed from site. Area to be reinstated and seeded as shown on drawing ENV0000009C-JAG-ZZ-ZZ-DR-L0022

282B CRICKET SCOREBOARD

Drawing reference: ENV0000009C-JAG-ZZ-ZZ-DR-L0022

Supplier: Durant Cricket (tel. 01572 822013) or similar approved.

Product reference: Cricket Scoreboard DC22or similar approved.

Supply and install in accordance with the manufacturer's instructions. To be securely fixed to the cricket club house / pavilion exterior wall. Exact location to be confirmed with the landowner.

282C RAISED PLANTING BED NO. 20 AND NO. 22 SOUTH END REAR GARDEN AND EXISTING ALLOTMENTS

Drawing reference: ENV0000009C-JAG-ZZ-ZZ-DR-L0022 and ENV0000009C-JAG-ZZ-ZZ-DR-L0028

1no. raised rectangular and 2no. raised 'L' shaped planting beds. 2no. timber sleepers high.

Layout as shown in inset 1 and inset 3 of drawing ENV0000009C-JAG-ZZ-ZZ-DR-L0022. Exact layout to be agreed with landowner prior to commencement of works. Pressure treated softwood sleepers to be laid on a concrete foundation 150mm deep x 350mm wide x 350mm long. Concrete 1:2.5:3.5 parts cement:sand:gravel. Cut sleepers to length and cut the ends to overlap the corners. Sleepers secured together using countersunk TimberLok heavy duty wood screws or similar approved Timber to be planned all round. Make good all surrounding edges.

Topsoil: Planter to be filled with topsoil in accordance with section Q28. Finished level of topsoil after settlement to be 145mm below top of planter (final level to be 30mm from top of planter allowing for 75mm depth of bark mulch).

Existing grass disturbed by the construction works to be reinstated and seeded as per section Q28 and Q30.

Existing paving areas disturbed by the works to be reinstated as per section Q25. To match existing.

282D GUTTERING REINSTATEMENT NO 20

Drawing Reference: ENV0000009C-JAG-ZZ-ZZ-DR-L0022

Guttering removed to allow access to the construction working area to be reinstated upon completion of the works. Guttering to match existing specification and to be supplied and installed in accordance with the current British Standards.

282E RAISED TIMBER SLEEPER PLANTER ALLOTMENTS

Drawing reference: ENV0000009C-JAG-ZZ-ZZ-DR-L0028

Sizes: 2400mm long x 1000mm wide x 615mm high

2400mm long x 1000mm wide x 900mm high

2400mm long x 1000mm wide x 690mm high

Exact layout to be agreed with landowner prior to commencement of works.

Pressure treated softwood sleepers to be laid on a concrete foundation 150mm deep x 350mm wide x 350mm long. Concrete 1:2.5:3.5 parts cement:sand:gravel.

Cut sleepers to length and cut the ends to overlap the corners. Sleepers secured together using countersunk TimberLok heavy duty wood screws or similar approved Timber to be planned all round. Make good all surrounding edges.

Topsoil: Planter to be filled with topsoil in accordance with section Q28. Finished level of topsoil after settlement to be 145mm below top of planter (final level to be 30mm from top of planter allowing for 75mm depth of bark mulch).

Existing surfaces disturbed by the construction works to be reinstated and seeded as per section Q28 and Q30.

282F SHED – ALLOTMENT (PROVISIONAL ITEM)

Drawing reference: ENV0000009C-JAG-ZZ-ZZ-DR-L0028

Standard traditional apex shed 6ft x 4ft

Pressure treated softwood
 16mm x 125mm tongue and g roove ship lap cladding and 44 x 28 framework
 Tongue and groove construction,
 Ledged and braced door, with lock and key.
 Heavy mineral roofing felt
 No windows
 FSC certified timber
 Shed to be installed with a timber base on flat even ground.
 Supply and install in accordance with manufacturer's instructions.
 Supplier: Greenview Sheds and Fences (tel. 01254 823656) Unit 15 Shuttleworth Mead Business Park,
 Padiham, Lancashire, BB12 7NG or similar approved.
<https://www.greenviewshedsandfences.co.uk/collections/apex-sheds/products/greenview-tanalised-apex-shed?variant=37841418125512>

- 282G BRIDLEWAY RAILINGS
 Drawing reference: ENV0000009C-JAC-ZZ-42B-DR-C-0002 and ENV000000C-JAC-DZ-42B-DR-C-0003
 Location: Northern side of 1:12 tarmac footpath ramp as detailed on drawing ENV0000009C-JAC-ZZ-42B-DR-C-0002 as agreed with CA.
 Sloping iron railings to maintain bridleway. Minimum height of railings to be 1800mm in accordance with the requirements of the British Horse Society. Height of railings to be confirmed with Lancashire County Council.
 Colour: Black RAL 9005.
- 282H POND DIPPING PLATFORM
 HDPE recycled plastic
 Supplier: The Hideout House Company Ltd Tel 01832 275902 or similar approved.
 Size: 6m x 1.5m x 2m
 Supply and install in accordance with the manufacturers recommendations.

INSTALLATION

- 510 CONCRETE FOUNDATIONS GENERALLY
 Standard: To BS 8500-2.
 Mix: Designated concrete not less than GEN 1 or standard prescribed concrete not less than ST2.
 Admixtures: Do not use.
 Foundation holes: Neat vertical sides.
 Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.
- 515 SETTING COMPONENTS IN CONCRETE
 Holes: excavated to dimensions as shown on drawings.
 Components: Accurately positioned and securely supported.
 Concrete fill: Fully compacted as filling proceeds.
 Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
 Temporary component support: Maintain undisturbed for minimum 48 hours.
- 530 PRESERVATIVE TREATED TIMBER
 Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
 Heavily worked sections: Retreat.
- 550 DAMAGE TO GALVANIZED SURFACES

Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.

Material: 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.

Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

560 SITE PAINTING

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

14. Z21 Mortars

To be read with Preliminaries/ General conditions

CEMENT GAUGED MORTARS

- 110 CEMENT GAUGED MORTAR MIXES
Specification: Proportions and additional requirements for mortar materials are specified elsewhere.
- 120 SAND FOR SITE MADE CEMENT GAUGED MASONRY MORTARS:
Standard: To BS EN 13139.
Grading: 0/2 (FP or MP).
- Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1:5-6):
- Lower proportion of sand: Use category 3 fines.
- Higher proportion of sand: Use category 2 fines.
Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.
- 131 READY-MIXED LIME: SAND FOR CEMENT GAUGED MASONRY MORTARS
Standard: to BS EN 998-1.
Lime: Non hydraulic to BS EN 459-1.
- Type: CL90S
Pigments for coloured mortars: To BS EN 12878
- 135 SITE-PREPARED LIME: SAND FOR CEMENT GAUGED MORTARS
Permitted use: Where a specialist colour is not required and in lieu of factory made ready-mixed material
Lime: Hydrated non-hydraulic lime to BS EN 459-1
- Type CL90S

Mixing: Thoroughly mix with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.
- 160A CEMENT FOR MORTARS
When not specified otherwise, to be ordinary or rapid hardening Portland cement or blast furnace cement. All cements must comply with BS EN 197-1 and be manufactured by a BSI Registered Firm of Assessed Capability.
Cement: TBC
Standard: To BS EN 197-1.
Types:
Ordinary Portland cement, CEM I.
Portland slag cement, CEM II/ B-S.
Portland fly ash cement, CEM II/ B-V.
Strength class: 42.5 or 52.5.
Sulfate resisting cement:
Standard: To BS 4027.
Strength class: 42.5 or 52.5.
Masonry cement:
Standard: To BS EN 413-1.
Class: MC 12,5 (with air entraining agent).
Certification for all cements: BSI Kite mark scheme
- 180 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS:
Do not use in mortar unless specified or approved.
Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with mortar constituents.
Other admixtures: Submit proposals for approval

Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

200 STORAGE OF CEMENT GAUGED MORTAR MATERIALS

Sands and aggregates: Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.

Factory produced ready-mixed lime: sand / ready to use retarded mortars: Keep in covered containers to prevent drying out or wetting.

Bagged cement/ hydrated lime: Store raised off the ground in dry conditions.

210A MAKING CEMENT GAUGED MORTAR:

Batching: By volume. Use clean and accurate gauge boxes or buckets.

Mix proportions: Based on dry sand. Allow for bulking of damp sand.

Mixing: Mix materials thoroughly to uniform consistency, free from lumps.

Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.

Working time (maximum): Two hours at normal temperatures. **Do not use after the initial set has taken place and do not retemper.**

Contamination: Prevent intermixing with other materials. **Keep plant and banker boards clean at all times.**

350 STORAGE OF LIME: SAND MORTAR MATERIALS

Sands and aggregates: Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.

Ready prepared non-hydraulic lime putty: Prevent drying out and protect from frost.

Non-hydraulic lime: sand mortar: Store on clean bases or in clean containers that allow free drainage. Prevent drying out or wetting and protect from frost.

Bagged hydrated hydraulic lime: Store raised off the ground in dry conditions.

360A MAKING LIME: SAND MORTARS GENERALLY

Batching: By volume. Use clean and accurate gauge boxes or buckets.

Mixing: Mix materials thoroughly to uniform consistency, free from lumps.

Contamination: Prevent intermixing with other materials, including cement. **Keep plant and banker boards clean.**

15. Specification Appendices

APPENDIX 1: Landscape Establishment Aftercare Schedule Sheet

APPENDIX 2: Requirements for the supply of timber or timber products

APPENDIX 3: Supplementary condition of contract relating to the purchase of timber and timber related products for all landscape contracts

Appendix A. Appendix 1: Landscape Establishment Aftercare Schedule Sheet

SITE NAME:

ESTABLISHMENT MAINTENANCE YEAR No.: 1 2 3 4 5 (Circle)

VISIT NUMBER: CONTRACTOR:

Operations required by specification	Specification Clause guide	Date operation carried out by contractor	Operation checked (Office use only)
Weed control to trees, shrubs and hedgerows. Annual mulch maintenance and top-up.	Q35: 125 Q35: 645-670 Q35: 690		
Trimming operations, and pruning of dead and damaged tissue to trees, shrubs and hedgerows	Q35: 540-615		
Checking tree accessories	Q35: 510-530		
Litter/rubbish removal	Q35: 190A		
Protective fencing	Q31: 732, Q35: 698		

Grass maintenance:	Generally: Q30:605-752 and Q35: 210-250
Include all necessary operations specific to the following, contained in Q35 Clauses 285A-381	
- <i>Lawns:</i>	
- <i>General grassed areas:</i>	
	Q30: 540A and Q35: 260A
- <i>Wildflower meadows:</i>	
	Q30: 530A and Q35: 265A Q35: 272-280A
Maintenance of bulbs, plugs and herbaceous grasses	Q35: 235 and Q35: 635
Hard landscape areas	Q35: 910-930
Control of Japanese Knotweed	Q35: 198

List additionally agreed operations including intermittent operations required by the specification and/or as instructed.

<p>The above operations are complete and ready for inspection.</p> <p>Signed by contractor.....</p> <p>For and on behalf of.....</p>	<p>Return this sheet to the Delegated CA (<i>insert name</i>) at the following address:</p> <p>.....</p> <p>.....</p> <p>.....</p>
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Appendix B. Appendix 2: The supply of timber or timber -related products

Supporting Document – Specification V4 Updated in line with UK Government Timber Procurement Policy Timber Procurement Advice Note 5th Edition June 2013 and EA specific requirements. Revised 18th July 2016.

This document together with the supplementary condition in Appendix 3 contains the requirements of the UK Government Timber Procurement Policy Timber Procurement Advice Note (TPAN) 5th Edition and Environment Agency specific requirements.

Introduction

The Environment Agency uses timber (softwood, temperate and tropical hardwood, as relevant) in a range of projects and applications, including but not limited to:

- fencing, habitat restoration work and agricultural improvements (e.g. livestock bridges)
- marine and freshwater structures (e.g. lock gates, jetties, landing stages, fenders, decking, footbridges, groynes and planking)
- construction / refurbishment, e.g. window frames, doors, roofing timbers, scaffolding, hoardings, shuttering
- furniture
- flooring

Depending on the structure and the type of natural environment, we require timber that exhibits some or all of the following properties:

- high strength to weight ratio
- high density
- good workability
- good durability to attack by decay-causing fungi
- resistance to attack by marine borers
- high tolerance to short duration loads
- resistance to abrasion.

As far as possible, the Environment Agency aims to specify its timber requirements in performance output terms rather than demanding a specific species of timber.

If tropical hardwood timbers are required, as well as using popular commercial timbers such as Ekki, we are actively seeking to use more lesser known species, particularly Angelim Vermelho (*Dinizia excelsa* Ducke), Cupiuba (*Goupia glabra* Aubl), Eveuss (*Klainidoxa gabonensis*), Okan (*Cylicodiscus gabunensis* Harms) and Tali (*Erythrophleum micranthum*). Comprehensive technical data on the key properties of these five lesser known species is contained within an Environment Agency commissioned research report "[Alternative hardwood timbers for use in marine & freshwater construction](#)".

The Environment Agency places particular importance on the sourcing and use of timber that complies with the UK Government Timber Procurement Policy. All timber supplied under this Framework Contract must comply with the UK Government Timber Procurement Policy, as explained in the clauses below.

For operational reasons, the Environment Agency has a strong preference for timber supplied with Category A evidence of legality, sustainability and chain of custody (i.e. FSC or PEFC certified timber). Acceptance of timber supplied with Category B evidence and FLEGT-licensed timber will be considered on a case by case basis, by exception.

In addition please note that the Environment Agency has a strict approach to the use of tropical hardwood. All potential purchases of tropical hardwood regardless of size and value must receive the relevant, internal approval before it can be purchased.

Please note:

- the Environment Agency is currently not purchasing virgin Greenheart timber (as it is not currently available with Sustainable chain of custody, only legal);
- the Environment Agency encourages the use of recycled timber ahead of virgin timber where it meets our performance requirements and subject to the evidence required by the UK Timber Procurement Policy.

A Glossary of Terms is attached as Annex A.

The supply of timber

Requirements for Timber

1. All timber and wood-derived products for supply or use in performance of the contract must be independently verifiable and either:
 - a Legal source; and
 - a Sustainable source, which can include a FLEGT-licensed or equivalent source.
2. Recycled or reclaimed timber may be supplied as an alternative to virgin timber. The Glossary of Terms attached as Annex A provides a definition of recycled and reclaimed timber in accordance with the UK Government Timber Procurement Policy.

Requirements for proof of Timber Origin

3. Management of the forest or plantation shall be audited at intervals confirming ongoing good forest management and by organisations with appropriate forest management experience that are independent of the organisation that holds timber harvest and/or management rights for that forest.
4. The Contracting Authority will accept evidence from any of the following categories:
5. Category A evidence: Certification under a scheme recognised by the UK government as meeting the criteria set out in the document entitled "UK Government Timber Procurement Policy: Criteria for Evaluating Certification Schemes (Category A Evidence)" (available from the Contracting Authority on request) which reflects the criteria for legal and sustainable set out in the document entitled UK Government Timber Procurement Policy, Definition of Legal and Sustainable for Timber Procurement The edition current on the day the contract is awarded shall apply. Acceptable schemes must ensure that at least 70% (by volume or weight) is from a Legal and Sustainable source with the balance from a legal source.
6. Category B evidence: Documentary evidence, other than Category A evidence and FLEGT (or equivalent) evidence, that provides assurance that the source meets the criteria set out in the document entitled 'UK Government Timber Procurement Policy: Framework for Evaluating Category B Evidence' which reflects the criteria for legal and sustainable set out in 'UK Government Timber Procurement Policy, Definition of Legal and Sustainable for Timber Procurement'. The edition current on the day the contract is awarded shall apply. Such Category B evidence may include, for example, independent audits and declarations by the Contractor or his suppliers. .

Where Category B evidence is to be relied on, the Contractor is required to notify the Contracting Authority of the source or sources of all virgin timber and wood-derived products supplied. Source in this context means the forest or plantation where the trees were grown and all subsequent places of delivery through the supply chain prior to receipt of the timber or wood-derived product by the Contracting Authority. The Contractor shall separately identify virgin timber and wood-derived products supplied from forests and plantations that are claimed to be subject to sustainable timber production and shall submit to the Contracting Authority documentation in respect of such wood to confirm that the criteria for sustainable timber production set out in this specification have been met. If mixing is unavoidable within the supply chain then sources can still be accepted provided that there are adequate controls in place and at least 70% (by volume or weight) is from a Legal and Sustainable source with the balance from a legal source.

7. FLEGT evidence, from either or both of the following categories:

Evidence of timber and wood-derived products being exported from a timber-producing country that has signed a bilateral Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA) with the European Union and which have been licensed for export by the producing country's government. Evidence of equivalence to FLEGT-licensed (for the purposes of the definition of Sustainable) may include Timber and wood-derived products that have been independently verified as meeting all the producing country's requirements for a FLEGT licence (in due course), where a VPA has been entered into but the FLEGT licensing system is not fully operational, or

Evidence from a country that has not entered into a VPA which demonstrates that all of the requirements equivalent to FLEGT-licensed timber have been met.

FLEGT-licensed Timber and wood-derived products which have been processed in a third country may also be acceptable, provided that they demonstrate compliance with the TPP definition of Legal and Sustainable (where equivalent to FLEGT-licensed can be evidence of meeting the definition of Sustainable).

8. In relation to recycled and reclaimed timber, the need for documentary evidence and independent verification also applies but will focus on the use to which the timber was previously put rather than the forest source and chain of custody.

Annex A: Glossary of Terms

The terms defined in Annex (A) are for use in this Note:

Timber and wood-derived products: means any product that contains wood or wood fibre, with the exception of "recycled" materials (see below). Such products range from solid wood to those where the manufacturing processes obscure the wood element (e.g. paper).

Timber and wood-derived products supplied or used in performance of the contract that have been recycled or reclaimed are referred to as "recycled" timber, which is defined below.

Timber and wood-derived products supplied or used in performance of the contract that are not recycled are referred to as "virgin" timber when the distinction needs to be made for clarity.

Short-rotation coppice is exempt from the requirements for timber and wood-derived products and falls under agricultural regulation and supervision rather than forestry.

Legal and Sustainable: means production and process methods, also referred to as timber production standards, and in the context of social criteria, contract performance conditions (only), as defined by the document titled "*UK Government timber procurement policy: Definition of Legal and Sustainable for timber procurement*" (available from the Contracting Authority on request). The edition current on the day the contract is awarded shall apply.

FLEGT: means Forest Law Enforcement, Governance and Trade, and is a reference to the EU FLEGT Action Plan, which aims to help tackle the urgent issue of illegal logging and associated trade.

FLEGT licensed: means production and process methods, also referred to as timber production standards, and in the context of social criteria, contract performance conditions (only), as defined by a bilateral Voluntary Partnership Agreement (VPA) between the European Union and a timber-producing country under the FLEGT scheme, where both parties have agreed to establish a system under which timber that has been produced in accordance with the relevant laws of the producing country, and other criteria stipulated by the VPA, are licensed for export by the producing country government.

Recycled: means recovered wood that prior to being supplied to the Contracting Authority had an end use as a standalone object or as part of a structure and which has completed its lifecycle and would otherwise be disposed of as waste.. The term "recycled" is used to cover the following categories: pre-consumer recycled wood and wood fibre or industrial by products but excluding sawmill co-products (sawmill co-products are deemed to fall within the category of virgin timber), post-consumer recycled wood and wood fibre, and drift wood. It also covers reclaimed timber which was abandoned or confiscated at least ten years previously.

Documentary evidence and independent verification also apply to recycled materials, but will focus on the use to which the timber was previously put rather than the forest source and chain of custody details. Previous legal ownership details will be required for an audit trail.

Short-rotation coppice: means a specific management regime whereby the poles of trees are cut every one to two years and which is aimed at producing biomass for energy. It is exempt from the UK government timber procurement policy requirements and falls under agricultural regulation and supervision rather than forestry. The exemption only refers to short-rotation coppice, and not 'conventional' coppice which is forest management and therefore subject to the timber policy.

Appendix C. Appendix 3: Supplementary condition of contract relating to the purchase of timber and timber related products for all landscape contracts.

This document contains the requirements of the UK Government Timber Procurement Policy Timber Procurement Advice Note (TPAN) 5th Edition June 2013.

Use of these is mandatory when formally tendering a national or regional framework/contract that includes the supply of timber or timber-related products.

The tenderer's attention is drawn to the contract requirements governing the supply and use of timber and wood-derived products in performing the contract. It is UK government policy to require that all timber and wood-derived products originate from an independently verifiable Legal and Sustainable (which can include from a licensed Forest Law Enforcement, Governance and Trade (FLEGT) partner or equivalent) source. Timber and wood-derived products in the context of this contract include any product that contains wood or wood fibre supplied to the Contracting Authority or used by the contractor or his agents and subcontractors in performance of the contract.

The contract conditions require that:

- 1.1 All Timber and wood-derived products for supply or use in performance of the contract must be independently verifiable and come from:
 - 1.1.1 A Legal source; and
 - 1.1.2 A Sustainable source, which can include a FLEGT- licensed or equivalent source; as set out in the specification. The Contracting Authority may reject any bid that cannot offer to provide independent verification that all timber and wood-derived products used in the contract meets this requirement.

Contract Condition - Timber and wood-derived products

1 Requirements for Timber

- 1.1 All Timber and wood-derived products supplied or used by the landscape contractor in performance of the JCLI Landscape Works Contract 2017 and JCLI Landscape Maintenance Works Contract 2017 (including all timber and wood-derived products supplied or used by sub-contractors) shall comply with this Contract Specification.
- 1.2 In addition to the requirements of clause 1.1 above, all timber and wood-derived products supplied or used by the landscape contractor in performance of the JCLI Contract (including all timber and wood-derived products supplied or used by sub-contractors) shall originate from a forest source where management of the forest has full regard for:
 - Identification, documentation and respect of legal, customary and traditional tenure and use rights related to the forest;
 - Mechanisms for resolving grievances and disputes including those relating to tenure and use rights, to forest management practices and to work conditions; and
 - Safeguarding the basic labour rights and health and safety of forest workers.

2 Requirements for Proof of Timber Origin

- 2.1 If requested by the Environment Agency, and not already provided at the tender evaluation stage, the landscape contractor shall provide to Environment Agency evidence that the timber and wood-derived products supplied or used in the performance of the JCLI Contract complies with the requirements of this Contract Specification. If requested by the Environment Agency, the landscape contractor shall

provide evidence that the timber and wood-derived products supplied or used in the performance of the JCLI Contract complies with the requirements of the social criteria defined in section 1.2 above.

- 2.2 The Environment Agency reserves the right at any time during the execution of the JCLI Contract and for a period of 6 years from final delivery under the JCLI Contract to require the landscape contractor to produce the evidence required for the Environment Agency's inspection within 14 days of the Environment Agency's written request.
- 2.3 The landscape contractor shall maintain records of all timber and wood-derived products delivered to and accepted by the Environment Agency. Such information shall be made available to the Environment Agency if requested, for a period of 6 years from final delivery under the JCLI Contract.

3 Independent Verification

- 3.1 The Environment Agency reserves the right to decide whether the evidence submitted to it demonstrates that the timber and wood-derived products comply with this Contract Specification. The Environment Agency reserves the right to decide whether the evidence submitted to it is adequate to satisfy the Environment Agency that the timber and wood-derived products comply with the requirements of the social criteria defined in section 1.2 above.

In the event that the Environment Agency is not satisfied, the landscape contractor shall commission and meet the costs of an "independent verification" and resulting report that will (a) verify the forest source of the timber and wood-derived products and (b) assess whether the source meets the relevant criteria.

- 3.2 In the JCLI Contract, "Independent Verification" means that an evaluation is undertaken and reported by an individual or body whose organisation, systems and procedures conform to *ISO Guide 65:1996 (EN 45011:1998) General requirements for bodies operating product certification systems* or equivalent, and who is accredited to audit against forest management standards by a body whose organisation, systems and procedures conform to *ISO 17011: 2004 General Requirements for Providing Assessment and Accreditation of Conformity Assessment Bodies* or equivalent.

4 Environment Agency's Right to Reject Timber

- 4.1 The Environment Agency reserves the right to reject any timber and wood-derived products that do not comply with the JCLI and this Contract Specification. It also reserves the right to reject any timber and wood-derived products that do not comply with the requirements of the social criteria defined in section 1.2 above.

Where the Environment Agency exercises its right to reject any timber and wood-derived products, the landscape contractor shall supply alternative timber and wood-derived products, which do so comply, at no additional cost to the Environment Agency and without causing delay to the JCLI Contract completion period.

Appendix D. Guidance on the Management of Invasive Non-Native Plant Species (INNS)

The following is based on an Environment Agency internal note summarising controls for plant material and soil containing plant material.

364_04_SD21 Invasive Non-Native Plants (INNS) v2 published on 12/09/17.

Note that web links shown under Regulatory Controls may be inaccessible to landscape contractors but the CA map provide a copy in specific circumstances.

21. Invasive non-native plant species (INNS)

V 2 July 2017

THE SCOPE OF THIS WASTE MANAGEMENT NOTE

INNS plants and soils contaminated with INNS that have been removed or excavated are classified as waste. Their storage, disposal such as burning, burying and treatment is subject to waste legislation and relevant code of practice. This note summaries waste regulatory controls needed to manage them.

WASTE TYPE, DESCRIPTION AND CLASSIFICATION

Waste is any INNS plant material which has grown at the location where we undertake riverbank maintenance, in channels, site clearance works (including revenue and capital projects) which needs removing. Waste may also be generated on our trash screens, pumping stations or by targeted control programmes against the INNS.

GENERAL DUTY OF CARE REQUIREMENTS

- Removal of INNS plants from the place of generation is subject to Duty of Care and additionally, where hazardous, the Hazardous Waste Regulations as they may be contaminated with oil.
- Registered waste carriers must be used when transporting waste.
- Waste must be kept safe and prevented from escaping during transport, handling and subsequent storage.
- Hazardous waste consignment notes must be completed when hazardous waste is moved from one premises to another and when waste leaves our control, it must be kept for three years.
- Transfer of hazardous waste from waterways or the field as part of pollution control activities to a depot or waste facility must be accompanied by a consignment note.
- Waste transfer notes must be completed when the waste leaves our control, the documentation must be kept for two years.

Important! All equipment used to manage INNS plants must be thoroughly cleaned after use, in accordance with the [check, clean, dry](#) campaign.

15.1.1.1.1 Waste Activity

Conditions/ Limits, for all details see full wording of relevant regulatory control.

Regulatory control

1. TREATMENT

Important! Many invasive plants are spread by vegetative means. Chipped or shredded material is a high bio-security risk and must be disposed of with great care. You must not transport INNS plant materials off site for treatment at other location. It can only be taken off site if transferred directly to an external licensed waste facility.

<p>1A) Cutting and size reduction of waste timber prior to transfer to a waste facility carried out <u>at the place of generation</u>.</p>	<p>Ancillary treatment can be undertaken prior to the collection of waste – this may involve crushing, chipping, size reduction, separation of recyclables to help with storage, collection and transport of waste. If the waste is taken for disposal preparatory treatment is allowed to help load and transport waste.</p> <p>Ensure the waste cannot escape during transport. Chipped or shredded material is a high bio-security risk and must be disposed of with great care.</p>	<p>None required</p> <p>check, clean, dry</p>						
<p>2B) Chipping or shredding of waste plant matter at any site (e.g. riverbank, contractor's depot) with associated storage.</p> <p>T6 must be registered on a site specific basis. .</p>	<p>The chipping, shredding and storage of non-hazardous plant tissue waste (LOW code: 200201) are exempt.</p> <table border="1" data-bbox="645 560 1805 746"> <thead> <tr> <th data-bbox="645 560 1037 624">Quantity</th> <th data-bbox="1043 560 1373 624">Time</th> <th data-bbox="1379 560 1805 624">Other conditions</th> </tr> </thead> <tbody> <tr> <td data-bbox="645 628 1037 746">The total quantity treated or stored over any seven day period does not exceed 500 tonnes.</td> <td data-bbox="1043 628 1373 746">No waste is stored for longer than 3 months after treatment.</td> <td data-bbox="1379 628 1805 746">The activity can be undertaken at any site, for the purposes of recovery or reuse.</td> </tr> </tbody> </table>	Quantity	Time	Other conditions	The total quantity treated or stored over any seven day period does not exceed 500 tonnes.	No waste is stored for longer than 3 months after treatment.	The activity can be undertaken at any site, for the purposes of recovery or reuse.	<p>T6 - Treatment of waste wood and waste plant matter</p> <p>T6 - guidance note</p> <p>check, clean, dry</p>
Quantity	Time	Other conditions						
The total quantity treated or stored over any seven day period does not exceed 500 tonnes.	No waste is stored for longer than 3 months after treatment.	The activity can be undertaken at any site, for the purposes of recovery or reuse.						
<p>2. DISPOSAL</p>								
<p>15.1.1.1.2 1A) Burning INNS plant material on site of generation</p>								
<p>Burnt on site of production.</p> <p>The exemption D7 must be registered on a site specific basis.</p>	<p>The volume must not exceed 10 tonnes in 24 hours. The total quantity of waste stored at any one time must not exceed 20 tonnes. Smoke must not constitute a nuisance to occupiers or neighbours of property. Litter must not be included. The waste cannot include plastics and other non-wood/timber wastes. Fires must be controlled, supervised and fully extinguished upon leaving the site. You must also ensure that your activity does not:</p> <ul style="list-style-type: none"> • endanger human health or cause pollution to water, air or soil • constitute a risk to plants or animals • cause a nuisance, e.g. in terms of noise or odour • adversely affect the countryside or places of special interest <p>15.1.2 Good practice</p> <ul style="list-style-type: none"> • Burning plant material should only give rise to white smoke. • Tell the local fire brigade before you begin burning and again when you finish, so that they are not called out unnecessarily. • You can leave cut stems to dry out in the sun rather than burning them. Make sure you place cut Japanese knotweed and Himalayan balsam material on a membrane and not in direct contact with the ground. • Giant hogweed sap remains toxic after the plant has been cut down. Do not leave cut stems where they could harm people or livestock. 	<p>D7 - Burning waste in the open</p> <p>D7 - guidance note</p>						

1B) Burying INNS plant material on site of generation																											
<p>Buried on site of production.</p> <p>Taking plant material and soil containing plant material away for disposal off site uses valuable landfill capacity and increases the likelihood of the spread of invasive plants. Burial of the plant material and contaminated soil on site is an effective method of controlling the spread of INNS plants.</p>	<table border="1"> <thead> <tr> <th data-bbox="645 643 907 770">INNS plant</th> <th data-bbox="907 643 1283 770">Recommended burial depth below ground level</th> <th data-bbox="1283 643 1547 770">Burial time needed for the material to not grow back again</th> <th data-bbox="1547 643 1888 770">Regulatory control</th> </tr> </thead> <tbody> <tr> <td data-bbox="645 770 907 834">Water Primrose</td> <td data-bbox="907 770 1283 834">1m</td> <td data-bbox="1283 770 1547 834">5 years</td> <td data-bbox="1547 770 1888 962" rowspan="3">RPS for the disposal by burial of invasive non-native plants</td> </tr> <tr> <td data-bbox="645 834 907 898">Floating Pennywort</td> <td data-bbox="907 834 1283 898">1m</td> <td data-bbox="1283 834 1547 898">5 years</td> </tr> <tr> <td data-bbox="645 898 907 962">Giant Hogweed</td> <td data-bbox="907 898 1283 962">1m</td> <td data-bbox="1283 898 1547 962">15 years</td> </tr> <tr> <td data-bbox="645 962 907 1121">Japanese Knotweed</td> <td data-bbox="907 962 1283 1121">5m + a barrier membrane put on top of the material and fill the hole with clean soil</td> <td data-bbox="1283 962 1547 1121">Until the rhizome is dead, which is likely to take in excess of 20 years</td> <td data-bbox="1547 962 1888 1121">Refer to the prevention guide of Japanese Knotweed on GOV.UK</td> </tr> <tr> <td data-bbox="645 1121 907 1185">Himalayan Balsam</td> <td data-bbox="907 1121 1283 1185">1m</td> <td data-bbox="1283 1121 1547 1185">2 years</td> <td data-bbox="1547 1121 1888 1249" rowspan="2">RPS for the disposal by burial of invasive non-native plants</td> </tr> <tr> <td data-bbox="645 1185 907 1249">Parrot's Feather</td> <td data-bbox="907 1185 1283 1249">1m</td> <td data-bbox="1283 1185 1547 1249">5 years</td> </tr> </tbody> </table> <p>Other considerations:</p> <ul style="list-style-type: none"> • If spraying the plants with chemicals you must only use approved herbicides, ensure you follow the COSHH guidance and dispose of the residues through a registered waste carrier to a permitted site. • If plant matter is to be buried on site you must follow RPS 178 to decide whether an environmental permit is required or your activity matches the criteria set out in RPS 178. 	INNS plant	Recommended burial depth below ground level	Burial time needed for the material to not grow back again	Regulatory control	Water Primrose	1m	5 years	RPS for the disposal by burial of invasive non-native plants	Floating Pennywort	1m	5 years	Giant Hogweed	1m	15 years	Japanese Knotweed	5m + a barrier membrane put on top of the material and fill the hole with clean soil	Until the rhizome is dead, which is likely to take in excess of 20 years	Refer to the prevention guide of Japanese Knotweed on GOV.UK	Himalayan Balsam	1m	2 years	RPS for the disposal by burial of invasive non-native plants	Parrot's Feather	1m	5 years	<p>RPS 178 for the disposal by burial of INNS.</p> <p>Prevent Japanese Knotweed from spreading</p> <p>Prevent harmful weeds and invasive non-native plants spreading</p>
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	<ul style="list-style-type: none"> If you burn the plant matter on site you must ensure you have an environmental permit/registered waste exemption in place and follow the criteria set out by the permit. If you dispose of the plant matter off site always ensure you use a registered waste carrier and dispose of the waste at a suitable site which can accept the waste, you cannot compost the waste. You must also dispose of the soil responsibly if you suspect it has been contaminated with herbicides. 							
<p>3. STORAGE</p> <p>Important! INNS plant waste can only be stored at the place of generation. You must not transport INNS plant materials off site to other locations for bulk up. The material should be only be taken off site if transferred directly to an external licensed waste facility.</p>								
<p>3A) Temporary storage of INNS plant matter at the place of production generated as a result of operations. This includes green waste generated on trash screens, pumping assets or washed downstream.</p> <p>No registration is needed for this exemption.</p>	<p>Storage at the site of production, whether waste is non-hazardous or hazardous is exempt (Exemption 2).</p> <table border="1" data-bbox="645 611 1921 735"> <thead> <tr> <th>Waste types & Quantity</th> <th>Time</th> <th>Other conditions</th> </tr> </thead> <tbody> <tr> <td>Any waste, no time limit</td> <td>Up to 12 months</td> <td>The waste is stored in a secure* place</td> </tr> </tbody> </table> <p>Plant material must be stored in a manner that prevents further spread, either by disturbance, weather or floods. Any regrowth should be subjected to control measures, such as treatment with herbicide.</p> <p>Hazardous waste must not be mixed with non-hazardous waste or other hazardous waste.</p> <p>'Secure place' means a place is secure in relation to waste kept in it if all reasonable precautions are taken to ensure that the waste cannot escape from it and members of the public are unable to gain access to the waste.</p>	Waste types & Quantity	Time	Other conditions	Any waste, no time limit	Up to 12 months	The waste is stored in a secure* place	<p>NWFD Exemption 2 – Temporary Storage at the site of production</p> <p>Guidance</p>
Waste types & Quantity	Time	Other conditions						
Any waste, no time limit	Up to 12 months	The waste is stored in a secure* place						
<p>B) Temporary storage of non - hazardous and hazardous fly tipped waste contaminated with viable propagules of INNS plants at any site (including trash screens and depots), pending recovery or disposal.</p>	<p>Unsorted, fly tipped waste can be stored under Modernising Waste Regulatory Position MWRP RPS 060, conditions apply:</p> <ul style="list-style-type: none"> Quantity: Up to 20 m³ (non-hazardous waste) and 5 m³ (hazardous waste) Storage time: up to 6 months Other conditions: The waste is stored securely (waste cannot escape and unauthorised persons are prevented from accessing it). <p>When choosing how wastes are stored risks to public health and the environment must be considered, in particular for hazardous wastes. Where possible, storage should be in locked cages, on an impermeable surface, not subject to flooding.</p>	<p>The temporary storage of fly-tipped waste and waste from trash screens other than at the site of production</p>						

	<p>If you suspect the waste to be hazardous, assume they are and dispose of them as such. The CA can arrange for waste samples to be tested for waste identification. Hazardous waste should not be despatched for disposal at a landfill, but instead sent for treatment if possible.</p> <p>This option is not available for waste containing Japanese knotweed, which should either be treated on site, or taken to a licensed landfill, in accordance with the in line with the prevention of spreading Japanese Knotweed. Plant material must be stored in a manner that prevents further spread, either by disturbance, weather or floods. Any regrowth should be subjected to control measures, such as treatment with herbicide.</p>	
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WASTE MANAGEMENT GOOD PRACTICE

Relevant additional documents

- 1) Waste Guidance Sheet No. 13 – [Aquatic Weed](#)
- 2) [RPS178](#) for disposal by burial of invasive non-native plants

