

**Specification for**  
**Soft Landscape Works**  
  
**Brent Riverside Park,**  
**Brent Cross Cricklewood**

**1065-03-SP-07**

**Issued for RMA**

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## 1.0 GENERAL ITEMS

Project Details																							
<p><b>Project Name &amp; Location:</b></p> <p>Brent Riverside Park Brent Cross Shopping Centre, Hendon, London, NW4 3FP</p>																							
<p><b>Client:</b></p> <p>Hammersons  Standard Life Investments</p>	<p><b>Landscape Consultant:</b></p> <p>Macgregor Smith Ltd Christopher House 11-12 High Street Bath BA1 5AQ  01225 464690</p>																						
<p><b>Scope of Works:</b></p> <p>The scope of works covered by this specification includes the operations indicated below. Landscape Contractors should defer to the Main Contractor for confirmation of responsibility for groundworks as described by this document.</p> <p>A number of the operations described will be directly affected by the Base Landscape Works carried out by the Landscape Contractor and it is the Landscape Contractor's responsibility to ensure that there is full co-ordination between Soft Landscape and Base Landscape Works.</p>																							
<p><b>Operations:</b></p> <table border="1"> <tbody> <tr><td>Protection of existing trees and vegetation</td><td style="text-align: center;">✓</td></tr> <tr><td>Topsoil amelioration</td><td style="text-align: center;">✓</td></tr> <tr><td>Excavation &amp; backfilling of tree pits</td><td style="text-align: center;">✓</td></tr> <tr><td>Plant procurement</td><td style="text-align: center;">✓</td></tr> <tr><td>Tree planting</td><td style="text-align: center;">✓</td></tr> <tr><td>Ornamental shrub planting</td><td style="text-align: center;">✓</td></tr> <tr><td>Structure planting</td><td style="text-align: center;">✓</td></tr> <tr><td>Grass seeding and turfing</td><td style="text-align: center;">✓</td></tr> <tr><td>Marginal aquatic planting</td><td style="text-align: center;">✓</td></tr> <tr><td>Spreading of structural tree soils</td><td style="text-align: center;">✓</td></tr> <tr><td>Maintenance – pre &amp; post Practical Completion</td><td style="text-align: center;">✓</td></tr> </tbody> </table>		Protection of existing trees and vegetation	✓	Topsoil amelioration	✓	Excavation & backfilling of tree pits	✓	Plant procurement	✓	Tree planting	✓	Ornamental shrub planting	✓	Structure planting	✓	Grass seeding and turfing	✓	Marginal aquatic planting	✓	Spreading of structural tree soils	✓	Maintenance – pre & post Practical Completion	✓
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<p><b>Drawings:</b></p> <p>This Specification should be read in conjunction with the latest revisions of all of the drawings. Refer to Drawing &amp; Document Issue Sheets for further information.</p>																							



**Documents:**

This Specification should be read in conjunction with the Base Landscape Specification '1065-03-SP-07' and the Schedule of Works. Where schedules and drawings conflict, the **drawings** will take precedence.

**Items requiring approval by the Landscape Consultant :**

The following materials / works require approval from the Landscape Consultant :

- Bark mulch (in line with clause 3.4 of this Specification)
- Structural soil tree pits in hard landscaped areas, including penetrometer readings, prior to tree planting (in line with clause 3.5 of this Specification)
- Plant procurement (to be inspected by the Landscape Consultant at the supplying nurseries, as detailed in clause 3.2 of this specification)

**CDM:**

The Main Contractor will ensure compliance with the Construction (Design and Management) Regulations 2015 (CDM) and is required to act as Principal Contractor for the Works. For the purposes of the CDM Regulations, the Planning Supervisor shall be the person, firm or company defined in the contract documents.

**Intended Programme:**

Refer to Gardiner & Theobald and Alinea project manager's programme of works for 1BN Landscape.

Refer to Schofield Lothian and AECOM project manager's programme of works for 1AN Landscape.

Base landscape works should be co-ordinated with planting works to ensure that areas of spread topsoil are not left exposed to the elements for extended periods.

**Plant Suppliers – Special Requirements:**

The plant suppliers for this project are defined within this document. All stock for the project will only be sourced from the suppliers as directed.

**Suppliers:**

Named suppliers are included for:

- Trees
- Ornamental Shrubs
- Transplants
- Turf and grass seed
- Marginal and aquatic planting

**Maintenance and Defects:**

All soft landscape works are to be maintained until Practical Completion.

Grass areas and shrub, transplant and marginal planting are to be maintained for a period of **12 months**, and semi-mature trees are to be maintained for a period of **24 months**, from either the overall date of Practical Completion, or the final date of the completion of the soft landscape works - whichever is the later, unless otherwise agreed in writing. The defects liability period will run concurrently with the maintenance programme.

Post Practical Completion Maintenance requirements are detailed in Section 4.0 of this Specification



## 1.2 Terminology

The following terms have been used within this document. Abbreviations are shown in brackets:

### **Main Contractor (MC)**

The Contractor responsible for the overall co-ordination and implementation of the Construction Works.

### **Landscape Contractor (LCr)**

The Sub-contractor responsible for carrying out the soft landscape works, as defined in Section 1.1: Project Details.

### **Groudworks Contractor (GC)**

The Sub-contractor responsible for carrying out the base landscape works.

### **Contractor**

Used where clause refers to both the Main Contractor and Landscape Contractor.

### **Employer's Agent (EA)**

Agent acting on behalf of the Client to ensure that the Construction Works meet the Employer's Requirements and to liaise between the Contractors and Clients Design Teams.

### **Employer**

The Client as defined in Section 1.1: Project Details.

### **Base Landscape Works**

Elements of work associated with topsoil and subsoil preparation.

### **Soft Landscape Works**

Elements of work associated with planting and horticultural operations.

### **Hard Landscape Works**

Elements of work associated with 'hard' elements within the external works such as paving, street furniture, etc.

### **Topsoil**

Dark horizon of natural soil surface, generally cultivated, containing high proportion of plant roots

### **Subsoil**

Underlying soil, paler in colour (than topsoil) with recognisable structure.



### **1.3 Pricing of Landscape Work**

- 1.3.1 In preparing a quotation for these works, the Landscape Contractor should note the following:
- 1.3.2 The employer is not bound to accept the lowest or any price and is not liable for any costs incurred in pricing these works. Quotations must be submitted with the information set out below.
- 1.3.3 Alterations to Schedules of Quantities should not be made without approval by the Employer's Agent. Costs relating to scheduled items not priced will be deemed to have been included in the overall price.
- 1.3.4 The Landscape Contractor is advised to visit the site, and must satisfy himself on local conditions, access arrangements, storage, water supply, ground conditions, and the full extent and character of the works and site. No claim will be accepted for any aspect of the work that could have been reasonably foreseen at the time of pricing. Site visits may be made with prior arrangement through BCX centre management.
- 1.3.5 The Landscape Contractor must identify any special requirements for attendance, access, storage areas or facilities, services and water supply requirements at the time of tender. All services and water supply will only be supplied subject to availability on site. The Landscape Contractor must allow for all costs associated with the use of such facilities including metered utilities and water supplies unless specific agreement is otherwise obtained with the Main Contractor or Client.



## **1.4 Management of the Works**

- 1.4.1 The Contractor must ensure that whenever his operatives are on site there is a responsible person in charge who is familiar with the terms of this Specification and is able to take instructions on his behalf.
- 1.4.2 The Contractor must confine his access and activities to the areas identified on the contract drawings. Any damage to surfaces, services or features beyond the limit of these works will be put right at no expense to the Employer. Highways, site roadways and access points must be kept clean and clear
- 1.4.3 The Contractor shall allow for the removal of all surplus materials, spoil, arisings and rubbish from site. At the end of each and every working day the site will be left in a clean and tidy condition with all soil removed from hard surface areas.
- 1.4.4 The Contractor shall allow for the disposal of water from all excavations and planting areas as necessary to facilitate these works.
- 1.4.5 The Contractor will be responsible for liaison with the highway authorities or police for all traffic management measures required for all operations within or from public highways.
- 1.4.6 The Contractor shall ensure that he and his staff all pay due regard to the requirements of the Health and Safety at Work Act 1974 and all subsequent revisions and amendments. Under the CDM Regulations 2015, the Landscape Contractor and Groundworks must ensure he and his staff co-operate fully with the Principal Contractor.



## **1.5 Use of Pesticides and Herbicides**

- 1.5.1 The Contractor should consider in every instance whether the use of chemicals is strictly necessary before application, and assess the product against site conditions, target species and adjoining species or areas to ensure minimum risk to employees, other users of the site and the environment. The Contractor will be expected to use translocated chemicals in preference to contact products for the control of perennial weed growth.
- 1.5.2 The Contractor must use certified operators for all applications, take appropriate safety precautions and comply with the Control of Pesticides Regulations 1986, the conditions of approval for the chemical, and any relevant Code of Practice issued by DEFRA. The Contractor must keep full and accurate records of all herbicides used, the area in question, the amounts and the date of completion.
- 1.5.3 Unintentional spray overlap must be avoided. Spraying must stop whilst turning. The Contractor must mark the point where spraying has stopped for refilling or for breaks. Herbicide must never drift, fall or run-off onto open water or onto adjacent sites, gardens or ground not intended for treatment.
- 1.5.4 The Contractor must dispose of unused and unwanted containers, and chemicals, including unused dilute tank mixtures, in a safe way in accordance with the methods approved by the Control of Pesticides Regulations and relevant Codes of Practice. Disposal will be off site.





## 1.6 Noxious and Invasive or Harmful Weed and Pest Species

1.6.1 The following selected species are either Injurious Weeds, as defined by the Weeds Act 1959, Non-native Invasive plant or animal species as identified by the Wildlife and Countryside Act 1981 – Schedule 9 (updated in 2010,) or species considered harmful to the environment, not currently covered by legislation, which are considered to be of particular threat or likely occurrence on this site. For full Schedule of species list please refer to Appendix A.

<b>Injurious Weeds as prescribed by the Weeds Act 1959</b> (must be controlled)	<b>Selected Species covered by the Wildlife &amp; Countryside Act 1981 (updated 2010)</b> (illegal to spread in the wild)	<b>Other Harmful Species</b>
<p><b>Spear Thistle</b> (Cirsium vulgare) <b>Creeping or Field Thistle</b> (Cirsium arvense) <b>Curled Dock</b> (Rumex crispus) <b>Broad leaved Dock</b> (Rumex obtusifolius) <b>Ragwort</b> (Senecio jacobaea)</p>	<p><b>Japanese knotweed*</b> (Reynoutria japonica) <b>Giant Hogweed*</b>(Heracleum mantegazzianum <b>Himalayan Balsam*</b> Impatiens glandulifera <b>Australian Swamp* Stonecrop</b> Crassula helmsii <b>Parrot’s Feather*</b> Myriophyllum <b>Floating Pennywort*</b> Hydrocotyle ranunculoides <b>Creeping Water Primrose*</b></p> <p><b>Chinese Mitten Crab**</b></p>	<p><b>Mares-tails</b> Invasive plant difficult to control <b>Brown Tail Moths</b> Caterpillars occur in large numbers and can cause skin irritation</p>

\*These plant species are identified by the Environment Agency’s document ‘Managing Invasive non-native plants’ as being of particular concern in waterside areas. Revised 2010.

\*\* As noted by LBB of particular concern to the River Brent.

1.6.2 The Contractor is to note the presence of any such species on site and bring to the attention of the Landscape Architect. Appropriate control measures should be agreed with the supervising agent and implemented at the earliest opportunity. It is the Contractor’s responsibility to familiarise themselves with updates to legislation covering potential injurious, or non-native invasive plant and animal species, as this can be subject to change at any time.

1.6.3 A survey of Invasive Weed Species listed in Schedule 9 has been carried out by Elcot Environmental - Survey of Schedule 9 Listed Invasive Weed Species Revision C - 7.11.14, for the Phase 1AN area, and a method statement has been provided for the removal of such species on site. However, it is the responsibility of the Contractor to note the presence, or sightings of any further occurrence of Schedule 9 and other legislated species, and bring it to the attention of the Landscape Consultant and agree a methodology for the removal of these weeds as appropriate.



Invasive species listed under Schedule 9 of the Wildlife and Countryside Act (1981, as amended) and / or the London Invasive Species Index (LISI) were recorded to be present on the Site in the invasive species report (Elcot Environmental 2014); species include false acacia - *Robinia pseudoacacia*, Japanese knotweed - *Fallopia japonica* and Giant Hogweed - *Heracleum Mantegazzianum*.

To control the spread of the weeds in the existing locations the area should be cleared in line with the method statements approved under condition 27.8 and in accordance with the Environmental Protection Act 1990; Japanese Knotweed is classed as 'controlled waste' and as such must be disposed of safely at a licensed landfill site according to the Environmental Protection Act (Duty of Care) Regulations 1991.

To prevent the spread of invasive plants, once the Site is operational, regular checks should be made to record the extent of any invasive species and to remove seedlings / young plants of invasive species such as false acacia and to check for the presence of Japanese knotweed, which requires specific management and removal processes.

It is the Contractor's responsibility to familiarise themselves with updates to legislation covering potential injurious, or non-native invasive plant and animal species, as this can be subject to change at any time.

#### 1.6.4 **Rabbit Protection**

**Rabbit guards** : The Landscape Contractor will be required to supply and install individual rabbit guards to protect all open grown transplants within the scheme from damage by wildlife. The guards shall be positioned around each transplant and attached securely to a timber stake.



## 1.7 Protection Requirements

### 1.7.1 Protection of Existing Features

All existing features adjacent to the works or to be retained on site (including fencing, paving, drains, public and private services, surrounding landscape and other property) must be protected from damage throughout the course of the works. Work in progress, completed works and stored plant material must be adequately protected from concurrent and subsequent works. The Main Contractor is required to allow for any protective measures required within his price for these works.

Contractors shall ensure plant stock or completed works damaged by interference or conflict between trades, third party contractors or statutory undertakers may be rejected in their entirety and replacement materials required at no additional costs to the Employer.

Vandalism, damage or theft by public prior to Practical Completion will be remedied at no additional cost to the Employer. Post practical completion the Contractor will monitor such damage and advise the Employer of any occurrence at the earliest opportunity. The day-to-day responsibility for protection measures must be agreed between the Main Contractor and Landscape Contractor prior to commencement of the works.

### 1.7.2 Protection of Existing Trees and Vegetation

1.7.2.1 The Main Contractor will be responsible for the installation of protection measures around all vegetation to be retained, and will be responsible for the continued maintenance of those measures for the full duration of the works.

1.7.2.2 Immediately upon commencement of the works on site, the Contractor will be required to ensure that protective fencing is erected around the perimeter of all trees and hedgerows to be retained, in accordance with Macgregor Smith and Haydens drawings.

Barriers should consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of three metres. On to this, weldmesh panels should be securely fixed with wire or scaffold clamps. Weldmesh panels on rubber or concrete feet are not resistant to impact and should not be used. All weather notices should be attached to barriers with works such as : 'Construction Exclusion Zone – Keep Out'. Protection measures erected for the project will be maintained in place until formal instruction is given for its removal.

1.7.2.3 Where soiling works are required within protected areas, all operations will be undertaken by hand and the vegetation protected from any damage. No works shall be allowed within the Root Protection Areas (RPA) without the express consent of the Landscape Consultant. If consented, any excavations, cultivations and grading beneath the canopy of existing trees shall be carried out by hand, using hand tools, taking extreme care to not damage or disturb any tree roots, trunk and/or branches. The depths of any cultivation shall be modified accordingly to avoid severing any tree roots.

Within the RPA, the contractor must ensure that:

- No vehicles are allowed to enter or cross the protected area
- No stock piling of materials, topsoil, subsoil, rubbish or any other extraneous material



occurs

- No storage of fuel, chemicals, construction material, however temporary, occurs
- No excavation or increase in level takes place without the Landscape consultant's express approval
- no fires shall be lit beneath or in close proximity
- no concrete mixed within ten metres
- nothing attached to the trees
- all cranes / similar equipment kept away from the tree canopy

1.7.2.4 The contractor will be required to exercise extreme care when performing operations close to or beneath the canopy of existing mature trees in order to avoid, at all times, damage to roots, trunk and/or branches. The depths of any cultivation shall be modified accordingly to avoid severing any tree roots. All works to be in accordance with BS5837:2012 '*Trees in Relation to Design, Demolition and Construction-Recommendations*'.

1.7.2.5 Failure to comply with the specified protection works may result in an instruction to suspend works. Damage to, or removal of, vegetation occurring as a result of non-compliance will result in a financial penalty against the contractor to the sum of :

- £500 per shrub or tree less than 300mm girth
- £1000 per tree of 300mm girth and above
- Failure to comply with the specified protection works may result in an enforcement action by the Local Authority.

1.7.2.6 Protective fencing will only be allowed to be removed on completion of the project, or at the express consent of the Landscape Consultant.



## 2.0 QUALITY AND STANDARDS

### 2.1 This section relates to Quality Control and is applicable to all aspects of the Landscape Works.

#### 2.1.1 British Standards

The Contractor shall familiarise himself and his operatives with the British Standards, as referred to in this Specification, and any subsequent revisions thereof.

#### 2.1.2 Good Practice

Where and to the extent that materials, products and workmanship are not fully detailed or specified they are to be:

- Of a standard appropriate to the Works and suitable for the purposes stated in or reasonably to be inferred from the project documents,
- In accordance with good landscape/horticultural practice.

#### 2.1.3 General Quality of Products/Materials

The Contractor must ensure that:

- Suppliers are familiar with relevant specification clauses and understand the constraints and requirements particular to the project.
- Products are new unless otherwise specified. Where appropriate, recycled materials should be considered, with approval from the Employer / Landscape Consultant.
- Certificates of compliance are obtained from manufacturers for products and materials specified to a British Standard when requested by the Landscape Consultant.
- The whole quantity of each product and material required to complete the work is of consistent kind, size, quality and overall appearance.
- If materials are prone to deterioration or have a limited shelf life, order in suitable quantities to reflect the programme and use in appropriate sequence.



#### 2.1.4 **Checking Compliance of Products/Materials**

The Contractor must check all delivery tickets, labels, identification marks and, 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. In particular, check that :

- All stock has been adequately protected for loading and transit.
- The sources, types, qualities, finishes and colours are correct, and match any approved samples.
- The correct species, cultivars, pot sizes, plant height, girth or spread have been supplied for each consignment from the supplier.
- All materials should be clean, undamaged and otherwise in good condition.
- Where appropriate, protective covers should be intact with unbroken seals.

#### 2.1.5 **Protection of Products/Materials/Stock**

Ensure adequate provision is made for the protection and storage of deliveries. In particular ensure that:

- Supplies are delivered in relation to programme. Materials which may deteriorate with storage must not be stock-piled on site.
- Adequate and appropriate provision is made for storage prior to deliveries arriving on site. ALL materials in storage are to be suitably protected from damage and extremes of weather.

#### 2.1.6 **Suitability of Previous Work and Conditions**

Before starting each new type of 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 and access.
- The environmental conditions are suitable, particularly that the weather and ground conditions are appropriate to the operation. Seasonal constraints are set out in clause 3.1.2 of this Specification.
- Remove all surplus materials, spoil, rubbish and litter from landscape areas as work progresses.
- Leave site in a clean and tidy condition, with soil/mulch swept off hard surfaces at the end of each and every working day.



### 2.1.7 General Quality of Workmanship

- Operatives must be appropriately skilled and experienced for the type and quality of work and familiar with the terms of the specification.
- Inspect products/materials/stock carefully before use and reject any which are defective.
- Use products/materials only in the method and for the purpose recommended by the manufacturer.
- Ensure appropriate quantities are utilized, provide adequate measures for mixing and spreading of all products or materials.
- Set out components or stock to ensure correct positioning and spacings are achieved.
- Protect finished work from subsequent operations and interference by others as project progresses.

### 2.1.8 Samples/Approvals

- Where approval of products or materials 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.
- General - Inspection by the Landscape Architect must not be taken as approval of materials, products or work unless the Inspecting Officer confirms in writing his express approval.

### 2.1.9 Approvals

Contractors must give 48 hours notice to the Landscape Consultant of the intention to begin the following operations:

- Cultivations
- Setting out tree pits and shrub beds
- Planting Trees and Transplants
- Shrub Planting
- Seeding or Turfing
- Completion of Soft landscape works



## 2.2 Testing

The Landscape Consultant may require materials, goods, work or samples thereof to be tested to ensure that they comply with the standards specified, or with samples submitted. Where such tests indicate that the required standards have not been achieved, the costs of testing and of any subsequent re-testing are to be borne by the Contractor.

## 2.3 Landscape Operations

2.3.1 Unless otherwise specified or indicated in the tender drawings, the general landscaping operations shall be executed in accordance with the recommendations of BS4428 *General Landscape Operations (Excluding Hard Areas)* and all current relevant British Standards.

Relevant Standards	
BS3551 Section 1.1	Classification scheme for fertilizers and soil conditioners
BS4428	Code of practice for general landscape operations
BS3936 Part 1 1992	Specification for trees and shrubs.
BS3936 Part 2 1990	Specification for roses
BS3936 Part 4 2007	Specification for forest trees, poplars and willows
BS3936 Part 9 1998	Specification for bulbs, corms and tubers
BS3936 Part 10 1990	Specification for ground cover plants
BS4043 1989	Recommendations for transplanting rootballed trees

2.3.2 All operations herein described must be carried out with suitably approved machinery or by hand as the size of the areas or the accessibility dictates, and the need to work in such a manner must be reflected in the Landscape Contractor's rates.

2.3.3 The use of heavy machinery in excess of that required for the satisfactory construction of the work is prohibited. Where over-compaction results from the Contractor's failure to comply with this Clause, he shall, at his own expense, undertake whatever works the Employer's Agent may deem necessary to relieve the compaction and/or restructure the subsoil/topsoil.

2.3.4 The Employer's Agent may suspend any operation if he considers site conditions or weather conditions unsuitable to continue. Such a suspension cannot be considered a reason for any claim or loss by the Contractor.





### 3.0 PLANTING

#### 3.1 General

3.1.1 This section sets out the requirements for planting under the following subheadings:

- Plant Supply - Special Requirements
- Plant Supply - Stock Specification
- Other Materials - Soil Conditioners / Mulch / Accessories
- General Preparation - Planting Conditions
- Advanced Nursery Stock and Semi Mature Trees
- Container Grown Ornamental Shrubs, Herbaceous Perennials and Climbing Shrubs
- Structure Planting (Bare Root Transplants)
- Turfing / Seeding
- Marginal Aquatic Planting

#### 3.1.2 Seasonal Constraints and Programme

Due to the seasonal nature of plant material, planting works must be undertaken during an appropriate time of year, as set out below, and Landscape Contractors must agree their programme with the Main Contractor at the time of tender or before appointment. In the absence of any notification on the limitations on the intended programme, it will be assumed the Landscape Contractor has the resources and made appropriate provisions for obtaining suitable plant stock to facilitate out-of-season planting to suit the overall project completion date. Refer to the Main Contractor for confirmation of the project completion date.

Type of Planting	Season
Bare Root Transplants	November - End of March
Root Balled Trees	November - End of March
Spring Ringed or Container Grown Trees	Year Round
Container Grown Shrubs / Ground Cover	Year Round
Grass turf	October – End of April
Grass Seed	September/October and March/April
Marginal Aquatic plants	October – End of April



### 3.2 Plant Supply - Special Requirements

#### 3.2.1 Plant Suppliers

All plant stock for use on this project may only be sourced from one or more of the named nursery suppliers as set out below. No other suppliers will be considered. The Landscape Contractor will be responsible for securing the plant supplies through the named nursery and ensuring the overall quality and supply programme required for the project are delivered. The Landscape Contractor must confirm his preferred choice of supplier at the time of tender.

Semi-Mature Trees and Hedge Stock		
Deepdale Trees Tithe Farm Hatley road Potton Sandy Bedfordshire SG19 2DX  01767 262636 <a href="mailto:mail@deepdale-trees.co.uk">mail@deepdale-trees.co.uk</a>  Matthias & Susan Anton / Mark Godden	Lorenz von Ehren Maldfeldstrabe 4 D-21077 Hamburg Germany  0049 4076 1080 <a href="mailto:b.herold@bruns.de">b.herold@bruns.de</a>  Britta Herold	Bruns Pflanzen Postfach 1165 26146 Bad Zwischenahn Germany  0049 4403 6010 <a href="mailto:peter@LvE.de">peter@LvE.de</a>  Peter Flugge
Bare Root Transplants		
Wyevale Nurseries Kings Acre Hereford Herefordshire HR4 0SE  01432 845200	Oakover Nurseries Calehill Stables The Leacon Charing Ashford Kent TN27 0ET  01233 713016	Crowders Nurseries Lincoln Road Horncastle Lincolnshire LN9 5LZ  01507 525000



<b>Shrubs and Herbaceous Perennials</b>		
<p>Johnsons of Whixley The Nurseries Whixley York YO5 8AQ</p> <p>01423 330234 <a href="mailto:luker@nurserymen.co.uk">luker@nurserymen.co.uk</a></p> <p>Luke Richardson</p>	<p>Robin Tacchi Plants Fen Farm Fen Lane Garboldisham Norfolk IP22 2RL</p> <p>01953 681312 <a href="mailto:tony@robintacchiplants.com">tony@robintacchiplants.com</a></p> <p>Gill Tacchi</p>	<p>Palmstead Nurseries Ltd Harville Road Wye Ashford Kent TN25 5EU</p> <p>01233 811304 <a href="mailto:simon@palmstead.co.uk">simon@palmstead.co.uk</a></p> <p>Simon King</p>
<p>Crowders &amp; Sons Ltd Lincoln Road Horncastle Lincolnshire LN9 5LZ</p> <p>01507 525000 <a href="mailto:tom.owen@crowders.co.uk">tom.owen@crowders.co.uk</a></p> <p>Tom Owen</p>		
<b>Wildflower Seed</b>		
<p>Emorsgate Seeds Limes Farm Tilney All Saints King's Lynn Norfolk PE34 4RT</p> <p>01553 829 028 <a href="mailto:enquiries@emorsgateseeds.com">enquiries@emorsgateseeds.com</a></p>		
<b>Aquatic &amp; Marginal Planting &amp; Coir Roll</b>		
<p>Salix River &amp; Wetland Services Limited Croxtton – Sales &amp; Accounts Salix Croxtton Park Thetford Norfolk IP24 1LS</p> <p>Telephone: 0370 350 1851 Fax: 0370 350 1852 Email: <a href="mailto:info@salixrw.com">info@salixrw.com</a></p>		



### 3.2.2 Securing Supplies

The Landscape Contractor must ensure that plant suppliers are made aware of the full detail of the plant varieties, specifications, schedules, programme and delivery requirements when pricing and placing orders.

For the purpose of ensuring sufficient lead in time for co-ordinating supplies or growing the plant material to meet the requirements of this Specification, the Contractor shall place the order with the Specified Supplier within ten working days of being awarded the contract.

Where specified plants are not available at or through any of the specified nurseries, the suppliers may offer suitable plant substitutions for approval. Where any such substitutions need to be made the Contractor must notify the Landscape Consultant at the earliest opportunity and before plants are delivered to site.

In the event of nurseries outside of the UK being specified, the Landscape Contractor shall allow in his price the transport costs, hotel bills and disbursements for one landscape architect to attend nursery inspections.

### 3.2.3 Quality Control

The Landscape Contractor will ensure that the suppliers can achieve the required specification for all plant stock as set out in this Specification and listed in the schedules.

The Landscape Consultant will carry out a minimum of one inspection of the plant supplies at each supplying nursery, prior to dispatch. This will include an inspection to select and tag trees, and to inspect the full quantity of shrubs / herbaceous perennials / hedging material. The Landscape Contractor will be expected to attend such inspections and should also undertake his own inspections to monitor the quality of the plant material.

### 3.2.4 Plant delivery

No plants shall be delivered to site until areas are available for immediate planting or suitable storage arrangements have been put in hand.

The Landscape Contractor will be responsible for establishing the notice period and minimum call off values required by the Specified Suppliers for the delivery of plants, together with any restrictions of access to the site. The Specified Supplier's price is normally for supply; the Landscape Contractor should include for any delivery costs from the nursery to the site, and mechanical aid or labour resources required to off load plant materials on site. The Contractor shall attend and provide sufficient trained personnel to receive the plant material and to unload it from the Specified Supplier's vehicles.

The Contractor shall check and inspect the plant material on arrival to ensure that they are in a moist condition and damage has not occurred in transit. In the event of damage or plants failing to meet the specification or not being fit for the purpose intended, the Contractor shall inform the Landscape Consultant and return the plants to the nursery stating in writing the reasons for rejection.



All plants which the Contractor accepts will, from this point onwards, be the responsibility of the Contractor, who shall guarantee them from damage or disease from whatever source until the end of the defects liability period.

All payments for the plant material shall be made by the Contractor directly to the Specified Supplier.

### 3.2.5 **Transport and Handling - Requirements to be confirmed to suppliers**

Transport and handling shall be carried out in accordance with season and good horticultural practice, and in accordance with the Horticultural Trade Association's Plant Handling Manual (July 1987).

- All packages shall be adequate to protect the plants and prevent their drying out or damage of any kind during transportation.
- All plants must be in a turgid condition and stacked in such a way that breakage or crushing by the weight of the plants above or securing ropes will not occur in transit.
- All bare root transplant stock will be supplied root dipped and wrapped in co-extruded polythene bags.
- The plants shall be loaded in a manner suitable to facilitate simple unloading techniques which are not labour intensive and minimise risk of damage.
- The supplier's price shall be taken to include packaging and carriage to the site.
- Trees are to be prepared for lifting and transportation in accordance with good horticultural practice. Prior to lifting, the lower branches and clear stem shall be wrapped down to ground level, with maximum 150mm hessian strip. Insulation wrapping shall overlap to form a double thickness and shall be securely bound with cord. All branches to be tied to avoid damage during lifting, transit and off-loading.
- Trees to be handled in accordance with good horticultural practice in order to avoid damage during lifting, transit and off-loading. During lifting, loading and off-loading, trees may only be lifted by the root-ball, which must be supported by chains, straps or a frame. In addition, support shall be provided on the main stem to control movement of the tree during lifting. No tree shall be lifted by means of the trunk or main stem.
- On delivery, all plants shall be free from diseases and pests and be materially undamaged.
- Each batch of plants shall be legibly labelled, using a waterproof label, with the project name and details of the plants. Any plant so marked shall not be disposed of to any third party without the prior consent of the Landscape Consultant.



### 3.2.6 Plant Storage

If plants are not to be planted on the day of delivery, a proper storage facility must be established on site before delivery. Storage areas must be secure and protected from other construction activity.

- **Bare rooted plants** supplied as bagged stock should be kept in bags unless storage is likely to exceed three days. In this case, they should be heeled in by placing the roots in a prepared trench, covering them with fine soil and well firming or watering in to prevent air pockets.
- **Trees** stored for more than 24 hours must be protected from damage and drying out, protect rootballs with damp hessian, straw or similar.
- **Container grown plant material** not required for 24 hours or more will be stored out of crates, upright and close together. Any plant material stored on site shall be protected from drying winds and watered.
- **Aquatics/Coir Rolls** to be stored to supplier/manufacturers recommendations. All aquatic planting work to be overseen by an approved specialist as detailed in clause 3.11



### 3.3 Plant Supply - Stock Specification

#### 3.3.1 Plant Supply - Trees

##### 3.3.1.1 Trees Generally

All plants to be true to name and character and shall be supplied as bare rooted, rootballed, springringed or container grown. Unless otherwise stated, all feathered and standard sized trees shall be rootballed. They shall have been grown and handled according to good horticultural practice and according to all current UK Government and EC Regulations. The Grower shall be expected to carry out thorough and rigorous production methods to ensure that the trees are of the highest standard.

##### 3.3.1.2 Dimensions for the Supply of Trees

All trees shall conform with the following dimensional requirements:

Designation	Circumference of stem at 1m from ground level	Minimum overall height from ground	Approximate maximum height from ground level	Clear stem height from ground level to lowest branch
Extra Heavy Standard	18-20cm	4.5	5.0	1.8 metres
Semi Mature	20-25cm	5.0	6.0	2.0 metres
Semi Mature	25-30cm	5.0	6.0	2.5 metres
Semi Mature	30-35cm	5.5	6.5	2.5 metres
Semi Mature	35-40cm	6.0	7.0	2.5 metres
Semi Mature	40-45cm	6.5	7.5	2.5 metres

Note: Coniferous and multi-stemmed trees shall be specified/scheduled by container size (litres) or height above ground level, as itemised within the tree schedules.

##### 3.3.1.3 Bare Rooted Trees

All bare rooted subjects shall have a strong, fibrous root structure. The root systems shall be well developed but compact, with root spread proportional to the size of the tree and with a reasonable proportion of fine, fibrous rootlets. The roots shall not be torn or lacerated.



**3.3.1.4 Rootballed Trees**

Rootballed trees shall be adequately supported by wire mesh, Hessian or other suitable material to prevent collapse of the rootball. The rootball shall be of sufficient size to contain the fibrous roots and shall conform with the minimum sizes detailed below. Trees which have a collapsed rootball exposing major parts of the root system will be rejected.

<b>Girth Size (cm)</b>	<b>Minimum diameter rootball (mm)</b>	<b>Minimum depth of rootball (mm)</b>
16-18	600	500
18-20	600	500
20-25	700	500
25-30	800	600
30-35	1000	700
35-40	1100	700
40-45	1300	700
45-50	1400	700
50-60	1600	700
60-70	1800	700

**3.3.1.5 Container Grown Trees**

Container grown trees shall be supplied in rigid containers of appropriate capacity. All trees shall have been grown for at least one full growing season prior to delivery.

The root systems shall thoroughly permeate the contents of the container with clear evidence of the proper establishment of a healthy, fibrous root system within the full volume of the container. Plants showing signs of being pot bound or waterlogged will not be acceptable.

The compost used shall hold sufficient reserves of nutrients to maintain the plants in a satisfactory condition for a reasonable period of time after leaving the Grower's nursery. The compost shall be free from any perennial weeds and have a reasonable moisture content.

The compost should not contain peat from UK Sites of Special Scientific Interest or the equivalent from other countries.





**3.3.1.6 Spring Ringed or Containerised Trees**

When requested to containerise the trees, the trees shall be spring ringed, or placed in containers of appropriate size, and managed to encourage the continued development of the plants and to ensure they 'root through'.

<b>Girth Size (cm)</b>	<b>Minimum diameter rootball for spring-ringed trees (mm)</b>	<b>Minimum depth of rootball (mm)</b>
18-20	700	500
20-25	800	500
25-30	900	600
30-35	1100	700
35-40	1200	700
40-45	1400	700
45-50	1500	700
50-60	1600	700
60-70	1800	700

Note: The rootballs of springringed stock are larger in order to ensure inclusion of all of the root system. Precise rootball diameters will be dependent upon soil type and tree species.

**3.3.1.7 Clear Stem Trees**

All clear stem trees shall have a full and well-developed crown with uniform leaf coverage appropriate to their age and species. All shall bear a single central leader. Unless otherwise stated, they shall have a clear stem as defined in Clause 3.3.1.2

**3.3.1.8 Feathered Trees**

All feathered trees shall be fully furnished with a single leader and well-developed laterals to ground level, with uniform and full leaf coverage appropriate to their age and species.

**3.3.1.9 Coniferous Trees**

All coniferous trees shall be specimens with a single strong growing upright leader and well furnished lateral shoots from ground level upwards. Trees shall have full and uniform leaf coverage appropriate to their age, and to the size and form shown on the schedules.



### 3.3.1.10 **Semi Mature Trees**

All semi-mature trees must conform with all relevant British Standards and industry guidelines and as further described in the Plant Schedules accompanying this Specification. In addition, they must meet the following requirements:

- Trees to have been last transplanted no more than three years previously.
- Trees to be lifted with a soil rootball appropriate to the size of the tree, as noted in Clauses 3.3.1.4 and 3.3.1.6
- Trees to have a well-developed, balanced head, either well-branched or with an upright central leader and laterals depending on species. Branch framework shall consist of a minimum of five main branches with lateral shoots.
- Trees shall have a good fibrous root system and shall have been transplanted as scheduled to build up main roots with laterals and fibre.

### 3.3.1.11 **Nursery and Advanced Nursery Stock Trees**

All nursery and advanced nursery stock trees shall conform generally to BS3936: Part 1 (Nursery Stock: Trees & Shrubs) and as further described in the Plant Schedules accompanying this Specification. All trees shall be strong growing with balanced and well developed crowns, and well developed and fibrous root structure. All batches of single species shall be uniform in character. All stems shall be free from abrasions and stem girdling. They shall be straight and uniform.

The Grower shall ensure that plants are generously and appropriately spaced to permit the above requirements of the specification to be achieved. Particular attention must be paid to this element to ensure that a fully developed, balanced crown is achieved.



### **3.3.2 Plant Supply - Container Grown Shrubs, Herbaceous Perennials and Climbers**

3.3.2.1 All container grown shrubs must be true to name and character and shall be supplied container grown. They shall have been grown and handled according to good horticultural practice and to all current UK and EC Regulations.

3.3.2.2 All plants shall be well developed and bushy and grown in a container for at least one full growing season prior to delivery.

The root systems shall thoroughly permeate the contents of the container with clear evidence of the proper establishment of a healthy fibrous root system within the full volume of the container. Plants showing signs of being pot-bound or waterlogged will not be acceptable.

Shrubs shall show a high degree of extension growth typical to the species or type and appropriate to the specified container size. The requirements given in the Plant Schedules constitute a guide to the required heights (measured from the surface of the compost) and number of breaks (in the lower third of the plants). Whilst it is recognised that these may vary according to the quality of the seasons, they will be regarded as a target for the measurement of quality, and reflect the requirement for a production regime of 'pinching' or 'trimming' to produce a bushy subject. In the event of the Grower not being able to attain this standard then he must advise the Landscape Consultant prior to delivery. The Grower shall ensure that plants are appropriately spaced to allow a full and uniform leaf coverage to develop to the crown, evenly radiated around the pot.

The compost shall hold sufficient reserves of nutrients to maintain the plant in a satisfactory condition for a reasonable period of time after leaving the Grower's nursery. The compost shall be free from any perennial weeds and shall have a reasonable moisture content. The compost shall not contain peat from UK Sites of Special Scientific Interest or the equivalent from other countries.

All plants shall on delivery be free from diseases and pests and materially undamaged. All plants shall be properly hardened off before delivery.

Each batch of shrubs shall be legibly labelled in the name of the project on a waterproof label with its generic and specific name.

### **3.3.3 Plant Supply - Bare Root Transplants**

All bare rooted stock shall be true to species and type, with uniform shoot and root development, free from any pests or disease. Plants shall have vigorous leading shoots and appropriately furnished laterals according to species. Shrub species shall have minimum of four breaks at or near ground level. Root systems shall be well developed but compact, proportional to the size of plant, and with fine, fibrous rootlets. Stock shall be supplied to site root dipped, in a moist condition, and free of any sign of desiccation, contained in co-extruded polythene bags.



### **3.3.4 Plant Supply – Marginal and Aquatic Planting**

All marginal and aquatic plants will be true to name and character and shall be supplied container grown unless specified otherwise. They shall have been grown and handled according to good horticultural practice and to all current UK government and EC regulations.

All plants shall be well-developed and full pot. The root systems will thoroughly permeate the contents of the container with clear evidence of the proper establishment of a healthy root system within the full volume of the container. Plants showing signs of being pot-bound will not be acceptable.

The plants shall show a high degree of extension growth typical to the species or type and appropriate to the specified container size.



### 3.4 Fertilisers, Ameliorants and Mulches

#### 3.4.1 Generally

All composts, mulches and / or soil conditioners used on site are to be free from peat.

A number of different products are described below. However, it is not intended that all products are used in all planting areas. The type of product used will depend on the type and location of planting as well as soil test results.

#### 3.4.2 Planting Compost

Mushroom compost shall be well rotted mature mushroom compost, of uniform quality, texture and consistency; free from mushroom fragments, debris or other foreign or toxic substances. To be of medium textured consistency where used to improve subsoil layers and of fine consistency where used to improve topsoil profiles. The Contractor shall be required to provide a chemical analysis of the mushroom compost to be used, prior to importing and using on site.

#### 3.4.3 Inorganic Fertilisers

Inorganic fertilisers are to be proprietary brands of chemical fertilisers, containing the proportion of soluble components as specified. Substitution of formulation shall only be with the approval of the Landscape Consultant.

For general pre-planting, **SA1 'Enmag' slow release fertiliser** or similar approved shall be applied to all tree and shrub planting in all areas and incorporated into the planting backfill. The fertiliser shall be applied at a rate of 50g/m<sup>2</sup>

For general pre-turfing and pre-seeding, **Green Tech PS 5 Pre Seeder with 2% Mg and 9% S**, or similar equal and approved, shall be applied to proposed grass in all areas.

#### 3.4.4 Green Waste / Compost

Green compost sourced locally. The Landscape Contractor is to provide the Landscape Consultant with details of his proposed source, as well as a chemical / physical analysis of the proposed green waste product and proposed application rates. The Landscape Consultant will reserve the right to reject the Landscape Contractor's proposed green waste compost.

#### 3.4.5 Root Dip

Shall be Broadleaf Root Dip as supplied by Agricultural Polymers International Ltd or similar approved, required for all bare root planting stock, as supplied by:

Agricultural Polymers International Ltd Bells Yew Green  
Waverley House  
Waverley Road  
Gloucester  
GL2 0SZ  
Telephone: 01452 521733

To be used for all bare-rooted trees and shrubs.



### 3.4.6 Bark Mulch

To be **Melcourt 'Ornamental Grade Bark Mulch'** or similar equal and approved.

Melcourt Nurseries Ltd  
Boldridge Brake, Long Newton  
Tetbury  
Gloucestershire  
GL8 8RT

Tel: 01666 502711

Bark mulch shall consist of matured conifer bark, dark brown in colour, with an even particle size distribution between 5-35mm. Bark mulch should be sourced from Great Britain wherever possible. All dust and fine material to be expended. The mulch shall contain less than 5% wood and no sticks and shall be pest, disease and weed free and be free of Methyl Bromide contamination.

All bark must have been matured for a minimum of 16 weeks; naturally heat treated to ensure excess volatile substances are driven from the bark. Temperatures must exceed 50°C for a minimum 14 days continuous period, followed by a further period of stabilisation. The pH to be between 4.5 and 5.8.

The Contractor shall notify the Landscape consultant of the mulch being used prior to spreading. The mulch shall be from an approved source and a representative sample of the mulch shall be supplied for approval prior to delivery to site. All deliveries shall conform to the sample.

To be spread to a depth of 50mm in all areas of shrub and hedge planting outside the courtyard spaces, and in a 1200mmdiameter circle around all trees planted in grass areas.



### 3.5 Accessories

#### 3.5.1 Tree Stakes

Tree stakes shall be sourced from a FSC certified source, and pressure treated using non toxic preservatives, to comply with BS8417 2003, Preservation of Timber.

All stakes shall be softwood, straight, free of projections and pointed at one end. All bark should be removed from stake. The stakes shall be 75 mm diameter (minimum) round section.

**Trees shall be secured with stakes as follows:**

Tree	Stake diameter	Stake length
Advanced stock trees	75mm diameter	2 metres long
Nursery stock trees	75mm diameter	1.25 metres long
Whips and transplants (where rabbit guards are required)	25mm diameter	1.0 metre long

In general:

**Stake length = length of stake above ground + depth of tree pit + 300mm**

#### 3.5.2 Tree Ties

Tree ties shall be expandable rubber or durable webbing of appropriate size for the tree/stake. The rubber spacer shall be hollowed on two sides, twice slatted to receive ties and secured to the stake with galvanised nails. All ties must be adjustable, or allowance made for replacements as stock grows during the maintenance period. To be supplied by Toms Tree Ties, or similar equal and approved.

J Toms Ltd  
 Unit 7 Marley Farm  
 Headcorn Road  
 Smarden  
 Ashford  
 Kent TN27 8PJ

Tel: (01233) 770066  
 Fax: (01233) 770055



### 3.5.3 Tree Anchoring (Below Ground) for all Multi Stemmed, Semi-Mature Trees and Conifers

#### Collar around Rootball

To be Platimat collar, or similar equal and approved.

Platipus Anchors Ltd  
Kingsfield Business Centre  
Philanthropic Road  
Redhill  
Surrey RH1 4DP

Tel: 01737 762300  
Fax: 01737 773395  
E-mail: [info@platipus-anchor.com](mailto:info@platipus-anchor.com)

#### Anchoring System

The underground anchoring system shall comprise of one of the following options:

- **Option A:** Platipus driven anchor system, or similar equal and approved, selected following the manufacturers latest recommendations, based on the Landscape Contractor's assessment of the tree's requirements. Supplied by Platipus Anchors Ltd, detailed above.
- **Option B:** Dead man anchors. Size and form to be proposed by the Landscape Contractor, based on his assessment of the tree's requirements.

The requirements for the underground guying of trees varies greatly depending on each particular tree's needs and situation. Therefore, the Landscape Contractor is to evaluate the most appropriate anchoring system, from the options noted above, for each tree within the scheme, based on an assessment of the following:

- Soil conditions
- Tree size
- Tree location
- Proximity of underground services

Following his evaluation, the Contractor shall submit his proposals for underground guying to the Landscape Consultant for approval.

All anchors/guys to be tensioned using galvanised steel turn buckles, or similar equal and approved.

It may be necessary, particularly with large evergreen trees, to double anchor the tree through a Platipus underground anchor system **and** an above ground guying system.





### 3.5.4 Irrigation and Aeration System

**Root Rain Urban irrigation/aeration system, o.s.e.a,** to be used for all trees, installed to manufacturers recommendations.

Inlets should be approximately 20mm proud of finish mulch level, but no higher. All aeration caps in hard landscape to be metal.

**Trees in soft landscape:**

'Root Rain Civic' with a double air inlet

**Trees in hard landscape:**

'Root Rain Arborvent' with double air inlet and metal caps

GreenBlue Urban                      Tel:(01580) 830800  
North Point,  
Compass Park  
Junction Road  
Bodiam  
TN32 5BS

### 3.5.5 Root Barriers

GreenBlue Urban ReRoot 2000 High Density Polyethelene root barrier, or similar equal and approved, is to be installed to protect services from proposed trees. The barrier is to be installed in accordance with the manufacturers recommendations.

GreenBlue Urban                      Tel:(01580) 830800  
North Point,  
Compass Park  
Junction Road  
Bodiam  
TN32 5BS

The Contractor is to allow for the protection of other services on site when the final positions are ascertained.



### 3.5.6 Structural Tree Soils

All tree pits in hard landscape areas to be backfilled using 'City Sands Tree Soil', or similar equal and approved, in accordance with the manufacturer's recommendations. A minimum of **5m<sup>3</sup>** structural tree soil is required per tree pit, as supplied by :

City Sand Tree Soil  
Amethyst Horticulture Ltd  
Cedar House Offices  
Lewson Street  
Norton  
Sittingbourne  
Kent ME9 9JN

Tel: (01795) 522 828  
Fax: (01795) 522 636

#### **Installation of Structural Tree Soils:**

Tree pit to be free of any standing water at the time of backfilling.

Tree pit to be backfilled as follows:

- 300mm depth pea gravel (5-7mm diameter) at base of tree pit
- Minimum 300mm depth RH37 medium/course washed sand, within which the bottom of the rootball should sit
- 500mm depth 'City sands' structural tree soil overlying the sand layer. Extent of the tree pit to ensure a minimum 5m<sup>3</sup> 'City Sands' structural tree soil is provided to each tree, excluding the rootball.

'City Sands' should be backfilled loose (as approximately 20% by volume is lost on compaction) into the tree pit, in layers no greater than 400mm, levelled, and then compacted using a Wacker Rammer BS60Y (Jumping Jack/Elephants Foot).

Ensure that the City Sand is dry before compaction as it cannot be compacted sufficiently if the material is wet. Special attention should be given to the edges of the tree pit.

Once installed, the City Sand should not be driven over by site machinery etc, before the final surface is laid.

**The Contractor is to ensure that all the constructed tree pits have penetograph tests carried out by an approved specialist agreed by City Sands, and a written report of the results is submitted to the Landscape Consultant prior to planting trees.**



### 3.5.7 Tree Guards for Transplants and Whips

Supply tree guards for all transplants and whips, to be black polyethylene 12x12mm square mesh cylindrical tree guard, as supplied by:

Tensor International Ltd  
New Wellington Street  
Blackburn  
Lancashire  
BB2 4PJ

Tel: 01254 262431

or similar equal and approved.

**For single stem species with minimal feather growth**, use tree guard Type 1, slit plastic mesh tube, 1.2m tall, 75mm diameter.

**For shrubby/multistemmed species, or plants with good lateral growth**, use tree guard type 2, cut to give 450mm diameter, 1m high guards.



### **3.6 Preparation and Planting Conditions**

#### **3.6.1 Notice and Approval General**

The Contractor shall give two working days notice to the Landscape Consultant of his intention to start any of the following operations:

- Setting out trees
- Planting trees
- Planting shrubs
- Maintenance visits

The Contractor is to ensure that the Landscape Consultant has the opportunity to approve the following items before their application or before the subsequent work is started:

- Cultivation of topsoil prior to planting
- Plant delivery and storage
- Tree positions
- Maintenance work

#### **3.6.2 Weather Conditions during Planting**

Ensure weather and ground conditions are appropriate before any cultivation, planting or mulching.

- Planting will not take place during heavy rain or whilst soils are waterlogged.
- During periods of hot weather the Landscape Contractor shall take every precaution to maintain plants in peak condition before, during and after planting. Where necessary to maintain progress, planting may have to take place in the early morning or evening, and provision be made for protecting stock from excessive heat in the following days.
- No planting shall be carried out when the ground is frozen to a depth of 4mm or more, or when the air temperature is below 2°C.



### 3.6.3 Site Clearance and Cultivations

**Clearance:** All planting areas shall be cleared of weeds or extraneous materials ready for cultivation. Weeds should be treated with suitable translocated herbicide allowing sufficient time to elapse to kill roots. Debris and weeds collected should be removed from site - no burning shall be permitted.

**Cultivations:** Planting areas shall be cultivated by cultivators, harrow, roller or other approved machinery, or by hand cultivation methods, to a minimum depth of:

- 300 mm in planted areas
- 150 mm in turfed / seeded areas

All lumps shall be broken down and fertilisers / ameliorants incorporated, removing from site all stones and the like over 35mm diameter, and deleterious matter brought to the surface by cultivation.

Surfaces of planted areas shall be brought to a friable condition and turfed / seeded areas to a fine tilth. Finished levels after settlement shall be 25mm above adjoining paving or kerbs, not less than 150mm below the dpc of adjoining buildings, and smoothly merged with adjoining soil areas. A 500mm flat edge is to be provided to the back of kerbs. Finished topsoil grading shall be offered for approval prior to commencement of planting.

**Care shall be taken during this operation to prevent damage to underlying services and depths of cultivation shall be locally reduced as necessary. It is the Contractor's responsibility to ensure he is aware of the exact location of all service runs, and to ensure no damage is done to any services.**

### 3.6.4 Setting Out

The Landscape Contractor will be responsible for setting out all areas of planting. Plants shall be planted in the quantities indicated on the drawing and Plant Schedule or as directed by the Landscape Consultant and shall be evenly spaced for a group of any one plant species.

Carefully position the rootballs of all plants and trees to suit their original growth habit and consolidate the soil firmly around them. All plants are to have the same relation to the ground as they had in their original position. Great care should be taken to avoid damage to the root system and stem when planting. The root ball shall not be disturbed, but if damage to the root system is done, the root shall be cut clean with a knife and treated with 'Alginure' root dip.



### 3.7 Tree Planting

#### 3.7.1 Setting Out

Light stakes or canes are to be placed at all tree positions, as marked on the drawings; the right is reserved to adjust the exact position of the trees after they have been set out on site.

#### 3.7.2 Tree Pits

Tree pits shall be prepared before trees arrive.

#### 3.7.3 Tree Pit Dimensions

Tree pits should be excavated to the following dimensions, unless specified otherwise :

Tree Size	Girth	Dimensions of Tree Pit
Semi Mature	50-60cm	2200 x 2200mm square
Semi Mature	35-40cm	1800 x 1800mm square
Semi Mature	30-35cm	1700 x 1700mm square
Semi Mature	25-30cm	1550 x 1550mm square
Semi Mature	20-25cm	1400mm x 1400mm square
Extra Heavy Standard	14-20cm	1300mm x 1300mm square
Heavy standard and Standard trees	10-12cm and 12-14cm	1050mm x 1050mm square
Light and Half standards	-	600mm square x 450mm deep

#### 3.7.4 Tree Pit Construction

3.7.4.1 During the excavation operation, topsoil should be stripped first and put aside for re-use; subsoil and unusable material should be carted away to tip.

The bottom of the tree pit should be broken up to a depth of 225mm to assist drainage and root penetration. Compacted glazed sides of pits resulting from the use of mechanical diggers in heavy soils should also be roughened.

During periods of intense and prolonged frost, the Contractor shall ensure that suitable measures shall be taken to protect the bottom / sides of the tree pits and piles of topsoil from becoming frozen.



#### 3.7.4.2 Tree Pit Construction

##### **Standards / Extra Heavy Standards (12-14cm - 18-20cm girth) located within soft landscape areas**

Tree pits for individual standard and extra heavy standard trees shall be formed to the dimensions given in clause 3.7.3 above.

To relieve any compaction, the walls and base of the pit shall be loosened, with a fork for example, prior to back-filling. The base shall be broken up to a minimum depth of 250mm.

**The lower half of the tree pit** shall be backfilled with 300mm depth washed, medium /coarse sand laid over 300mm pea gravel (5-7mm diameter)

**The upper half of the tree pit** shall be backfilled with topsoil, ameliorated with compost and fertiliser as specified.

Soil arisings from the tree pit excavation shall either be re-used on site (with the Resident engineer's approval) or shall be removed from site.

#### 3.7.4.3 Tree Pit Construction

##### **Semi Mature Trees (20-25cm girth upwards) located within soft landscape areas**

Tree pits for individual semi mature trees shall be formed to the dimensions given in clause 3.7.3 above.

To relieve any compaction, the walls and base of the pit shall be loosened, with a fork for example, prior to backfilling. The base shall be broken up to a minimum depth of 250mm.

**The lower half of the tree pit** (below the rootball) shall be backfilled with:

- 300mm depth washed, medium /coarse sand **RH37**, overlying:
- 300mm depth 5-7mm diameter pea gravel

**The upper half of the tree pit** (around the rootball) shall be backfilled with 400mm topsoil, ameliorated with compost and fertiliser as specified.

Soil arisings from the tree pit excavation shall either be re-used on site (with the resident engineer's approval) or shall be removed from site.



#### 3.7.4.4 Tree Pit Construction

##### Located within Hard Landscape

The dimensions of the planting pits for individual semi mature trees shall be:

- At least 3.0 x 3.0 x 1.2 metre depth

Includes 700mm soakaway/drainage layers at the base of the pit.

To relieve any compaction, the walls and base of the pit shall be loosened, with a fork for example, prior to backfilling. The base shall be broken up to a minimum depth of 250mm.

Refer to clause 3.5.6 for details on installation of materials, including 'City Sands' tree soil, for tree pits in hard landscape.

Soil arisings from the tree pit excavation shall either be re-used on site (with the Resident Engineer's approval) or shall be removed from site.

#### 3.7.4.5 Backfill for trees located within soft landscape areas

Following spread of the pea gravel and / or sand layers within the bottom of the tree pit, backfill topsoil material is to consist of:

- Eight parts by volume approved topsoil
- Two parts by volume of planting compost, thoroughly mixed with the topsoil
- Slow release fertiliser at manufacturer's recommended rates

The backfill mixture shall be finely broken, thoroughly mixed, placed and carefully packed around the rootball in layers not deeper than 150mm. Each layer shall be lightly consolidated in the pit, leaving the final level 50mm above surrounding paving or ground level and the top layer heeled firmly around the root collar.

The contractor should ensure that following back-filling, the centre of each and every tree pit is marked with a timber stake.

#### 3.7.4.6 Planting Semi-Mature Trees Additional Requirements

- Watering / aeration tubes or similarly approved shall be fitted for all semi-mature trees, as detailed in clause 3.5.4.
- The trunks of semi-mature trees in paved areas, particularly those with thin bark, are to be wrapped with 150mm wide hessian wrappings to reduce drying and prevent sun scorch.





### 3.7.4.7 Staking and Guying

Refer to clause 3.5.1, 3.5.2 and 3.5.3 for details of stakes, tree ties and underground guys.

- **All Semi Mature Trees / Advanced Nursery Stock in hard areas** shall be secured using tree anchoring methods as described and specified in clause 3.5.3 of this specification.
- **Advanced Nursery Stock** trees shall be secured with two stakes set 500mm above ground level. Two lengths of webbing (one either side) shall pass around the tree and stake and attach to the opposing stake with two flat-headed galvanised nails. Rubber spacers shall be fitted.
- **Nursery stock** (selected standards and smaller) shall be secured to a single stake, set 500mm above ground level. The tree shall be tied on the leeward side of the stake using one tie and a rubber spacer.
- **Large transplants** shall be secured with a single 50mm diameter straight, pointed stake, a minimum of 1100mm long set 500mm above ground level. The tree shall be tied on the leeward side of the stake and tied using one tie and rubber spacer.
- **Feathered trees** shall be secured with one length of strapping passed around the tree and stake. The tree and stake are to be held apart by a rubber spacer.

### 3.8 Container Grown Shrub Planting

A number of different products are described below. However, it is not intended that all products are used in all planting areas. The type of product used will depend on the type and location of planting as well as soil test results.

#### 3.8.1 Planting Compost

A **50mm depth** consolidated layer of planting compost shall be spread over shrub beds and worked well into the soil during cultivation.

#### 3.8.2 Green Waste / Compost

**50mm depth** green waste / compost to be applied to all planting areas.

#### 3.8.3 SA1 'Enmag' slow release fertiliser

SA1 'Enmag' slow release fertiliser or similar approved shall be applied to all tree and shrub planting and incorporated into the planting backfill. The fertiliser shall be applied at a rate of **50g/m<sup>2</sup>**,

#### 3.8.4 Setting Out

Planting beds shall be pegged out in accordance with the planting plan. Figured dimensions shall be taken for preference, but where these are not given and limits are not defined by paths, paving or other works, scaled dimensions may be used.



### 3.8.5 Planting Spacing

Plant spacing shall be carried out in accordance with the contract drawings / plant schedules. The Landscape Consultant reserves the right to adjust the exact position of specimen shrubs after they have been pegged out.

The aim will be to **space the plants evenly and in a staggered arrangement** rather than in a grid pattern, so that when established they will completely fill the areas indicated as precisely as possible.

The extent of the area to be filled by each species shall first be defined by plants spaced around the perimeter. The remaining plants shall then be used to fill the centre of the area in an informal manner avoiding straight lines and regular grid patterns.

All shrubs adjacent to new or existing lawned areas shall be set back from the edge of the bed / lawn by approximately 300mm, to ensure the shrubs have sufficient space to grow without encroaching onto lawned areas.

### 3.8.6 Planting Shrubs

Plants shall be planted at the same depth as previously grown, with care being taken to avoid any damage to the root system and stems. Sufficient soil shall be taken out from the bed to enable roots to be fully spread. Plants shall be placed in position showing their best side to the front, their roots shall be carefully spread out and packed around with fine soil. Care shall be taken to avoid breaking up the rootball of pot grown shrubs, but plants that have become pot bound shall have their roots gently eased out. The plants shall be gently shaken to allow the fine soil to surround the roots. As topsoil is returned to the shrub pit, it shall be well consolidated and firmed around the roots to eliminate all air pockets. Level out soil between plants.



### 3.9 Transplant Structure Planting

A number of different products are described below. However, it is not intended that all products are used in all planting areas. The type of product used will depend on the type and location of planting as well as soil test results.

#### 3.9.1 Planting Compost

**A 50mm depth** consolidated layer of planting compost shall be spread over shrub beds and worked well into the soil during cultivation.

#### 3.9.2 Green Waste / Compost

**50mm depth** green waste / compost to be applied to all planting areas.

#### 3.9.3 SA1 'Enmag' slow release fertiliser

SA1 'Enmag' slow release fertiliser or similar approved shall be applied to all tree and shrub planting and incorporated into the planting backfill. The fertiliser shall be applied at a rate of **50g/m<sup>2</sup>**, unless soil analysis results advise a different rate of application.

#### 3.9.4 Setting Out

Set out transplant planting areas in accordance with planting plans. Allow for spacing plants in mixed random groups, with smaller species generally to front or edges of large planting blocks (unless edge mixes are specifically included). Avoid straight lines in small structure planting / woodland blocks. Set out plants in groups of 5-15 of like species unless otherwise directed. Set out hedge planting with evenly spaced plants in staggered rows.

#### 3.9.5 Cultivation

Allow for disturbed or compacted soils to be fully cultivated in line with clause 3.6.3 of this Specification. Where planting is occurring in natural, undisturbed, level soils, cultivation shall not be required.

#### 3.9.6 Planting

##### **Notch Planting**

Notch plant transplants. Using a suitable planting spade, insert spade into ground to a minimum 300mm depth, and rock backwards and forwards to open a notch. Insert transplant roots, ensuring nursery mark is at ground level. Care must be taken to ensure that the roots are fully spread without being bent or broken. Spade should be withdrawn and notch closed ensuring soil makes contact with roots and no air pockets remain.



### 3.10 Completion of Tree, Shrub and Transplant Planting

#### 3.10.1 Pruning

Immediately after planting, cut back carefully any damaged, dead or diseased branches, remove any weak, thin or malformed growth and treat wounds greater than 25mm diameter with fungicidal sealant.

#### 3.10.2 Watering

Water all trees, shrubs and herbaceous perennials thoroughly, immediately after planting, until field capacity is achieved.

#### 3.10.3 Mulch

After watering, spread a minimum **50mm depth** layer of bark mulch over all plant beds. The mulch shall be moist at application. After mulching, all stems, particularly of ground cover species, shall be arranged above the surface of the mulch.

Areas to be mulched include all ornamental shrub beds, a 1.0 metre diameter circle around trees within grassed areas, and transplant structure planting areas.

#### 3.10.4 Maintenance to Practical Completion

All planting areas shall be maintained in good condition, with weed control, watering and litter picking. Areas should be protected from other construction activities. Plants damaged prior to contract completion will be replaced at no additional expense to the contract.



### 3.11 Marginal and Aquatic Planting

The Contractor shall, **within 4 weeks** of being awarded the contract, appoint an approved Aquatic/Marginal specialist as detailed in below in clause 3.11.3, to assist in the specification and installation of the Aquatic/marginal planting throughout the duration of the works.

3.11.1 Aquatic and marginal planting to be planted as detailed on the contract drawings.

3.11.2 Plants to be placed at levels as agreed with the aquatic plant specialist into subsoil placed by Main Contractor.

3.11.3 Aquatic Specialist:

Salix River & Wetland Services Limited  
Croxton – Sales & Accounts  
Salix, Croxton Park, Thetford, Norfolk, IP24 1LS

Telephone: 0370 350 1851  
Fax: 0370 350 1852  
Email: [info@salixrw.com](mailto:info@salixrw.com)



### 3.12 Turf Supply and Laying

#### 3.12.1 Materials

Turf: to be **Tillers 'Arena'**, supplied to BS3969.

#### 3.12.2 Storage

Arrange supply of turf to avoid stacking for more than three days. Do not stack more than one metre high and discard any turves which shows any sign of deterioration after storage.

#### 3.12.3 Fertiliser

Fertiliser to be 'Green Tech' PS5 pre-turfing fertiliser with 2% MG and 9% S, or similar equal and approved. Subject to soil testing and advice from soil scientist to address any deficiencies within the topsoils.

#### 3.12.4 Preparation

- Supply and spread pre-turfing fertiliser over area to be turfed at 70gms/sq m (at least 3 days before turfing).
- Lightly cultivate, harrow or rake ameliorants thoroughly into top 150mm of topsoil.
- Reduce top 150mm to a fine tilth suitable for fine grading.
- Remove all extraneous material including all stones in excess of 35mm in any dimension and rake to a true, even, lightly firmed surface.

#### 3.12.5 Laying Turves

Turves are to be unloaded clear of those areas to be turfed unless otherwise sanctioned by the Landscape Consultant. Turf shall be laid in rows on the prepared bed of soil commencing at the near end of the area and laid progressively by placing planks over the last row of turfs laid, and so on, to the end of the area. Turves which have been laid shall be protected with three planks laid side by side across the total length of those areas which will be trafficked by wheelbarrows etc and turf layers.

- The turves will be laid with half lapped joints, well butted up.
- The whole area shall be evenly beaten twice over with wooden turf beaters. The bottom of the beaters shall be frequently scraped clean of accumulated soil or mud.
- No roller is to be used unless so directed by the Landscape Consultant.
- Any inequalities in finished levels, owing to variation in turf thickness or unequal consolidation of the soil, shall be adjusted after the first beating by racking and/or packing fine soil under turfs to obtain an even surface to the whole area.
- The finished level of turf abutting paving must be approximately 25mm above the surface of the paving after laying and beating operations are complete.
- None of the turf areas shall be laid in exceptionally dry or frosty weather or in weather conditions otherwise deemed unsuitable by the Landscape Consultant.
- Top dress joints with finely sifted topsoil/sand and brush in to completely fill all joints.
- Neatly cut away turf to a diameter of 1.0m around individual trees and mulch as specified.
- Thoroughly water the completed turf within 24 hours of laying.
- The Landscape Contractor is to allow for the thorough watering of the turf in dry periods as necessary or when directed to ensure the establishment of the turf.



### 3.12.6 **Maintenance Prior To Practical Completion**

All grass areas to be lightly rolled in two directions with a roller not exceeding 0.25 tonne. Rollings to be carried out with due regard to the weather conditions and soil types.

The first cut, and possibly continuing maintenance mowing visits, may be required during the period to Practical Completion. See Maintenance section for specification of standards and allow for maintenance as appropriate up to completion and final handover of all other landscaped areas.



### 3.13 Grass Seeding

#### 3.13.1 Material - Amenity Grass

Supply fresh seed to be used during the season of purchase.

- Germination capacity not less than 80%.
- Purity of mixture not less than 90%.
- Total weed seed content not more than 0.5%.
- Total content of other crop seeds not more than 1%.

Before ordering, submit results of testing for germination and composition carried out by an Official Seed Testing Station and obtain approval.

All seed to be EEC Certified Blue Label Quality and of a named species.

For each seed mixture specified submit a sample for approval weighing 100g. The Landscape Consultant may also take samples of seed from site deliveries. Provide a certificate for each delivery of seed mixture used giving supplier's name, proportions of constituents of mixture, and certificate of compliance with regulations.

#### 3.13.2 Seed Mix – Amenity Grass

Seed mix to be **British Seed Houses 'A19' grass seed mix**

Supplied by:  
British Seed Houses Ltd  
Camp Road  
Witham St Hughes  
Lincoln  
LN6 9QJ

Tel 01522 868714

Provide a certificate for each delivery of seed mixture used giving suppliers name, proportions of constituents of mixture and certificate of compliance with regulations.

**Sowing Rate : 25g/m<sup>2</sup>.**

#### 3.13.3 Fertiliser – Amenity Grass

Fertiliser to be 'Green Tech' PS5 pre-seeding fertiliser with 2% MG and 9% S, or similar equal and approved.

#### 3.13.4 Preparation of Areas for Seeding – Amenity Grass

- The areas to be seeded are indicated on contract drawings.
- All areas to be seeded shall be cleared of weeds and rubbish.
- Supply and spread pre seeding fertiliser at 70g/m<sup>2</sup> over area to be seeded.
- Lightly cultivate, harrow or rake ameliorants thoroughly into this top 150mm of topsoil.
- Cultivate and reduce to 150mm.
- Rake or harrow to produce a fine tilth seed bed approximately 25mm deep and consolidate with a light approved roller.
- Remove all extraneous matter and stones in excess of 35mm in any dimension.





- The final finished surface to be 25mm above adjacent kerbs or edgings.

### 3.13.5 **Sowing – Amenity Grass**

- Do not sow seed when cold or drying winds are likely to occur or when the soil is frost-bound, waterlogged or excessively dry.
- Sow the specified seed mix at the following rate in the areas indicated on the Contract drawings to be sown at a rate of 25g/m<sup>2</sup>.
- Apply as two equal sowings in transverse directions to achieve even and uniform coverage.
- Gently rake upon completion of sowing to incorporate seeds into the top 50mm of soil.
- Lightly firm the surface of the seeded areas to leave a smooth and uniform surface.

### 3.13.6 **Maintenance prior to Practical Completion – Amenity Grass**

All grass areas to be lightly rolled in two directions with a roller not exceeding 0.25 tonne. Rollings to be carried out with due regard to the weather conditions and soil types.

First cut and possibly continuing maintenance mowing visits may be required during the period to Practical Completion. See Maintenance section for specification of standards and allow for maintenance as appropriate up to completion and final handover of all other

### 3.13.7 **Material - Wildflower Seed**

Supply fresh seed to be used during the season of purchase.

- Germination capacity not less than 80%.

Before ordering, submit results of testing for germination and composition carried out by an Official Seed Testing Station and obtain approval.

All seed to be EEC Certified Blue Label Quality and of a named species.

For each seed mixture specified submit a sample for approval weighing 100g. The Landscape Consultant may also take samples of seed from site deliveries. Provide a certificate for each delivery of seed mixture used giving supplier's name, proportions of constituents of mixture, and certificate of compliance with regulations.

### 3.13.8 **Seed Mix – Wildflower Seed**

Wildflower seed mixes to be:

Emorsgate EM2 Basic General Purpose Meadow Mix  
Sown @ 4gm/m<sup>2</sup>

Emorsgate EM8 Meadow Mixture for Wetlands  
Sown @ 4gm/m<sup>2</sup>.

Emorsgate EW1 Woodland Mixture  
Sown @ 4gm/m<sup>2</sup>.



Provide a certificate for each delivery of seed mixture used giving supplier's name, proportions of constituents of mixture and certificate of compliance with regulations.

**Sowing Rate: 4gm/m<sup>2</sup> to suppliers recommendations to provide full meadow cover of the areas specified on the contract drawings.**

### 3.13.9 Preparation of Areas for Seeding – Wildflower

- The areas to be seeded are indicated on contract drawings.
- All areas to be seeded shall be cleared of weeds and rubbish.
- Lightly cultivate, harrow or rake the top 150mm of topsoil.
- Cultivate and reduce to 150mm.
- Rake or harrow to produce a fine tilth seed bed approximately 25mm deep and consolidate with a light approved roller.
- Remove all extraneous matter and stones in excess of 35mm in any dimension.
- The final finished surface to be 25mm above adjacent kerbs or edgings.

Refer to Suppliers recommendations:

*'The finished seedbed should be firm enough to walk on without leaving impressions. As the area will be mown at a later stage the finished surface should be free of obstructions such as large stones or bricks, and free of deep ruts or ridges.'*

*The "stale seedbed technique" can work well for annual weeds whose seeds will remain in the soil after clearance. This method involves preparing a seedbed then delaying sowing to allow a flush of weed seed germination from the surface layers. This flush of weeds is then killed, by spraying or shallow cultivation, before sowing your seed mixture onto the cleaned "stale" seedbed - the surface of which now has a reduced weed seed burden.'*

### 3.13.10 Sowing – Wildflower

Refer to Suppliers recommendations:

*'Timing:*

*Seeds need both warmth and moisture to grow and may be sown at any time of year when these conditions are met.*

*August-September and March-April usually produce the best conditions for sowing outside in most parts of the UK. May to July sowings also work well in wetter western regions. Late autumn sowings should be avoided on sites prone to water-logging in winter and late spring and summer sowings should be avoided on droughty sites. Sowings into existing grass work best in autumn.*

*Some plants need to be sown at particular times to fit in with their life cycles or biology. Cornfield Annuals need to be sown in the autumn or before May in the following spring to get a flowering display. Yellow rattle must be sown in autumn.*

*Sowing rates:*

*Our recommended sowing rates for wild seed mixtures are much lower than conventional lawn and amenity grass rates (2-4g/m<sup>2</sup> compared with 25-50g/m<sup>2</sup>). This is deliberate, as rather than aiming for rapid ground cover to suppress all weeds, wild seeding aims to allow an*



*extended period of establishment with room for both fast growing grasses and slower germinating flower seeds. There is some scope for increasing or reducing rates to suit circumstances or budget. Be careful not to sow a standard mixture too heavily as even on difficult sites this can lead to overcrowding or an imbalance in the establishing sward - they are designed to work optimally at their specified rate.*

*For sowing individual species we give a guide as to number of seeds contained in each gram of seed. We generally advise sowing two or more times the number of seeds as you require plants, as seed dormancy and erratic germination mean that only a proportion of the seeds are likely to germinate in any one flush. Furthermore having germinated, not all seedlings will successfully grow to an established plant. Establishment rates are likely to be higher in a protected and nurtured seed tray than in open ground. A standard seed tray will have sufficient space to produce 200-500 seedlings for potting on.'*

### **3.13.11 Maintenance prior to Practical Completion – Wildflower**

Refer to Suppliers recommendations.

Meadow mixtures are composed mainly of perennial species which take at least a full year to establish. For new sowings on bare soil the first summer will be dominated by a flush of annual weeds arising from the soil seed bank and by grass growth. This annual growth should be controlled by mowing throughout the first year to minimise competition and weed seed production.

Cutting should be frequent enough to disperse the cuttings, or if less frequent remove the cuttings.

Where cornfield annuals or other annuals are sown with a meadow mixture as a 'nurse crop' cutting must be delayed until after flowering in July / August and arising, removed from site.

Do not, however, wait for the annuals to set seed, and if the growth begins to collapse cut and remove as soon as possible or the perennial development will be compromised.

Once the annual cornfield nurse is cut back in July/ August and the cuttings removed, the sown meadow species will be revealed as small green plants, separated by bare ground. These seedlings will then fill out using the light and space provided.



## 4.0 MAINTENANCE

### 4.1 General Maintenance Requirements

Following the date of Practical Completion, the Contractor shall maintain all the landscape areas in accordance with the clauses within this section for a period of **12 months**. The maintenance period for all semi mature trees is **24 months**.

The Contractor shall maintain the whole of the grassed and planted areas in a manner which ensures the establishment of healthy and vigorous plants and a close textured, weed free sward and which creates a tidy weed free appearance. Allowance shall be made in pricing for watering, to maintain all subjects in a healthy moist condition to facilitate optimum conditions for early establishment. Allowance shall be made for extra maintenance in any periods of unusually prolific grass and weed growth.

During the maintenance period the Contractor will be expected to:

- Establish a regular pattern of site visits throughout the season.
- Carry out routine maintenance operations.
- Correct any defects which become apparent during the earliest suitable weather conditions.
- Ensure all areas are fertilized as specified below, either during or at the end of the maintenance period as appropriate to the season / handover dates. The Contractor will provide confirmation of the date that this operation was undertaken prior to the final inspection.
- Attend handover meetings with the Landscape Architect and Client at the end of 12 and 24 months, and regular meetings with the Landscape Consultant to monitor defects and maintenance.

The Contractor will be deemed to have allowed for a minimum of 12 monthly main visits per year, but should not assume that this will be sufficient to discharge the requirements of the specification. The Contractor shall give 48 hours prior notice of a principle maintenance visit, and written confirmation shall be provided following each such visit on a card endorsed by an agent of the client.

#### 4.1.2 Excess Wet Weather

If excess wet weather has caused water bodies of over 3m<sup>2</sup> to stand for over seven days, the Contractor shall inform the Landscape Consultant without delay. Grassed areas are to be spiked in order to facilitate drainage of water.

#### 4.1.3 Arisings and Deleterious Material

All debris, including grass mowings, unless otherwise stated and arising from the performance of the works, shall promptly be removed from the site and the Contractor will be required to make good any damage at his own expense, or bear any cost incurred through his failure to comply with this requirement.



#### 4.1.4 Pesticides and Herbicides

The Contractor must only use chemicals specifically approved for the purpose for which it is intended as dictated by the Control of Pesticides Regulations 1986 and the conditions of approval for the chemicals and any relevant code of practice issued by DEFRA.

The Contractor will consider in every instance whether the use of chemicals is strictly necessary before application.

Herbicides used to kill perennial weed growth shall be appropriate foliar applied, non-residual, translocated herbicides.

#### 4.1.5 Defects Liability (General Works)

The defects liability period for general works will run for a period of **12 months** from Practical Completion, to run concurrently with the maintenance period. The defects liability period for semi mature trees will be **24 months** from Practical Completion, to run concurrently with the maintenance period.

The Contractor will be entirely responsible for the complete replacement of any tree, shrub, plant, seeded or turfed area that dies or fails to meet the specification due to defective materials or workmanship but excluding any damage sustained through vandalism.

Replacement items will be of equal size, species and quality to those specified, and the Contractor will be responsible for the complete repair and reinstatement to the reasonable satisfaction of the Landscape Consultant. Works to be carried out during the first available planting season appropriate for the defective items.

#### 4.1.6 Programming Works

The Contractor will allow for carrying out all maintenance works in such a manner to avoid unreasonable disturbance of the buildings after occupation.

#### 4.1.7 Litter

Remove all litter and deleterious material from planting, grass/turf, river banks and footpath areas at the time of each main visit (no less than monthly).

#### 4.1.8 Handover Requirements

At the end of the maintenance period the site will be presented in a pristine state. The following operation shall have been carried out prior to the Landscape Consultant's inspection:

- All shrub beds and tree planting areas shall have been weeded and cleared of litter
- All tree ties, stakes and other accessories shall have been checked
- Grass areas shall have been mown
- Associated hard surfaces and footways shall have been swept



## 4.2 Maintenance of Amenity Tree Planting

### 4.2.1 Objectives

#### **Amenity Trees: all advanced nursery stock trees planted as individual specimens, avenues or groups outside of structure planting areas**

Maintenance operations are geared towards the full establishment of healthy trees with good long-term shape and canopy structure. Groups of trees, such as avenues, need to be encouraged to develop with consistent shape. Trees also need to be managed to ensure long-term health and safe condition, and avoidance of conflict with buildings and other site features.

### 4.2.2 Operations

#### 4.2.2.1 Weed Control

Maintain area of the rootball in a weed free condition. Monitor the growth of shrub material and grass around the base of trees to ensure trees are not suffering from undue competition. Remove selected plants as may be necessary.

For all trees in open grass areas maintain a one metre diameter clear zone around the base of trunk for first three years after planting and 500mm diameter area for older trees.

#### 4.2.2.2 Stakes, Ties, Grilles and Guards

All accessories are to be checked at the time of each maintenance visit.

- Adjust stakes and ties to allow for increases in stem growth, checking during May/June and September/October in each year.
- Ties must be adjusted to allow for stem thickening in the autumn.
- Ensure accessories do not rub against trees.
- Replace broken or damaged accessories as and when any damage or breakages are found and remove redundant stakes and ties as appropriate.
- Regularly check condition of tree grill fixings and levels of soil / mulch under grills. Allow for top up of soil to within 50mm of underside of grill and 50mm of pea shingle mulch (to be undertaken at beginning of maintenance contract and checked / topped up again at the end).

All stakes and ties ought to be removed from healthy trees by the end of the third winter after planting. Trees still requiring support after this time should have stakes reduced in height to one third of stem height.

#### 4.2.2.3 Underground Guys

Check condition of underground support systems. Re-tighten cables as and when required. Remove materials where it is clear they have become redundant.

#### 4.2.2.4 Fertiliser

Apply a spring top dressing of Enmag or similar approved fertiliser to the root zone of all trees, allowing **70g/m<sup>2</sup>** to full area of canopy spread, in accordance with manufacturers recommendations.



#### 4.2.2.5 Watering

Allow for top watering as necessary during the 24 month establishment period (following Practical completion), and during drought periods up to five years following planting.

The principal watering of trees should be through top watering, with the surface of the soil around each tree slightly dished to hold irrigation water. If necessary, the bark mulch should be partially pulled away from the ground over the rooting zone to produce a dishing effect.

During the initial two year establishment phase, watering should occur, particularly during dry spells at a minimum of three times a week. Apply sufficient water to bring whole root ball to moist condition. The frequency of watering should be subject to review following inspections of the trees and the moisture content of the rootballs.

Prior to applying water, a core sample should be taken from the top 500mm of soil to the rootball, from a random one in five trees, to ascertain the moisture content of the soil. If the soil is found to be dry, then water should be applied. Core sampling should take place on a minimum of a weekly basis during dry spells.

All watering should occur in a slow, controlled manner, allowing the water to percolate the soil surface. Should water run off the soil surface, the speed / volume of the application should be adjusted. It should be noted that manual watering can result in the loss of 50% of the water through evaporation before it percolates the ground.

Between **50-200 litres** of water should be applied per tree, as often as daily if required, to all semi mature tree stock. The quantity of water required is dependant on tree species, size, location and weather conditions, and should be judged in accordance with the core samples taken.

#### 4.2.2.6 Formative Pruning

During the winter months inspect the shape of all trees and allow for formative pruning to appropriate species to ensure continued development of even shape and single central leader. Check for damaged branches after storms or strong winds and remove any damaged growth. Cut back to clean sound wood with angled cuts. Epicormic buds to be rubbed off and basal growth to be pruned off.

#### 4.2.2.7 Replacements

Monitor establishment of trees. Where stock fails to establish, seek instruction for replacement planting. Any replacements for avenue or grouped trees must replace with matched stock from an appropriate supplier.



### **4.3 Maintenance of Ornamental Shrub Planting**

#### **4.3.1 Objectives**

##### **Ornamental shrub planting areas, including formal planted shrubs, hedges, climbers and groundcover areas**

To be maintained to ensure full establishment of all areas with complete leaf to leaf cover, healthy plant stock and maximum potential for colour and year round interest.

#### **4.3.2 Operations**

##### **4.3.2.1 Weed Control**

Maintain all shrub areas completely weed free using chemical herbicides or hand-weeding as appropriate to species and location. Translocated products should be used in preference to contact products, and re-visits allowed for to re-treat or remove growth. Remove dead growth from site.

##### **4.3.2.2 Watering**

Allow for watering in dry weather. Apply sufficient water to bring soils up to a moist condition but avoid over watering.

##### **4.3.2.3 Dusting and Spraying**

Allow for regular inspections and spraying as may be necessary to control pests or diseases within planting.

##### **4.3.2.4 Fertilisers**

Allow for one general application of 70g/m<sup>2</sup> Enmag or similar approved fertilizer to all shrub areas in April/May. Timing and application in accordance with manufacturer's recommendations.

##### **4.3.2.5 Mulch**

Allow for a localised top up of mulched areas at the end of the maintenance period. Reinstate bark mulch to 50mm depth over all shrub areas where plants have yet to establish leaf-to-leaf cover and will not do so during the approaching growing season. Use a bark mulch to the same specification as the original bark mulch.





#### **4.3.2.6 Pruning/Training**

All ornamental shrub planting areas are to be regularly pruned to ensure the site is maintained in a neat and tidy condition.

- Allow for regular trimming of shrubs to maintain even height to planting areas and clear visibility across landscape as appropriate to scheme. Pruning should respond to the natural form of each species, and avoid uniform 'box' shapes
- Allow for formative pruning and tidying to shrub, climbers and ground cover.
- Remove dead or broken stems, prune appropriate species to encourage compact bushy growth.
- Dead head and cut back herbaceous perennials at the end of the season, appropriate to the species
- Trim off vegetation overhanging paths, kerbs, or roadways or obscuring signs.
- Trim ornamental hedges to shape twice per season, and ensure hedges are cut to smooth accurate lines.
- Tie in climbing plants to supports as appropriate.
- Fork over any areas of open soil around ground covers
- Trail ground cover plants out towards open soil.
- Remove arisings from site.

#### **4.3.2.7 Replacements**

Monitor establishment of shrub areas. Where stock fails to establish, seek instruction for replacement planting.



#### **4.4 Maintenance of Herbaceous Planting**

Identify areas of herbaceous planting within the scheme. Ensure areas of herbaceous planting within other types of planting are located so that appropriate maintenance can be applied.

##### **4.4.1 Weed Control**

Herbaceous planting areas shall be maintained in a weed free condition. Ensure herbicides applied to general shrub planting areas will not affect herbaceous plants. Areas shall be hand weeded if chemical products cannot be safely applied.

##### **4.4.2 Fertilizer**

Allow for one general application of 70g/m<sup>2</sup> 'Enmag' or similar approved fertilizer to all shrub areas in April – May. Timing and application in accordance with manufactures recommendations.

##### **4.4.3 Watering**

Allow for watering in dry weather, and in drought periods up to Year Five. Apply sufficient water to bring soils up to a moist condition but avoid over watering.

##### **4.4.4 Pruning, staking, tying-in and dead-heading**

Allow for general pruning, staking, tying and deadheading of all herbaceous plants on a regular (at least monthly) basis throughout the growing season. Allow for a comprehensive tidying up of all herbaceous planting in September/October, as appropriate to species, in order to ensure that where plants die back, the site is presented in a tidy condition throughout the winter months. Where plants have attractive dead heads (eg Sedum) these should be left over the winter months unless otherwise directed by the Landscape Consultant.

##### **4.4.5 Sub-dividing**

Allow for periodic lifting and subdividing of herbaceous plants where plants have become over-crowded, or older parts of a planting group are starting to deteriorate. Lift plants, break up clumps or rhizomes and replant with even spacing (appropriate to species - generally 6-9 /m<sup>2</sup>), filling gaps. Dispose of plant material which is in poor condition off site.



## 4.5 Maintenance of Grass Areas

### 4.5.1 Objectives

Grass areas are to be maintained to establish a healthy vigorous sward, free of moss, thatch, weeds, casts, discoloration, scorch, litter or leaves. Areas to be maintained in a tidy condition within specified height ranges. Where different mowing regimes are intended to provide varying character to the landscape, these shall be closely followed to ensure the design effects as planned

Maintenance operations should aim to deliver high quality grasslands with optimum use of inorganic fertilizers and minimal use of pesticides and herbicides.

### 4.5.2 Operations

#### 4.5.2.1 Mowing

Mowing to be under taken between March and October, to a regular programme but avoiding periods of water logging or drought. All areas to be cut within the specified height ranges shown below, throughout the growing season. All litter or other debris to be removed prior to mowing. Areas to be cut to a neat even finish, without rutting or compaction. All grass to be neatly trimmed around edges, manholes and other obstacles. Avoid damage to trees; no strimming to be undertaken within 250mm of the base of any trees.

#### 4.5.2.2 Mowing Regimes

Area	Minimum Height	Maximum Height	Minimum number of cuts	Removal of mowings
Amenity Grass Areas Formal Lawns	35mm	50mm	25	Mowings boxed off
Verges	35mm	50mm	20	Mowings boxed off
Grass within Structure Planting areas	75mm	150mm	3	Mowings to fly

#### 4.5.2.3 Grass edging in formal lawn and amenity grass areas

Edges to planting/mowing strips to be trimmed with edging shears at time of each mowing visit. Path edgings and hard surface edges to be cut with half moon once per month. Remove arisings.

Allow for re-forming edges once during the winter season, including edges to paths, borders, and mowing edges. Use a suitable edging tool, and re-form edges to clean straight lines or smooth flowing curves. Form a clean edge and remove soil.

#### 4.5.2.4 Bulbs

Where flowering bulbs species occur within grass areas, delay cutting of bulb growth until six weeks after flowering.



#### 4.5.2.5 Fertilizers

Allow for the application of Scott's 'Sierrablen' controlled release fertiliser, to all formal lawns, amenity grasslands or verge areas in spring and autumn:

- **Spring :** 25 : 5 : 10 Sierrablen @ rate of 25-40g /m<sup>2</sup>
- **Autumn:** 14 : 5 : 21 Sierrablen @ rate of 25-40g/m<sup>2</sup>

Supplied by :  
Scotts Professional  
Paper Mill Lane  
Bramford  
Ipswich  
Suffolk  
IP8 4BZ  
Tel : 01473 201100

Apply in accordance with manufacturer's instructions. **Do not fertilise wildflower areas.**

#### 4.5.2.6 Herbicides

Monitor sward for growth of broadleaved weed species. Allow for selective and spot herbicide applications as necessary to remove weed species from lawns and amenity grasslands.

#### 4.5.2.7 Mowing Edges

Allow for application of herbicides to prevent weed and grass growth in mowing edge strips around buildings.

#### 4.5.2.8 Aeration

Allow for spiking over grass areas to aerate soil and improve drainage in late spring or autumn. Ensure spikes or hollow tines reach to a depth of 75 mm. Fork over any areas of compacted soil or where ponding occurs to a minimum of 200mm.

#### 4.5.2.9 Scarifying

Allow for scarifying formal lawns once a month from April until September.  
Allow for scarifying general grass areas once in spring and autumn.

#### 4.5.2.10 Rolling

Roll formal lawns and amenity grass areas in the spring. Roller not to exceed 0.25 tonne. Timing to suit weather conditions and soils. Undertake in two directions and ensure even coverage.

#### 4.5.2.11 Leaf Removal

Allow for removal of leaves on regular basis from grass areas during October / November.



#### 4.5.2.12 **Reinstatement**

Make good worn or damaged areas by re-seeding or turfing (depending on original specification). Allow for cultivations, levelling, topdressing and pre-seeding/turfing fertilizer. Ensure the new seed / turf will match the existing in quality and appearance. Allow for protection to ensure germination / establishment.



## 4.6 Maintenance of Structure Planting Areas

### 4.6.1 Objectives

All work within structure planting should avoid disturbance to nesting birds - normally the period from the beginning of March to end of August.

#### **Structure planting, new woodland areas, and native hedge planting:**

Maintenance operations for the early years are aimed at the successful establishment of planting, to ensure areas develop to provide screening / height as appropriate to site design. Stratified structure (varied heights and density) of understorey species should be encouraged to improve the appearance of planting, screening potential and wildlife opportunities. Medium term all structure planting should require less intensive management.

#### **Trees within planting areas :**

Trees to be encouraged / selected to develop with good shape and spacing.

### 4.6.2 Maintenance during Year 2

#### 4.6.2.1 Weed Control

Maintain a 1.0 metre diameter area around each plant in grassed areas. Allow for spot herbicide applications to control noxious weeds and unsightly growth in more prominent locations.

For all planting, in the second year of establishment, allow for an application of a suitable residual herbicide during the period January – March prior to the spring growing season. Timing and application to be in accordance with manufacturer's recommendations.

#### 4.6.2.2 Grass Control

Allow for strimming of grass / understorey between rows of plants and around the edge of planted areas. Do not strim to within 250mm of planted stock. The grass height in areas visible from buildings, car parks or road frontages shall be maintained at the same level as the adjacent grass areas or below 150mm. All less prominent locations to be strimmed once per annum.

#### 4.6.2.3 Canes and Guards

Allow for the removal of all redundant canes, guards and shelters and dispose of off site. All accessories should be removed by the end of the third year growing season following planting.

#### 4.6.2.4 Firming Up

Inspect stock regularly, especially after strong frosts or heavy frost. Firm up any stock suffering wind-rock / frost heave.



#### 4.6.2.5 Thinning / Coppicing

In plantations that have achieved leaf-to-leaf cover for at least one year, the area should be reviewed annually to identify the need or benefit of thinning or coppicing.

- Thinning and coppicing to be undertaken during January or early February.
- Trees need to be protected or selected to allow proper development of tree canopy.
- Priority to be given to control of competing species. Over-dominant nurse trees or shrub species (eg elder, willow) around climax trees (eg oak, ash) should be coppiced and if appropriate treated to prevent re-growth.
- Traditional coppice species such as hazel, willows, dogwood etc, should be cut back on a rotational basis to encourage dense screening growth.
- Trees should be retained in groups or individually in the early years (Years 2-7) to allow selection of best specimens at later stage.
- Subsequent thinning will aim to allow individual trees to develop at minimum of 3-4 metre centres.
- Remove all cut material from site.

Thinning and coppicing to be programmed on rotational basis over a number of years to ensure continuity of cover and screening as appropriate to location. For competitive quotations it will be assumed at least 10% and no more than 25% of plantations will be cut in any one year.

#### 4.6.2.6 Litter Control

Allow for regular monthly litter picking through all structure planting areas and weekly litter picking around the public frontages of structure plantings.

#### 4.6.2.7 New Native Hedge Planting

Maintain newly established hedge-lines clear of weed and grass growth for first three years after planting. Plants to be trimmed to shape and topped at required design height. On older sections of hedge, allow for annual trimming to keep to shape and required height. Control vegetation growth around the base of the hedge-line to maintain a tidy appearance.



## 4.7 Maintenance of Aquatic and Marginal Planting

### 4.7.1 Objectives

Planting within the river channel, including areas of marginal and terrestrial planting on the riverbanks and adjacent paths have been selected to create a diverse range of species to reflect the historic indigenous plants that would have been found on the River Brent. The species mix have been selected from a mixture of herbs, sedges and rushes, grasses and other marginal planting to accommodate a range of water levels and marginal habitats. Once the aquatic, marginal and terrestrial plants are established it's expected that some of the species may be lost with those best suited to the actual conditions thriving. Should any species become too dominant these should be thinned or removed in accordance with this specification.

To provide a range of foraging and nesting opportunities for birds, terrestrial and aquatic invertebrates and hence provide a foraging resource for local bat species as well as providing a commuting habitat for bats. The marginal planting will also provide shelter for fish species inhabiting the River Brent.

Aquatic and marginal planting aims to create shelter to species such as three-spined stickleback *Gasterosteus aculeatus* which in turn will provide food for kingfisher *Alcedo atthis* (rare breeding bird listed on Schedule 1 of the Wildlife and Countryside Act). Marginal planting aims to provide suitable habitat for species such as the banded demoiselle *Calopteryx splendens* and reed bunting *Emberiza schoeniclus* (a London Biodiversity Action Plan priority species and a Species of Principal Importance under section 41 of the NERC Act).

The appointed specialist will need to provide a maintenance operations manual as part of their scope of works.

### 4.7.2 Operations

4.7.2.1 Plant communities will be constantly changing throughout the year. Monitor the condition of planted areas and the growth of individual species. Plants will be thinned every 2 years to prevent dominant species outcompeting less vigorous species. Ensure banks and other features are properly protected during such work and are not left damaged.

All planting is to be maintained in a tidy condition with litter picking and removal of dead plant material on a weekly basis.

Scrub clearance should be undertaken in winter to ensure the channel does not become too overgrown, creating pool areas for kingfishers and Daubenton's bats to forage.





#### 4.7.2.2 Protection of Coir Rolls

The plants within the coir rolls should be already established when the coir rolls are installed, that is the plants will be of approximately 4 to 5 months of age, to maximise the likelihood of successful establishment. In addition, to increase the chance of successful establishment, ground vegetation between the coir rolls and the public footpaths should be created or be retained to deter public access to the coir rolls. If coir roll plants are damaged by public or dog access, any damaged areas should be replanted and the coir roll area should be fenced off until such a time that the vegetation is too thick to allow access to the coir roll.

#### 4.7.2.3 Control of algal growth

Should any weed problems appear, the contractor shall promptly inform the supervising officer and propose a method statement for dealing with the matter.

Pending establishment of any planting incorporated within the scheme the method statement shall include physical removal of weed and employment of additional means such as contained barley straw. These measures shall, at all times, be in accordance with current Environment Agency regulations and ensure a high standard of presentation.

Run-off should be controlled into the river to prevent high nutrient levels and therefore the proliferation of algae and the drop in oxygen levels. Such control measures could include the provision of dog litter bins and signage for the Site.

#### 4.7.2.4 Chemical Control

These measures shall at all times be strictly in accordance with current Environment Agency published regulations and be carried out by properly trained operatives, with due regard to the health of aquatic planting and water quality.

#### 4.7.2.5 Physical Removal of Weed

In the event of any algae bloom or blanket weed forming prior to treatment, the weed shall be removed by netting or similar effective means or by an approved algicide. All hard surfaces of weirs, cascades etc. shall be kept clean of algae and staining.

#### 4.7.2.6 Litter / Rubbish Removal

Litter collection should be undertaken all year round.

The river channel areas should be kept clear of debris to increase the flow, light and oxygenation levels of the water, which improves water quality and therefore its ability to support aquatic invertebrates, fish and foraging birds, such as kingfishers and bat species, such as Daubenton's bat.



#### **4.7.2.7 Mulch**

Allow for a localised top up of mulched areas. Reinststate gravel mulch to 50mm depth over all marginal and grass planting with the 6m footpath cycleway where plants have yet to establish leaf-to-leaf cover and will not do so during the approaching growing season. Use a gravel mulch to the same specification as the specification.

#### **4.7.2.8 Ecological Timing of Works**

Vegetation management will be carried out outside of the main bird breeding season, March to September inclusive. Where essential works occur within that timeframe, a suitably qualified Ecologist will carry out a check of vegetation to ensure no nesting birds are present or would be disturbed by works. 5m Buffer zones of 'no disturbance' can be used to demark nests to be protected and areas where cutting can take place, where active nests are found. The nest should be checked weekly until the suitably experienced ecologist has confirmed that the nest is no longer in use, before works can continue within the former buffer zone area.

Note: All vegetation management work must avoid disturbance to nesting birds, which is an offence under the Wildlife and Countryside Act 1981 (as amended).



## 4.8 Maintenance of Wildflower Meadow Areas

### 4.8.1 Objectives

Grass areas are to be maintained to establish a healthy vigorous sward, free of moss, thatch, weeds, casts, discoloration, scorch, litter or leaves. Areas to be maintained in a tidy condition within specified height ranges. Where different mowing regimes are intended to provide varying character to the landscape, these shall be closely followed to ensure the design effects as planned

### 4.8.2 Operations

#### 4.8.2.1 Mowing

Meadow mixtures are composed mainly of perennial species which take at least a full year to establish. For new sowings on bare soil the first summer will be dominated by a flush of annual weeds arising from the soil seed bank and by grass growth. This annual growth should be controlled by mowing throughout the first year to minimise competition and weed seed production.

Cutting should be frequent enough to disperse the cuttings, or if less frequent remove the cuttings.

Where cornfield annuals or other annuals are sown with a meadow mixture as a 'nurse crop' cutting must be delayed until after flowering in July / August and arising, removed from site.

Do not, however, wait for the annuals to set seed, and if the growth begins to collapse cut and remove as soon as possible or the perennial development will be compromised.

A mowing regime for managed grassland will contain one or more of the following elements:

#### **Summer hay cut:**

The main cut each year is the summer "hay cut". This is when the main part of the year's growth is cut back in one operation by other suitable mower (lawn mowers are generally not up to this task). The growth should be cut back to a height of 40-75mm. The cut grass should be dried on site, turning it to assist drying and disperse seeds (this also significantly reduces the weight and bulk of material to be removed). The dried 'hay' should be removed within 7 days of cutting. Arisings may be composted or placed in heaps on sacrificial parts of a site. A meadow will yield 2 - 8 tonnes of dry hay per hectare (0.2 - 0.8 kg/m<sup>2</sup>) A 250m<sup>2</sup> (tennis court size) meadow will produce about 5 x 25kg hay bales (typical small square type).

#### **Timing of the summer hay cut:**

There are a number of conflicting factors that determine the best time for the main hay cut. The choice is always a compromise between these factors: in our view the best compromise is wherever possible to mow in sections at different times through the season from late June to the end of August. This maximises variation and diversity on your site and spreads the workload over the summer making larger areas manageable even with simple equipment such as a scythe.



**Early mowing:** commencing in late June, produces the best hay feed quality with optimum sugar and mineral content. Hay removal at this optimum time also means the maximum harvest of nutrients from site which may be important in the longer term for the fertility balance of the soil. However early cutting brings a premature end to enjoyment of the flowers and can compromise nesting birds which don't fledge until late July as well as insects and other wildlife using the meadow. Mowing a meadow in sections at different dates prolongs the overall flowering season and gives wildlife a chance to move aside. Start by cutting lush areas where nutrient removal will be of most benefit. Areas with dense, lush or laid vegetation are also likely to be the least attractive to nesting birds.

**Late mowing:** in August and September when the meadow is 'overstood' is more difficult as the plant stems become dry and tough. Grassland which is consistently cut late in the season year on year loses species diversity as late cutting gives more time for coarse grasses and other dominant plants to grow unchecked. Whilst in the short-term later cutting avoids any disturbance to birds and insects, in the long term the richness of the meadow as a source of pollen and nectar is lost, and the coarse structure of the sward becomes less attractive to breeding birds. Again, varying the mowing times both within the meadow and from year to year is the best way to maintain a diverse balanced sward.

**In summary:**

To maintain maximum diversity and flowering interest mow the meadow in sections at different times from late June to the end of August. Do not cut meadows in May or early June as you might disturb nesting birds. The main mowing season is July and to maintain flowering interest and balance it is best to complete hay cutting by the end of August. Parts of the meadow may be left occasionally (one year in three in rotation) into September so that late flowering species can seed. Leave some patches or edges uncut through winter to provide winter refuge for insects.

Thin open swards that stand well and retain interest can be left longer than dense or collapsing vegetation. If the grass collapses because it is too lush or because of bad weather a hay cut needs to be taken sooner (this is most likely with young swards on fertile soils). With the exception of yellow rattle (which seeds early) most meadow species are perennial and do not need to set seed each year - some species will last indefinitely in a meadow without ever setting seed.

**Autumn cutting:**

After the main cut, additional mowing during late summer and autumn is very effective in removing excessive grass growth and encouraging flowers -particularly on more fertile sites. Mow with a rotary flail or other suitable mower to 40-75mm. Ideally cut at least twice from the time the hay is removed to the end of November, aiming to leave the grass short through winter. The amount of mowing required will again depend on the fertility of the site; areas can be mown regularly (weekly) if a more tidy appearance is wanted. If any cut produces significant quantities of material this should be removed

**Spring cutting:**

Spring cutting to remove the first flush of grass can produce a later flowering meadow that is



shorter, more open and less prone to collapse. Spring cutting or grazing is particularly useful on more fertile soils and in the early years of newly sown grassland; on settled infertile sites this may be unnecessary. The need to mow can be assessed by the amount and type of growth in the spring. Mow with a rotary, flail or other suitable mower to 40-75mm. For meadow grassland mow around Easter, and no later than the first week in May. For short flowering turf and pasture grassland, regular mowing or grazing may continue into June provided the grass is kept short enough to discourage use by nesting birds.

#### 4.8.2.2 **Weed control**

On most soils, there will be some initial problems with perennial weeds. Most grassland weeds such as docks and thistles are suppressed by the annual hay cut in July and will gradually decline with good management. Low level weed populations may be spot sprayed with a herbicide, or pulled (e.g. ragwort). Selective herbicides are only worth using as a last resort for serious infestations as they will result in the loss of many wild flower species.

#### 4.8.2.3 **Harrowing:**

Swards tend to become dense and matted and harrowing should take place. The accumulation of dead material (thatch) prevents the re-establishment of yellow rattle and other perennials, resulting in a progressive loss of flowering plants. Late autumn is the best time to harrow as it creates gaps which remain open to flower seed germination from autumn through to spring. There is an opportunity to add seeds to grassland at this time. Meadows were traditionally harrowed in spring to level mole hills and make mowing easier in summer.

## 4.9 **Hard Landscape Maintenance**

### 4.9.1 **Weed Control**



Allow for spot spray application of suitable herbicide to any vegetation emerging in hard paved areas or along kerb lines. All public areas to be maintained completely weed free. General areas to be treated on a bi-monthly basis.

#### 4.9.2 **Litter**

Remove all litter and deleterious material from hard landscape areas at the time of each main visit.

#### 4.9.3 **Bark Mulch**

Remove any wind blown bark mulch from hard landscape areas, parking or roadways. Return to planting beds unless contaminated with litter or other material.

#### 4.9.4 **Leaf Sweeping**

Allow for the removal of autumn leaf fall from hard paved areas during October/November/December, along with any other plant material at any other time of year.

### 4.9 **Irrigation specialist appointment**

4.9.1 The Contractor shall, within 2 weeks of being awarded the contract, appoint an approved Irrigation Specialist, as detailed below:

Irritech Limited

01823 690216

[Info@irritechlimited.co.uk](mailto:Info@irritechlimited.co.uk)

<http://irritechlimited.co.uk>

4.9.2 The Irrigation specialist should carry out an evaluation of the requirements for automatic and manual irrigation across the site and provide proposals suitable which will provide the necessary watering requirements for all planting areas identified on the contract drawings.

4.9.3 The Contractor will appoint an irrigation specialist as a sub-consultant for the duration of all appropriate work and will be responsible advising on all matters regarding specification and installation of irrigation equipment for use within the soft landscape areas.

4.9.4 All reports and specifications prepared by the irrigation specialist will be made freely available to the landscape consultant and client team.

## Appendix A:



## The Wildlife and Countryside Act 1981 (Variation of Schedule 9) (England and Wales) Order 2010

Section 14(1) of the WCA makes it illegal to release or allow to escape into the wild any animal which is not ordinarily resident in Great Britain and is not a regular visitor to Great Britain in a wild state, or is listed in Schedule 9 to the Act. It is also illegal to plant or otherwise cause to grow in the wild any plant listed in Schedule 9 to the Act.

The Schedule 9 list of animal and plant species has been amended by the Wildlife and Countryside Act 1981 (Variation of Schedule 9)(England and Wales) Order 2010. Offences under section 14 carry a maximum penalty of a £5,000 fine and/or 6 months imprisonment on summary conviction (i.e. at Magistrates' Court) and an unlimited fine (i.e. whatever the court feels to be commensurate with the offence) and/or 2 years imprisonment on indictment (i.e. at Crown Court

### SCHEDULE 9 ANIMALS AND PLANTS TO WHICH SECTION 14 APPLIES

#### PART I ANIMALS WHICH ARE ESTABLISHED IN THE WILD

<b>Common name</b>	<b>Scientific name</b>
Bass, Large-mouthed Black	Micropterus salmoides
Bass, Rock	Ambloplites rupestris
Bitterling	Rhodeus sericeus
Budgerigar	Melopsittacus undulatus
Capercaillie	Tetrao urogallus
Coypu	Myocastor coypus
Crab, Chinese Mitten	Eriocheir sinensis
Crayfish, Noble	Astacus astacus
Crayfish, Red Swamp	Procambarus clarkia
Crayfish, Spiny cheek	Orconectes limosus
Crayfish, Signal	Pacifastacus leniusculus
Crayfish, Turkish	Astacus leptodactylus
Deer, Muntjac	Muntiacus reevesi



Deer, Sika	Cervus nippon
Deer, any hybrid one of whose parents or other lineal ancestor was a Sika Deer	Any hybrid of Cervus nippon
With respect to the Outer Hebrides and the islands of Aaran, Islay, Jura and Rum - (a)Deer, Cervus(allspecies)	Cervus
(b)Deer, any hybrid one of whose parents or other lineal ancestor was a species of Cervus Deer	Any hybrid of the genus Cervus
Dormouse, Fat	Glis glis
Duck, Carolina Wood	Aix sponsa
Duck, Mandarin	Aix galericulata
Duck, Ruddy	Oxyura jamaicensis
Eagle, White-tailed	Haliaeetus albicilla
Flatworm, New Zealand	Artiposthia triangulata
Frog, Edible	Rana esculenta
Frog, European Tree (otherwise known as Common tree frog)	Hyla arborea
Frog, Marsh	Rana ridibunda
Gerbil, Mongolian	Meriones unguiculatus
Goose, Canada	Branta canadensis
Goose, Egyptian	Alopochen aegyptiacus
Heron, Night	Nycticorax nycticorax
Lizard, Common Wall	Podarcis muralis
Marmot, Prairie (otherwise known as Prairie dog)	Cynomys
Mink, American	Mustela vison





Newt, Alpine	<i>Triturus alpestris</i>
Newt, Italian Crested	<i>Triturus carnifex</i>
Owl, Barn	<i>Tyto alba</i>
Parakeet, Ring-necked	<i>Psittacula krameri</i>
Partridge, Chukar	<i>Alectoris chukar</i>
Partridge, Rock	<i>Alectoris graeca</i>
Pheasant, Golden	<i>Chrysolophus pictus</i>
Pheasant, Lady Amherst's	<i>Chrysolophus amherstiae</i>
Pheasant, Reeves'	<i>Syrnaticus reevesii</i>
Pheasant, Silver	<i>Lophura nycthemera</i>
Porcupine, Crested	<i>Hystrix cristata</i>
Porcupine, Himalayan	<i>Hystrix hodgsonii</i>
Pumpkinseed (otherwise known as Sun-fish or Pond-perch)	<i>Lepomis gibbosus</i>
Quail, Bobwhite	<i>Colinus virginianus</i>
Rat, Black	<i>Rattus rattus</i>
Snake, Aesculapian	<i>Elaphe longissima</i>
Squirrel, Grey	<i>Sciurus carolinensis</i>
Terrapin, European Pond	<i>Emys orbicularis</i>
Toad, African Clawed	<i>Xenopus laevis</i>
Toad, Midwife	<i>Alytes obstetricans</i>
Toad, Yellow-bellied	<i>Bombina variegata</i>



Wallaby, Red-necked

*Macropus rufogriseus*

Wels (otherwise known as European catfish)

*Silurus glanis*

Zander

*Stizostedion lucioperca*

## **PART II PLANTS**

### **Common name**

### **Scientific name**

False-acacia

*Robinia pseudoacacia*

Fanwort

*Cabomba caroliniana*

Fern, Water

*Azolla filiculoides*

Fig, Hottentot

*Carpobrotus edulis*

Hogweed, Giant

*Heracleum mantegazzianum*

Hyacinth, water

*Eichhornia crassipes*

Kelp, Giant

*Macrocystis angustifolia*

Kelp, Giant

*Macrocystis integrifolia*

Kelp, Giant

*Macrocystis laevis*

Kelp, Giant

*Macrocystis pyrifera*

Kelp, Japanese

*Laminaria japonica*

Knotweed, Japanese

*Polygonum cuspidatum*

Leek, Few-flowered

*Allium paradoxum*

Lettuce, water

*Pistia stratiotes*

Parrot's-feather

*Myriophyllum aquaticum*

Pennywort, Floating

*Hydrocotyle ranunculoides*

Salvinia, Giant

*Salvinia molesta*



Seafingers, Green	Codium fragile tomentosoides
Seaweed, Californian Red	Pikea californica
Seaweed, Hooked Asparagus	Asparagopsis armata
Seaweed, Japanese	Sargassum muticum
Seaweeds, Laver (except native species)	Porphyra spp except -  p. amethystea  p. leucosticta  p. linearis  p. miniata  p. purpurea  p. umbilicalis
Shallon	<i>Gaultheria shallon</i>
Stonecrop, Australian swamp	<i>Crassula helmsii</i>
Wakame	Undaria pinnatifida
Waterweed, Curly	<i>Lagarosiphon major</i>

**Annotations:**

Note. The common name or names given in the first column of this Schedule are included by way of guidance only; in the event of any dispute or proceedings, the common name or names shall not be taken into account.



## Other Relevant Legislation

### **Environmental Protection Act 1990 (EPA 1990), Part II**

This Act has very limited provisions for non-native species, but is included here due to the potential classification of soil and other waste containing viable propagules of invasive non-native plant species as controlled waste. This has been applied to Japanese Knotweed *Fallopia japonica*, with the result that waste containing this species must be disposed of in accordance with the duty of care set out in section 34 of the Act. The Environment Agency have issued guidance which will be of use in complying with the duty of care

### **Waste Management Licensing Regulations 1994 as amended (the WMLR 1994)**

Section 33 (1c) which makes it an offence to keep, treat or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health.

### **Hazardous Waste Regulations 2005 (HWR2005)**

