



# Soft Landscaping Specification & Design Guidance

## Estates & Facilities Grounds Maintenance

Rev B  
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**Document:**     **Soft Landscaping Specification & Design Guidance**

**Produced by:**    Grounds Maintenance Services

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## Soft Landscaping Specification and Design Guidance

### 1.0 General Information and Guidelines

#### 1.1 Scope of the document:

This document sets out the University's requirements for soft landscaping and should be considered the default specification. It should be used for all new landscaping works and landscape reinstatement, where construction work has resulted in damage to the existing plantings, lawns, or other external area within the University grounds.

The document should be included with the tender documentation for projects.

#### 1.2 Permits to Dig:

All works and installations which require excavation or ground penetration (e.g. stake driving) to a depth greater than 150mm require a University Permit to Dig, which requires up to 5 working days' notice. Contact [fm-help@reading.ac.uk](mailto:fm-help@reading.ac.uk) for details.

#### 1.3 Site Rules:

The University's site rules are set out in Safety Code of Practice 51 'Site Rules for working on University Premises'. [http://www.reading.ac.uk/web/FILES/health-and-safety/CoP\\_51\\_Site\\_Rules.pdf](http://www.reading.ac.uk/web/FILES/health-and-safety/CoP_51_Site_Rules.pdf)

#### 1.4 Liaison and Communication:

The Estates & Facilities Grounds Maintenance team are responsible for the maintenance of University grounds; ensuring that soft landscaping undertaken by third parties is completed to the specified standard.

#### 1.5 Points of Contact:

- 1) Head of Grounds Maintenance (HoGM): Rupert Taylor [r.taylor@reading.ac.uk](mailto:r.taylor@reading.ac.uk)
- 2) The Operations Manager (OM): Alan Mitchell [a.s.mitchell@reading.ac.uk](mailto:a.s.mitchell@reading.ac.uk)

### 2.0 Liaison and Timing of Communication:

#### Key objectives & considerations:

- Early engagement with HoGM
- Sign off and approval of landscaping scheme by HoGM required
- Suitable notice of landscaping operations must be given

#### 2.1 Feasibility and Planning:

The HoGM should be consulted at planning stage to ensure that due consideration is given to existing trees and landscaping. Any damage to retained landscaping or subsequent remedial works due to restricted access which is associated with project activities will be rectified at cost to the principle contractor.

#### 2.2 Detailed and technical design:

HoGM should be consulted to ensure that appropriate landscaping is planned, with special consideration given to appropriate species selection, ease of maintenance and site safety. The project will be responsible for ensuring that the finished landscaping can be maintained in a safe manner in accordance with the CDM regulations. Banks swales and slopes must be designed in order that they can be cut with ride on machinery and will be graded to a maximum slope of 15<sup>0</sup> to the horizontal or less. Engineering solutions including retaining walls or terracing will be used to manage the risk of severe slopes.

### 2.3 **Pre-contract:**

The project team shall liaise with, and seek the agreement of, the HoGM on the design and implementation of the following where appropriate:

- Contractor access
- Location and extent of contractor's site compound
- Suitability of top soil retention for new landscaping to be determined by soil analysis and assessment
- Location and size of top soil heaps
- Tree protection and tree retention

Project landscape plans must receive written approval from the HoGM.

### 2.4 **In-contract:**

The contractor should give a minimum of 3 working days' notice to the HoGM (or to the OM in their absence):

- before stripping of top soil
- before sub-soil preparation
- before placement of top soil
- before commencement of planting
- before grass seeding or turfing
- before tree protection fencing is removed
- before any planned landscaping works within tree root protection areas (RPA's)
- before site preparation after sustained heavy rainfall (e.g. >10mm in 24 hours) or during periods of poor climatic conditions

### 2.5. **On site investigation:**

When Grounds Maintenance have reason to suspect that landscape works are not being, or have not been, undertaken in accordance with the specification, a request for investigative work shall be made through the University's Project Manager (PM). The PM will direct the Contractor to carry out any necessary investigation work in the presence of the HoGM or the OM. The cost of such testing (e.g. digging a trial hole) will be borne by the Contractor, if found to be a fault, or be an extra cost to the contract if compliance is proven.

## 3.0 **Soil**

### **Key objectives & considerations:**

- **Notice of onsite operations must be given**
- **Correct handling, installation and preparation of top soil is vital to the success of the landscaping scheme**

### 3.1 **Reference:**

BS 3882: 2015 Specification for Top Soil.

### 3.2 **Definitions:**

**Top soil:** Top layer of soil, darker in colour and with more organic matter than the layer below or manufactured to similar properties, generally the top 250-300mm.

**Sub-soil:** Soil layer extending between the top soil and the little weathered parent material below.

### 3.3 **Stripping, handling and retention of top soil:**

Tracked machinery to be used with access routes planned and suitably protected to minimize soil compaction. Top soil should not be stripped, handled or trafficked:

- in a waterlogged condition
- when the ground is frozen or covered by snow
- when there are pools of water on the ground surface

If sustained heavy rainfall (>10mm in 24 hours) occurs during stripping operations then the work must be suspended until the ground has had at least 24 hours to drain or has reached a suitable moisture content (To be agreed on site with the HoGM).

### 3.4 Soil Storage:

Retained top soil (free of subsoil, pernicious weeds, demolition or construction rubbish, roots or other contaminants) should be loose tipped in linear heaps on to the agreed & prepared storage site, ensuring the heaps do not exceed 1.5m in height and 3m in width. Heap sides should be shaped to allow run off but should not exceed 30°.

Weed control to be carried out at monthly intervals to prevent the establishment of pernicious weeds using a translocated non residual herbicide (following consultation with HoGM). If the soil is to be stored in excess of 6 months the heaps should be protected from erosion by covering. The heaps will not be used for any other type of storage and no construction plant should drive over them.

### 3.5 Sub-soil grading:

Grade sub-soil to smooth flowing contours to achieve finished levels of topsoil no greater than 300mm. Areas of thicker sub-soil to be excavated and removed as required to ensure a depth of cover appropriate to the area (150-300mm). Should subsoil need to be imported to make up any deficiency it should be supplied with reference to section 3.7 and BS3882:2015. Material should be placed in layers no greater than 150mm before consolidating.

Minimum depths of subsoil over parent material or artificial structures:

- Tree planting 1000mm
- Shrub planting, grass areas 700mm

### 3.6 Sub-soil preparation

Loosening to be carried out with a tracked tractor using a suitable ripping tine to the depths described below after determining the nature of the sub-soil on site:

- Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
- Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
- Rock and chalk subgrades: Lightly scarify to promote free drainage.

Stones: Immediately before spreading topsoil, remove surface stones (larger than 75 mm in any direction), contaminants and any other debris or builders rubble. On completion inform the HoGM for inspection.

### 3.7 Top soil supply:

Soil classification – Multi-purpose imported material as required to make-up any deficiency to specified works. Soil analysis should comply with BS3382 2015 and be within Ph6-7 range. Material should be free from sub-soil, debris or any contaminant that is hazardous to human or animal life or detrimental for plant growth. A representative sample should be sent to the HoGM for approval before being brought to site.

### 3.8 Top soil spreading:

Only after approval from the HoGM can top soil be spread. This must be carried out in a planned and systematic way to ensure the prepared sub-soil does not become compacted. Top soil must be handled with reference to section 3.3. Top soil to be loose tipped with a minimum of handling to ensure correct depths and levels. The soil should be consolidated NOT compacted in 100-150mm layers as appropriate to required depth.

The site must be allowed to settle for one month before planting operations begin, at which time deficiencies in depths or levels should be addressed. During this fallow period weed control using a translocated non residual herbicide (following consultation with HoGM) or cultural methods are to be carried out, as required, to control significant weed growth.

### 3.9 Top Soil depths over prepared sub soil

In accordance with approved landscaping plan or

- Grass areas minimum 200mm maximum 300mm
- Shrub beds and tree pits minimum 300mm maximum 400mm
- Design of chambers or kerb haunching need to take this into account

### 3.10 Preparation of undisturbed ground:

**Existing woody vegetation:** Remove existing planting, visible roots and large stones with a diameter greater than 50 mm. Stumps to be ground to 350mm below ground level and arisings removed from site. Plough or dig over to full depth of topsoil ensuring sub-soil is not brought to the surface. Fallow period (minimum) one month before further works.

**Existing turf or thick sward:** Apply a translocated non residual herbicide (following consultation with HoGM). After total kill achieved (2-3 weeks) remove visible roots and large stones (with a diameter greater than 50 mm), plough or dig over to the full depth of topsoil, ensuring sub-soil is not brought to the surface. Fallow period (minimum) one month before further works.

## 4.0 Composts, mulches & other bulk soil ameliorants

### Key objectives & considerations:

- **Notice of source of product**
- **Statement of analysis**
- **Representative sample required before bringing to site**

### 4.1 Green waste composts supply:

Imported sanitised green waste and stabilized composts should be manufactured in accordance with PAS 100. Submit representative sample to HoGM for approval, together with declaration of analysis if requested. To be used as soil improver and mulch where appropriate

#### 4.1.1 Application rates as soil improver:

General planting: compost etc. applied at the rate of 7.5m<sup>3</sup>/100 m<sup>2</sup> to achieve an even distribution of 75mm depth over planting area. Lawn areas (if required) compost etc. to be applied at the rate of 2.5m<sup>3</sup>/100 m<sup>2</sup> to achieve an even distribution of 25mm depth over planting area.

Incorporate into the top 200mm of the top soil using rotary cultivator, or by hand, before planting or lawn establishment works.

### 4.2 Peat:

Peat must not be used as a soil ameliorant.

### 4.3 Sand:

Horticultural washed sand for lawn top dressing or improving drainage within planting areas. Application rates as required. Particle size of between 0-4mm. Material should be free from pests, disease, fungus, weeds or any contaminant that is hazardous to human or animal life or detrimental for plant growth. Confirm source and analysis to HoGM before bringing to site.

### 4.4. Bark Mulches:

For mulching new tree or shrub planting medium grade ornamental bark mulch particle size 0-30mm, wood content <20%. Dust and fines minimum, durability 1-2 years, FSC certified, free from pests disease fungus weeds or any contaminant that is hazardous to human or animal life or detrimental for plant growth.

## 5.0 Lawn establishment

### Key objectives & considerations:

- **Lawn areas must be designed to avoid creating inaccessible areas or areas that require excessive hand cutting**
- **Turfing or seeding should not commence unless the preparations have been approved by HoGM**
- **New turf and seeded areas remain the responsibility of the contractor until hand over has been confirmed in writing from the HoGM**

### 5.1 Timing:

Carry out work while soil and conditions are suitable with reference to section 3.3. Seeding and turfing should normally be carried out between September-October and March-April. Grass sward

establishment is possible at other times of year, but will be reliant on irrigation or suitable weather windows. The contractor will be responsible for supplying adequate irrigation until establishment or agreed point of handover.

## **5.2 Specified products:**

**General purpose amenity grass seed:** Perennial Ryegrass blend containing 25% Tetragreen, 25% Fabian, 25% Columbine, 25% Berlioz such as Rigby Taylor mix R140 (or product of equal quality approved by HoGM).

**General purpose amenity turf:** Rolawn Medallion turf (or product of equal quality approved by HoGM).

## **5.3 Lawn establishment using seed:**

### **5.3.1 Initial preparation:**

In accordance with section 3.5-3.9 minimum top soil depth 200mm (maximum 300mm). All banks, verges and landscape features laid to grass must be capable of being cut by ride-on machinery. These areas must, therefore, be graded to a maximum slope of 15° to the horizontal or less.

### **5.3.2 Consolidation:**

Lightly consolidate with a light "Cambridge" (Ribbed) type roller or, for smaller areas, by walking with the operatives putting their weight onto their heels and walking systematically over the site in two directions.

### **5.3.3 Finished levels:**

Following rolling any variations in levels (hollows and high spots) will be apparent and addressed by adding top soil or spreading the surface layer. Finished layers to meet the falls and levels of the surrounding grassed areas (acceptable variation +25mm to -10mm). Finished level to adjacent hard surfaces, such as drains, kerbs and paving, +25mm above hard surface.

### **5.3.4 Seed bed preparation:**

The surface should be lightly and uniformly raked to produce a friable tilth. All surface stones 10mm+ (in any dimension) should be removed from site.

### **5.3.5 Fertilizer:**

The area to have a suitable, pre-approved, base fertilizer (6:9:6) applied at the manufacturer's recommended rates.

### **5.3.6 Seeding:**

In calm conditions apply pre-approved seed at a rate of 35-50g per m<sup>2</sup>. The calculated seed quantity should be split in two and applied at right angles to each other to ensure an even coverage. Lightly rake in to cover the seed and leave a final level surface. Larger areas can be sown using a suitable seed drill, if conditions allow following consultation with the HoGM.

### **5.3.7 Irrigation:**

Wet the top 100mm (minimum) to full depth of topsoil, ensuring even coverage without displacing seed, seedlings or soil if required. Repeat/apply as necessary to ensure even germination and establishment of all sown areas to result in a healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.

## **5.4 Turf establishment:**

**5.4.1 Soil preparation for receiving turf:** Initial preparation in accordance with section 3.5-3.9 minimum top soil depth 200mm

### **5.4.2 Consolidation and finished levels:**

Lightly consolidate with a light "Cambridge" (Ribbed) type roller, or for smaller areas by walking, with the operatives putting their weight onto their heels and walking systematically over the site in two

directions. Following rolling any variations in levels should be addressed by adding top soil or spreading the surface layer. Finished layers to meet the falls and levels of the surrounding grassed areas (acceptable variation +5mm to -10mm). Finished levels with existing hard surfaces such as drains, kerbs and paving level to be 25mm above hard surface.

#### **5.4.3 Turf bed preparation:**

The surface should be lightly and uniformly raked to produce a friable tilth. All surface stones 20mm+ (in any dimension) should be removed from site. When adjoining existing lawns, a straight edge should be cut into the existing turf to ensure a seamless joint.

#### **5.4.4 Fertilizer:**

The area to have a suitable, pre-approved, base fertilizer (6:9:6) applied at the manufacturer's recommended rates and guidance.

#### **5.4.5 Turfing conditions:**

Turf should be laid when the weather is suitable and soil conditions are moist. Turf should not be laid if the area is waterlogged, or when frost is in the ground. Consult with the HoGM if unsure.

#### **5.4.6 Delivery and stacking:**

Turf should be delivered to site on the day of laying. Turves must not be stored on site for more than 48 hours. Turves should be stacked to a maximum height of 1.4 m on cleared ground.

#### **5.4.7 Laying:**

Turves from the stack to be wheeled to the laying area over planks butted together. Adequate timber planks should be used to support persons and loaded barrows. The turves should be laid on the prepared soil bed, working from planks set over previously laid turves, and should be firmed into position in consecutive rows with broken joints (as in stretcher bond brickwork) closely butted and to correct levels. Turf edges and margins should be laid with whole turves. Any inequalities in finished levels should be adjusted as work progresses by raking out and/or packing fine soil under the turf. Finished turf levels should be to existing hard surfaces such as drains, kerbs and paving, to be 25mm above and to existing turf to be 10mm above allowing for final settlement.

#### **5.4.8 Irrigation:**

Immediately after laying the turf the work area is to be watered using an appropriate overhead spray irrigation system. There should be sufficient water to soak the newly laid turf and, if necessary, the under lying soil to a depth of 75mm. Irrigation to be applied as necessary to prevent turf drying and shrinkage until rooting into the under lying soil is apparent. The contractor will be responsible for supplying adequate irrigation until establishment or agreed point of handover.

#### **5.4.9 On site protection:**

A light weight plastic mesh type fencing 1m high, or other suitable product, set on pins at 2m intervals should be erected around the newly laid turf and should be left in place until the turf is established.

#### **5.5 Lawn edging:**

**5.5.1** After seeded areas are well established ensure edges are clean and straight, or cut to smooth curves. Where they border ornamental plantings an edge, approximately 100mm-125mm deep should be created to permit edging with shears, with the mulch and soil drawn back approximately 100m above the lawn level.

**5.5.2** After completion of turf laying ensure edges are clean and straight, or cut to smooth curves around. Where they border ornamental plantings an edge, approximately 100mm-125mm deep, should be created to permit edging with shears, with the mulch and soil drawn back approximately 100m above the lawn level.

#### **5.6 Completion of works:**

Ensure all arisings (Soil, turf, stones or other debris) are removed from site. Leave the works in a clean tidy safe condition.



## 5.7 Initial cut of new turf areas

The contractor will carry out the first cut when the grass is established to 75 mm high before presenting for hand over. Before cutting, all stones above 25 mm in any dimension to be handpicked and the area crossed with a light weight roller to firm the grass and consolidate the surface. The area will be topped with a rotary mower so as to leave 40 mm of growth. The grass cutting machinery should be sharp and in good condition to avoid pulling out young seedlings. All arisings should be collected and disposed of off-site or within an area agreed by the HoGM.

## 5.8 Failures and rectification:

At handover seeded and turfed areas will form a close knit, continuous ground cover of even density, height and colour, with vigorous and healthy growth out competing weed growth. After assessment from the HoGM areas of necessary rectification will be classified as replacement or remediation.

### 5.8.1 Replacement:

To be specified by HoGM to bring the area to the required standard through cultivation work and/or extra soil followed by seeding or turfing as appropriate and irrigation as required.

### 5.8.2 Remediation:

Proposals to HoGM to bring the area to the required standard through remedial works which could include all or some of the following: slitting, spiking, top dressing, over seeding and fertilizer application.

## 5.9 Meadows:

### Key objectives and considerations:

- **Meadow areas will only be considered where they make a significant contribution to the existing landscape**
- **Site assessment to be carried out to determine implementation plan proposals to HoGM**
- **It should be noted that little cover will be achieved in the first 2 years**
- **All meadow areas must be accessible to cut and collect machinery**

### 5.9.1 Site assessment and design:

Where appropriate, botanical survey by suitably qualified person of existing vegetation.

Site and soil assessment to be carried out to determine design, species selection and implementation. Results and proposals to HoGM for approval in writing.

Low soil fertility is essential. Where soils have an index value of 0-3 (0-45, 0-400, and 0-100 ppm of P, K and Mg respectively) they will assume to be suitable if N values are also low. As a rough guide, values of total of less than 0.1% is required

The safety of road and other site users is of paramount importance. Tall wild flower mixtures should not be used where there is the chance of obscuring sight lines or of causing undue distraction to drivers: for example on bends, road junctions or within 2m of paths.

**5.9.2 General requirements:** Use suitable translocated herbicide (notice and proposals to be given to HoGM) if existing herbage especially pernicious weeds minimum 4 weeks before intended commencement of works. Minimal cultivation to 100mm to produce suitable seed bed using disc or power harrow etc. (Pedestrian rotary cultivator in smaller areas).

### 5.9.3 Specific soil requirements:

Undisturbed soils falling within the parameters of 5.9.1 prepare as 5.9.4

Undisturbed soils not falling within the parameters of 5.9.1 Top soil stripped from site (150-250mm as determined in proposals) or deep ploughing (inversion ploughing) Sub soil prepared as 3.6 and 5.9.4

Sub soil or manufactured soil profile: Subsoil prepared as 3.6 if it is not possible to produce a suitable seed bed inform HoGM with proposals for bringing in inert low nutrient fill ensuring that the specified levels are achievable

### 5.9.4 Consolidation and finished levels:

Lightly consolidate with a light "Cambridge" (Ribbed) type roller, or for smaller areas by walking, with the operatives putting their weight onto their heels and walking systematically over the site in two directions. Following rolling any variations in levels should be addressed by adding sub soil, other pre-approved low nutrient fill or spreading the surface layer. Finished layers to meet the falls and levels of the surrounding grassed areas (acceptable variation +5mm to -10mm). Finished levels with existing hard surfaces such as drains, kerbs and paving level to be 25mm above hard surface. Where it is not possible to form a seed bed with the existing sub straight low nutrient fill (proposals and representative sample to the HoGM for approval) should be used to bring up levels and form a seed bed. The fill material should not be played in excess of 100mm.

**5.9.5 Seed bed preparation:** The surface should be lightly and uniformly raked to produce a friable tilth. All surface stones 10mm+ (in any dimension) should be removed from site.

**5.9.6 Sowing Dates:**  
Preferred August September or April May immediately after seed bed preparation to minimise erosion and capping.

**5.9.7 Sowing rates:**  
In accordance with suppliers recommendations.

**5.9.8 First year maintenance:**  
If growth exceeds 100mm cut at 75mm with flail or rotary mower and remove arisings repeat if sward height exceeds 200mm. Carry out weed control of pernicious weeds such as Nettles (*Urtica* sp.) and Doc leaves (*Rumex* sp.).

**5.9.9 Preparation for hand over:**  
Suitably qualified person to carry out species count over 10 randomly placed transects (Per 100 m<sup>2</sup>) with species count report to HoGM. Where the species mix does not match the specified mix contractor to carry out over planting using plug plants of the defective species. At least 70 % ground cover to be achieved at hand over.

## **6.0 Minor Works within Landscaped Areas**

### **Key objectives & considerations:**

- **The need for repairs can be significantly reduced with careful planning and ground protection measures**
- **Early engagement with HoGM essential**

### **6.1 Service trenches within lawns:**

**6.1.1** Consult with HoGM with regards to turf retention. Turf must be re-laid within 48 hours.

**6.1.2** Turf to be retained to be cut using a turf cutter (25mm thickness) and cut in to pieces no greater than 1.2m long and rolled. The retained turfs are to be covered with hessian or plastic sheeting to prevent drying.

**6.1.2** Trench excavated using ground protection as required to prevent damage to adjacent lawn.

**6.1.3** Spoil to be placed on protective sheeting or boards with sub and top soil kept separate.

**6.1.4** On completion of installation back-fill with sub-soil but allow for 200-300mm of top soil cover. Ensure service run is adequately consolidated to prevent subsequent subsidence before placement of the top soil. Top soil consolidated in layers no greater than 150mm by walking, the operatives putting their weight onto their heels and walking systematically over the site.

**6.1.5** Finished layers to meet the falls and levels of the surrounding grassed areas (to be +25mm for seed, level for turf). Finished levels to existing hard surfaces such as drains, kerbs and paving +25mm.

**6.1.6** The surface should be lightly and uniformly raked to produce a friable tilth. All surface stones 10mm+ (in any dimension) to be removed from site.

**6.1.7** Replace turf, ensuring any gaps are filled with stone free soil or, in calm conditions, apply an over seeding with pre-approved seed at a rate of 35-50g per m<sup>2</sup> and lightly rake in to cover the seed and leave a final level surface.

**6.1.8** Remove all arisings from site leaving it in a clean and safe condition.

## **6.2 Service trenches within existing landscaping or within the vicinity of trees**

**6.2.1** Consult with HoGM with regards to planting retention and tree protection.

**6.2.2** Trench excavated using hand digging methods and ground protection as required around retained planting and tree to prevent damage to roots. Where hand digging is specified no roots > 15mm diameter are to be severed.

**6.2.3** Spoil to be placed on protective sheeting or boards with sub and top soil kept separate.

**6.2.4** On completion of installation back fill with sub-soil (where tree roots have been retained carefully pack soil around) but allowing for 200-300mm of top soil cover. Ensure service run adequately consolidated to prevent subsequent subsidence before placement of top soil. Top soil consolidated in layers no greater than 150mm by walking; the operatives putting their weight onto their heels and walking systematically over the site.

**6.2.5.** Finished level to meet the falls and levels of the surrounding areas. Finished level with existing hard surfaces such as drains, kerbs and paving level

**6.2.6** The surface should be lightly and uniformly cultivated to produce a friable tilth all surface stones 25mm+ (in any dimension) to be removed from site.

**6.2.7** Replace existing plants as agreed with reference to section 7.

**6.2.8** As far as reasonably possible match existing mulching material.

**6.2.9** Remove all arisings from site leaving it in a clean and safe condition.

**6.2.10** Make good any deficiencies in levels or sward cover after 3 months

## **7.0 Amenity Planting**

### **Key objectives & considerations:**

- **Beds must be presented to the HoGM for inspection before planting begins**
- **Plants must be presented to the HoGM for inspection before planting begins**
- **Success is dependent on good plant handling, planting and aftercare**

### **7.1 Soil preparation for shrub/ornamental planting areas:**

Prepare soil as specified in sections 3.5-3.10 appropriate to the site. Ensure that all visible roots and large stones with a diameter greater than 50 mm are removed. Spread sanitized imported green waste and stabilized composts at 7.5m<sup>3</sup>/100 m<sup>2</sup> (75mm depth over planting area). Incorporate into the top 200mm of the soil using a rotary cultivator or by manual means.

#### **7.1.2. Finished levels:**

Level to existing hard surfaces such as drains, kerbs and paving. Level to lawn edges 100mm -125mm above (including mulch coverage) with an edge strip.

#### **7.1.3 Surface finish:**

The surface should be lightly and uniformly cultivated to produce a friable tilth. All surface stones 50mm+ (in any dimension) to be removed from site.

#### 7.1.4 **Fertilizer application:**

Apply pre-approved controlled release (8-9 Months) planting fertiliser 11-21-9+6MgO at the manufacturers recommended rates and incorporated into the top 150mm of the soil prior setting out and planting.

#### 7.2 **Soil Conditions before planting:**

Soil conditions should be moist & friable, NOT waterlogged, frozen or snow covered.

#### 7.3 **Climatic conditions:**

No planting to be carried out in extremes of temperature <3°C or > 24°C (without consultation with the HoGM and provision for irrigation). If the water supply is, or is likely to be, restricted by emergency legislation then planting should be suspended. Planting in periods of forecast high wind, especially in low or high temperature, must be avoided.

#### 7.4 **Times of year for planting:**

Bare root and container grown deciduous shrubs: Late October to late March.

Root balled and container grown evergreens: September/ October or April/ May.

Container grown plants can be planted at other times, but only after consultation with the HoGM and only if adequate irrigation can be provided.

#### 7.5 **Supply of shrubs and plants:**

The contractor will ensure that, on delivery to site, plants will have the following attributes:

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Species: Labelled with full botanical name, true to type as specified, substitution will be allowed only after the written approval from the HoGM.
- Provenance: Country of origin with appropriate EU plant passport.

Contact HoGM for inspection of nursery stock before planning begins.

#### 7.5.1 **Supply of root balled shrubs and plants:**

Only to be used following consultation with the HoGM. Root balls are to be well filled with fibrous roots and cohesive natural soil which has been carefully lifted with the plant and remains attached to the root system. Bare root plants, which have been bagged with soil or containerised will not be accepted.

#### 7.6 **Plant handling, storage and transport**

Plants to be handled and dispatched in accordance with the National Plant Specification - Handling and establishment with special reference to the following:

- Frost: Protect bare root plants and frost susceptible plants.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: Bare root material to be sealed in co-extruded black and white polyethylene bags.
- Handling of bulk quantities: Consult with the HoGM with regards to storage and care before planting.

#### 7.7 **Plant quality:**

Should be in accordance with BS3936, ensuring before planting that:

- **Plant nutrition:** Plant foliage is not showing signs of chlorosis due to nutrient deficiency
- **Plants:** Centred and stable within containers
- **Root growth:** Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting
- **Moisture:** Root ball soaked to full depth of container no signs of drought, stress or foliage scorch

- **Hardiness:** Grown in the open for at least two months before being supplied
- **Containers:** With holes adequate for drainage when placed on any substrate commonly used under irrigation systems

## 7.8 **Planting:**

### 7.8.1 **Spacing:**

Place plants on the prepared ground at the specified density, ensuring an equal distance between plants.

### 7.8.2 **Excavation of planting hole:**

Excavate planting hole, ensure that the hole is the correct depth when the plant is placed in the hole, Containerised: The top of root ball should be level with the soil surface.

Root Balled: Nursery mark level with the soil surface.

Bare root: Root flare at surface of soil transplants.

The hole must be wide enough to easily accommodate the root ball:

### 7.8.3 **Planting:**

Position the planting upright, with best side to the front where appropriate.

### 7.8.4 **Backfilling:**

Check planting depth before cutting the sides of the hole into the planting hole. Consolidate ensuring good soil to root ball contact.

### 7.8.5 **Finishing:**

Lightly firm soil around plants and cultivate soil surface with hand tools, without damaging roots, to a fine level tilth with no hollows.

### 7.8.6 **Watering:**

Water plants immediately after planting in order to settle the plants. Where the planting bed is not at field capacity, water thoroughly, to full depth of top soil without damaging or displacing plants or soil.

### 7.8.7 **Mulching:**

Carefully spread bark mulch (as specified in 4.4) or green waste compost (as specified in 4.1.), ensuring plants are not damaged or buried. Finished appearance: level with mulch flicked back from turf edges to allow maintenance. Depth of mulch minimum 75mm maximum 100mm ensuring stem collars are not buried.

### 7.8.8 **Finishing:**

Ensure any damaged plant material is carefully pruned to the nearest bud using sharp secateurs. Any arisings (subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, and rubbish or pruning material) are to be removed from site.

## 7.9 **Handling of bare root plant material:**

The material is to be supplied and stored in co-extruded black and white polyethylene bags and temporarily stored in a frost free area pre-planting. At planting the material should be carefully brought to site but must not be removed from the bag until ready to be placed into a prepared hole and back filled immediately.

## 7.10 **Hedge planting:**

Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.

Planting: In trenches large enough to take full spread of roots. Set out plants evenly but ensure bare root material is handled in accordance with 7.9.

## 7.11 **Subsequent irrigation:**

First year (March-October) post planting: Ensure that full depth of top soil remains moist. Apply irrigation evenly to the site without damaging or displacing plants or soil, to ensure successful establishment and good plant health.

### 7.12 Failures:

Plant replacements as original specification will be supplied and planted in the next available planting window or as agreed with the HoGM.

## 8.0 Specimen Tree Planting

### Key objectives & considerations:

- **Early engagement with HoGM required to ensure suitable species selection**
- **Present stock for inspection prior to planting**
- **Trees poorly handled or stored will be rejected**
- **Planting depth is critical any trees planted too deep will be rejected**

### 8.1 References:

BS 8545: 2014 - Trees: From nursery to independence in the landscape - The National Plant Specification - Handling and establishment.

### 8.2 Soil conditions before planting:

Soil conditions should be moist & friable, NOT waterlogged, frozen or snow covered.

### 8.3 Climatic conditions:

No planting to be carried out in extremes of temperature  $<3^{\circ}\text{C}$  or  $>24^{\circ}\text{C}$  (without consultation with the HoGM and provision for irrigation). If the water supply is, or is likely to be, restricted by emergency legislation then planting should be suspended. Planting in periods of forecast high wind, especially in low or high temperature, must be avoided.

### 8.4 Times of year for planting:

Container grown trees from late September- mid March (Optimum Late September-November)  
Bare root deciduous trees: Mid October (as available) up to mid-March. (Optimum October-December)  
Container grown conifers and evergreen trees: September/ October or April/ May. Container grown trees and conifers can be planted at other times but only if adequate irrigation can be provided.

### 8.5 Tree quality:

Tree stock to be in accordance with BS3936: Nursery Stock Part 1 Trees and Shrubs.

### 8.6 Supply of trees

Preferred supplier: Barcham Trees PLC, Eye Hill Drove, Soham, Ely, Cambridgeshire CB7 5XF  
Phone: 01353 720748

Alternative suppliers need to be approved in writing by the HoGM

The contractor will ensure that, upon delivery to site, trees will have the following attributes:

- **Condition:** Materially undamaged, sturdy, healthy and vigorous.
- **Appearance:** A clearly defined leader, a balanced branching framework subordinate to the central leader evenly spaced along the stem, defined stem taper.
- **Budded or grafted plants:** Bottom worked, free from the signs of graft incompatibility e.g. disproportionate growth of stock or scion, excessive sucker growth.
- **Plant nutrition:** Plant foliage is not showing any signs of chlorosis due to nutrient deficiency.
- **Health:** Free from pests, diseases, discoloration, weeds and physiological disorders.
- **Plants:** Centred and stable within containers.
- **Root growth:** Substantially filling containers and able to hold the compost together, but not root bound, and in a condition conducive to successful transplanting.
- **Moisture:** Root ball soaked to full depth of container no signs of drought stress or foliage scorch.
- **Containers:** Trees supplied are within Barcham light pots, or similar approved container, which stimulates fibrous root growth, with holes adequate for drainage when placed on any substrate commonly used under irrigation systems.
- **Hardiness:** Grown in a suitable environment and hardened off.
- **Species:** Labelled with full botanical name, true to type as specified, substitution only after approval from the HoGM. The contractor is liable for all replacement costs if not true to type.

- Provenance: Country of origin known with appropriate EU plant passport if applicable.

Contact HoGM for inspection of stock before planning begins. Material not considered to be in an appropriate condition or standard will not be accepted.

## **8.7 Supply of root balled or bare root material:**

Only to be considered if containerised material not available, or, if small sized, e.g. whips or transplants are specified. Use to be agreed (in writing) with HoGM.

### **8.7.1 Root balled material:**

Root balls are to be well filled with fibrous roots and cohesive natural soil, which has been carefully lifted with the plant and remains attached to the root system. Bare root plants which have been bagged with soil or containerised will not be accepted.

### **8.7.2 Bare root material:**

To be supplied in co-extruded black and white polyethylene bags tied and bundled in groups appropriate to the size and material. A high proportion of fibrous roots should be evident.

## **8.8. Plant handling, storage and transport:**

Plants to be handled and dispatched in accordance with the National plant specification, with special reference to the following:

- Frost: Protect bare root plants and frost susceptible plants.
- Handling: Trees must be handled with care. Protect from mechanical damage. Do not subject to shock. Ensure adequate staff levels are available to take delivery.
- Trees to be protected from falling before planting e.g. carefully lay against hedge at 45°
- Plant packaging: Bare root material to be sealed in co-extruded Black and white polyethylene bags.

## **8.9 Planting pits:**

### **8.9.1 Hard landscaped areas:**

Planting pits within hard landscaped areas need to be designed after evaluation of the site conditions. The pit must be of sufficient volume to ensure successful establishment through to maturity. The final tree pit design should be agreed with the HoGM.

### **8.9.2 Soft landscaped areas:**

The majority of tree planting takes place within the parkland setting of the University, in areas of lawn, grassland or soft landscaping plantings and therefore a more generic approach to planting pits can be taken.

### **8.9.3 Excavation of planting pit:**

To be carried out by hand. The top and sub-soils are to be kept separate. Place excavated material on boards or sheeting to protect the surrounding grass if necessary. The pit width should be determined by measuring the container or root ball width, ensuring that the pit width is wide enough to provide a minimum 100mm clearance around the root ball. The pit depth should be determined by measuring the height of the container or root ball to ensure that the trees root flare will be clearly visible on the soil surface when placed in the pit. The base of the pit should not be disturbed unless there are specific problems of poor drainage or soil smearing resulting from pit construction; in this situation the pit sides should be scarified using hand tools.

## **8.10 Planting:**

### **8.10.1 Placement within planting pit:**

The trees root system should be wetted prior to planting. The tree should be positioned in the planting pit ensuring the best side is to the front, where appropriate. Any damaged branches should be removed using sharp secateurs to an appropriate pruning point before placing the tree in the pit. The root flair or root transition must be level with the host soil or surface. It may be necessary to expose the root flare by carefully removing the surface compost and fibrous roots if the tree has been put too deep in the

container when in the nursery. When the tree is correctly positioned remove the container or other root wrappings.

#### **8.10.2 Backfilling:**

Backfill with sub-soil first (if necessary) in order to match the soil profile that surrounds the pit; the topsoil must not exceed 300mm in depth on completion. Back fill should be added gradually in layers of no more than 150mm, firming gently to eliminate air pockets. Do not excessively compact.

During backfilling, ensure the tree remains straight. The final 100mm layer should not be consolidated but should be of sufficient depth to allow for settlement and mulch. Immediately after planting, the tree pit should be saturated to field capacity. Should the turf surrounding a tree pit become compacted during planting operations this should be relieved using a garden fork to penetrate the ground to a depth of 200mm.

#### **8.11 Tree furniture and staking:**

##### **8.11.1 Support systems:**

Support systems should be installed at planting stage, ensuring stakes are not driven through root balls or irrigation tubes. Double staked, equally spaced and upright. Damaged stakes should be cut cleanly at the same height. Flexible ties should be used with spacers to ensure that the tree does not make contact with the stake. The tree should be tied at approximately one third of the trees height and removed within 24months of planting.

##### **8.11.2 Irrigation tubes:**

Such as Green Leaf Root Rain Urban or similar products approved by the HOGM should be installed in accordance with the manufacturer's specification. The irrigation tube should be placed in the prepared planting pit surrounding the entire root ball prior to backfilling.

#### **8.12 Tree mulching:**

##### **8.12.1 Suitable materials:**

Composted bark as described in section 4.4 should be used for tree mulching. Alternative materials to be approved, by the HOGM prior to use and sample provided.

##### **8.12.2 Mulching:**

Carefully spread mulch to depth of 75mm over the planting pit area (to a minimum 500mm diameter from tree base) ensuring that the mulch does not make contact with the tree stem. After applying mulch ensure it is clear 100mm diameter (hand width) from the tree stem. Do not use hand tools. Ensure irrigation tubes are not buried with mulch material.

#### **8.13 Finishing:**

Ensure all arisings from tree planting operations are removed from site.

#### **8.14 Failures:**

Tree replacements as original specification will be supplied and planted in the next available planting window or as agreed with the HoGM

### **9.0 Woodland whip or transplant planting**

#### **Key objectives & considerations:**

#### **Early engagement with HoGM required to ensure suitable species selection**

- **New planting should not negatively impact on existing trees especially veterans**
- **Trees poorly handled are likely to be dead before planting**

#### **9.1 Tree stock:**

Tree stock to be within accordance with BS3936: Nursery Stock Part 1 trees and shrubs with fibrous root system evident.



- 9.1.1 Tree Provenance:**  
Native tree species FC provenance zone 405 certificate of conformity required.
- 9.1.2 Stock size and age:**  
Typically 1+1 40-60cm.
- 9.2 Timing:**  
As sections 8.3 & 8.4.
- 9.3 Handling and storage prior to planting:**  
As section 8.8.
- 9.4 Soil Conditions before planting:**  
Soil conditions should be moist & friable, NOT waterlogged, frozen or snow covered.
- 9.5 Spacing:**  
Approximately 2m in either direction, or as specified. Positioned in straight lines edges of planting to be irregular to produce scalloped edges to maximise habitat value
- 9.6 Site preparation:**  
Surface vegetation clearance: Clear an area one metre diameter around each planting station.
- 9.7 Planting hole:**  
Excavate by hand. The hole should be large enough to easily accommodate the root system. Consult with HoGM with alternative proposals if soil conditions are appropriate e.g. Mechanical auger.
- 9.8 Planting:**  
Ensure tree roots are moist and remain in the planting bag at all times until placed in the hole and immediately back filled. Position tree in hole and “cut” the surrounding soil using a spade. Back fill the excavated material. The root flair or root transition must be level with the host soil after backfilling and gently consolidating.
- 9.9 Mulching:**  
Composted bark, as section 4.4. Alternative materials must be approved, by the HOGM prior to use and a sample provided. Carefully spread mulch to depth of 75mm over the planting area or a minimum 500mm diameter from tree base ensuring mulch does not make contact with the tree stem. After applying mulch clear 100mm diameter (hand width) from the tree stem by hand do not use hand tools.
- 9.10 Tree shelters, spirals or mesh cages:**  
Preferred product Tubex shrub tube 75 cm 130-160mm diameter secured with single wooden stake 90cm 32mm<sup>2</sup> Submit proposals to HoGM for alternative products round shelters only will be considered. Carefully positioned over mulched transplant ensuring branches are not damaged secure shelter with two cable ties to driven wooden stake. Stake to support full length of shelter but below shelter lip. Shelter to be upright and undistorted.
- 9.11 Failures:**  
Tree replacements as original specification will be supplied and planted in the next available planting window or as agreed with the HoGM.

## 10.0 Maintenance

### Key objectives & considerations:

- **Maintenance to be carried out in accordance with E&F Grounds Maintenance specification relevant to the project area (To be supplied by HoGM) and the general notes below**
- **Regular maintenance visits to achieve the specification are required**

### **10.1 Duration:**

Carry out the operations in clauses 10.2-10.3.7 until the end of the rectification/maintenance period (Typically one calendar year from completion of all landscaping operations) or until handover.

### **10.2 Failures of planting and rectifications:**

Defects are defined as materials or workmanship which are not in accordance with the contract resulting in plants/ trees/ shrubs that fail to thrive. This specification excludes damage from theft or malicious damage after completion.

Replacements: Should match the size of adjacent or nearby plants of same species or match original specification, whichever is the greater. Timing of making good: next suitable planting season or by agreement with the HoGM

### **10.3 Landscaping maintenance general requirements:**

#### **10.3.1 Weed control:**

Maintain weed free area around each tree and shrub. Diameter (minimum): The larger of 1m or the surface of original planting pit. Keep planting beds clear of weeds by hand, hoeing or chemical control, subject to agreement for HoGM.

#### **10.3.2 Lawn maintenance:**

Grass length to be kept between 25mm-75mm, between March – December cut with appropriate equipment for the site. Cut round all obstructions. Border edges to be in a neat cut condition with edges as described in 5.5.

#### **10.3.3 Young tree maintenance:**

Staking: Check condition of stakes, ties, guys and guards replace broken or missing items. Adjust ties to accommodate growth and prevent rubbing. Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs. Frequency of checks: At each scheduled maintenance visit.

Precautions: Ensure that trees and shrubs are not damaged by weed control or grass cutting operations.

#### **10.3.4 Mulch:**

Top up mulch levels (using matching material) surrounding trees and within beds to 75mm at the end of the maintenance period, with reference to previous mulch notes.

#### **10.3.5 Irrigation:**

Regular watering to ensure the top soil remains moist surrounding the planting(s).

Note: Tree pits will normally require irrigation to the pit surface as well as irrigation tube.

#### **10.3.6 Pruning:**

Dead, damaged, diseased wood and suckers should be removed using sharp secateurs.

#### **10.3.7 Site clearance:**

Leave the works in a clean, tidy and safe condition after any maintenance operations. Remove all arisings from site.

### **11.00 Signage, lighting, CCTV and other street furniture**

#### **Key objectives & considerations:**

- **Items to be positioned to avoid maintenance problems**
- **Street furniture to be placed within a hard landscaping detail in lawn areas**

#### **11.1 Planning:**

Signage, CCTV, lighting and street furniture proposals to be agreed with HoGM, before orders are placed, to ensure positions do not restrict maintenance. Tree root protection areas are to be avoided.

#### **11.2 Positioning:**

The creation of “dead areas” inaccessible to machinery which require hand mowing must be avoided or a hard landscaping solution must be provided by the project. Signage, lighting and other street

furniture must not block sight lines or be positioned within areas of soft landscaping which will require continual pruning.

**11.2.1 Street lighting:**

Street lights must not be positioned within the canopies of existing trees with cable runs planned to avoid tree RPA's. New tree planting should not share the same space as street lighting. Hinged street lights should not be positioned so they hinge towards new plantings or developing trees.

**11.2.2 CCTV:**

CCTV must not be positioned within the canopies of existing trees with cable runs planned to avoid tree RPA's. New tree planting should not share the same space as CCTV.

**11.3 Installation within turf areas:**

Signage and other street furniture to have hard surface below. The surface to be of bespoke design to ensure minimum 300mm clearance around obstruction and 25mm below turf level. Mowing equipment to be able to pass by and over the obstruction. A solid non jointed kerbed surface, appropriate to the surrounding area, to be agreed with HoGM Suggested material Resin bonded gravel.

## **12. Hard landscaping around car parks, buildings and fixed structures**

**12.1 Car parking spaces:**

Car parking spaces to include an 800mm over hang from the kerb this area to have a hard landscaping detail with soft landscaping beyond where appropriate. It is recommended to reduce the parking space length by the 800mm of the overhang. Space must be provided for drivers to exit their cars on ends of rows and therefore no planting and a hard landscaping detail must be provided.

**12.2 Buildings and fixed Structures:**

300mm wide grip with concrete kerb path edging solid or loose fill material (proposals to HoGM) to depth of 100mm.

**12.3 Grasscrete type cellular grass growing systems:**

Submit details of system for approval by HoGM details to include: installation method statement, maintenance, on site protection proposals until establishment. Where the system allows it is to be installed ready filled with growing grass. Where filled on site representative sample of materials to HoGM and notification at each stage of installation.

## **13. Swales ditches and other open drainage schemes**

**13.1 Design:**

Supply design, management objectives and maintenance requirement to HoGM for assessment and sign off. Ensure maintenance possible by mechanical cutting and does not restrict the access of existing landscape. Give notice to HoGM when earth works are complete.

**13.2 Seed bed preparation:**

The surface should be lightly and uniformly raked to produce a friable tilth. All surface stones 20mm+ (in any dimension) should be removed from site.

**13.3 Sowing Dates:**

Preferred August September or April May immediately after seed bed preparation to minimise erosion and capping.

**13.4 Sowing rates:**

In accordance with suppliers recommendations.

**13.5 First year maintenance:**

If growth exceeds 100mm cut at 75mm with flail or rotary mower and remove arisings repeat if sward height exceeds 200mm. Carry out weed control of pernicious weeds such as Nettles (Urtica sp.) and Doc leaves (Rumex sp.)

### 13.6

#### **Hand over:**

Continuous ground cover, as specified at design, to be established. Suitably qualified person to carry out species count over 10 randomly placed transects (Per 100 m<sup>2</sup>) with species count report to HoGM If appropriate. Where the species present does not match the specified mix or insufficient areas of ground cover contractor to carry out over planting using plug plants of the defective species.