

WESTWARD HO! VILLAGE GREEN ENHANCEMENT WORKS

PERFORMANCE SPECIFICATION

Document Ref: WWH294-Perfromance Specification

Rev 01
FOR TENDER
05/11/2010



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Rev:	Date:	Description:	By:	Chk'd:
00	16/07/2010	FOR TENDER	TS	PC
01	05/11/2010	FOR TENDER	TS	PC

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Project Overview

This performance specification provides information in support of the design and build tender for the Westward Ho! village green enhancement works.

The Village Green sits on the seafront in the heart of Westward Ho! village at approximately 6000m². The remediation works to are an opportunity to reinvent the centre of Westward Ho! The green is the heart of the village and this work will enliven the space, providing a high quality amenity space for residents and visitors all year round.

The overall spatial design for the Village Green is inspired by a wealth of unique natural elements that reside in and around Westward Ho! The colours, forms and flora provide a simple yet effective design basis. The approach aspires to give the village green a unique quality and character that relates to the village and the bay. At the same time this is balanced by the functional provision and a logical layout that meets the needs of the community, resident and visitor alike. Key festivals such as Potwalloping and the mini register are important events in the Westward Ho! calendar and provision for these has been carefully considered in the design. The lawn area can easily accommodate marquees and associated vehicles, while the widened pathway to Golf Links Road will provide spectators with additional space and the scented walk provides dual aspect seating.

Adjoining the southern boundary of the village green enhancement works is the Latitude 51 development. This comprises of approximately 1250m² of public realm works associated with a mix used development delivering residential, shops and food/beverage units with outdoor dining. All these works are to be implemented by others.

Grant Associates has provided design services up to Stage D (RIBA), which is outlined within the tender documentation. We have been appointed by the Client to continue to contribute to the project during the tender and construction process. Therefore we will be attending tender interviews, and via the Client will respond to queries and provide clarifications during the tender process. Post tender Grant Associates will provide monitoring and support services as a representative of the Client. This includes 5 site visits to meet the Client/Contractor and the review of contractor proposed drawings, specification and schedules, when and as appropriate during the construction period. Grant Associates will not provide any further design services.

The design proposals outline within the tender package has been submitted for full planning approval. Torridge District Council approved the scheme with full planning consent (conditions apply) on 25th June 2010.

A70 Scope of Works

The works generally comprise, but are not limited to, the following:

1. The Contractor is responsible for the design, detail, supply and installation and overall construction of all elements identified within the site boundary.
2. Optional Extras are identified within the 'Tender Design Report' that are outside this contract (art works on page 29). The contractor is required to be aware of these works to enable coordination if and/or when funds are available to implement the artworks during the contract period.
3. The Contractor is to provide all the consultant services required to achieve the outline designed proposals. This includes engineering and certification of pavement build-ups, edges and structures, and detail planting design in accordance with the 'Design Summary Report'.
4. The Contractor is to coordinate works along all boundary interfaces and existing services
5. Fine grading of site-won subsoil to proposed levels to form formation levels within soft landscape areas.
6. Sub soil cultivation and ripping prior to topsoil placement
7. Spreading, shaping and cultivation of site-won stored top soil
8. Supply, spreading and cultivation of imported topsoil as necessary to achieved specified soil profiles as deemed necessary to meet specified depths if item 3 quantities are insufficient.
9. Supply, spread and incorporate specified ameliorants and fertilizers.
10. Preparation of topsoil prior to planting and seeding.
11. The Supply Planting and Staking of trees: Transplants, Semi Mature Advanced nursery stock, standards and feathered (suitable for British coastal conditions)
12. The Supply and Planting native transplants, ornamental shrubs and grasses (suitable for British coastal conditions)
13. The supply and planting of wildflower plants and bulbs (suitable for British coastal conditions)
14. The supply and placement of turf
15. Supply of grass seed mixes and all cultivation / bed preparation.
16. Supply and placement of mulches, as defined by specification and drawings
17. Supply and fixing of wildlife sundries (where required as deemed by Client)
18. Installation of temporary site fencing and hoarding where necessary
19. Design and Construction of steps
20. Supply and lay sub bases (to contractors own engineers specification and details)
21. Supply and lay paving materials, kerbs, edgings and drainage falls as specified.
22. Supply and install/fix street furniture including, benches, bollards, bins, plant support systems and timber planters etc. The contractor is to provide workshop/shop drawings of all key elements prior to installation for Client/Landscape Architect approval.
23. Phased site works due to programme restrictions and planting season. This may require the contractor to complete all hard works and soil placement with temporary mulch, and vacate the site to meet programme deadline. Planting and final mulch to be implemented within acceptable growing season.
24. Pre-practical completion maintenance of grassed, planted, other associated landscape features contained within this document.
25. Maintenance for 12 months (following issue of practical completion) of planted, grass and external areas and associated defects liability for 12 months.
26. Maintenance of all hard external areas and associated defects for 12 months.
27. Play area including safety surfacing to be procured and installed under separate contract. Contractor is responsible for ground preparation and installation of permanent edge with temporary surface treatment.

A71 Workmanship

10 GENERAL CONDITIONS

Works by Others

The Contractor shall be fully acquainted with the extent of the previous work by others on the site and with the position of services existing and proposed. If required this shall include for hand digging to verify the position of services.

Standards and Codes of Practice

Where a British Standard or Code of Practice exists appropriate to any or all of the materials and any operations necessitated by the works or part thereof, such operations or materials shall comply with the latest edition of that British Standard or Code of Practice unless otherwise stated.

Definitions

The definitions used in this Document are as follows:

"CA" shall mean the Client

"Landscape Architect" shall mean Grant Associates with scope defined within the project overview

"BS" shall mean British Standard Specification

"mm" shall mean millimetre

"cm" shall mean centimetre

"m" shall mean metre

"m²" shall mean square metre

"m³" shall mean cubic metre

"l" shall mean litre

"BR" shall mean bare root

"RB" shall mean rootballed

"Tr" shall mean transplant

"C" shall mean containerised

"t" shall mean tonne

"Approved" or "approval" shall mean approved by or approval of the CA/Landscape Architect.

"Submitted" or "submit" shall mean submitted to or submit to the CA/Landscape Architect in writing.

"Accepted" or acceptance shall mean accepted by or acceptance of the CA/Landscape Architect in writing.

"Inspected" or "inspection" shall mean inspected by or inspection of the CA/Landscape Architect.

"Directed" shall mean directed by the CA/Landscape Architect in writing.

"Authorised" or "Authority" shall mean authorised by or authority of the Landscape Architect in writing.

"Required" shall mean "required" by the CA/Landscape Architect in writing.

"Rejected" shall mean "rejected" in writing by the CA/Landscape Architect.

"Weeds" shall mean all plants not within the design.

Drawings

The Contract drawings shall form part of the quotation and schedule of rates documents, and are numbered as scheduled in the Appendix

The Contractor is to be satisfied that the information contained in the drawings is sufficiently and correct for the works to be carried out, as no variations arising from lack of information will be accepted.

Contractor / Sub Contractor

The works shall be carried out by properly qualified and experienced personnel, expert in the aspect of work in which they are engaged. The landscape works shall only be carried out by full, current members of BALI (British Association of Landscape Industries). Any Sub Contractor shall be approved by the CA/Landscape Architect.

Programme for the Works

Before commencing the works, the Contractor shall provide and agree with the CA/Landscape Architect, a detailed programme showing the Contractors proposed sequence and times of operations. The Contractor shall review and update all programmes from time to time as may be necessary.

Rates

Unless otherwise specifically stated, the rates quoted by the Contractor shall be deemed to include for labour and all costs in connection therewith, materials including conveyance, delivery, unloading and handling, establishment charges, waste, overhead charges and profit.

Schedule of Rates - Alterations & Qualification

No alterations or qualification of any kind whatsoever are to be made by the Tenderer to the text of the Schedule of Rates

If any alteration or qualification is made by the Tenderer (other than alteration or qualifications notified by the Landscape Architect during the period of Tendering) it will be ignored and the text, as prepared by the Landscape Architect, will be rigidly adhered to.

Supervision for Quality

Supervision of the works shall be the responsibility of the Contractor. The Contractor shall appoint full time supervisors both on and off the site who shall instruct the Contractors personnel and properly represent the Contractor in all matters related to progress, the technical specification for the Works and quality of materials and workmanship

Before any work starts the Contractor shall notify the CA in writing of the names of the appointed supervisors. No work of the Contractor shall be carried out unless one of the appointed supervisors is present at the place where the work is physically being executed.

Working Areas

The Contractor shall be satisfied and aware by inspection of site drawings and programmes and by site visits of the areas available to commence work, especially with regard to access and haul roads and concurrent works by others.

Weather / Soil Conditions

The works shall be carried out during suitable weather and soil conditions. Earthworks and topsoil placement must be carried out under dry conditions when soil moisture is as low as possible, e.g. no visible standing water. The CA/Landscape Architect may, at any time, suspend any part of the works until soil moisture levels improve.

Joint Inspections

The CA/Landscape Contractor shall jointly agree the condition of all works completed by others prior to the Contractor commencing works in any area.

Alternative Material, Design or Type of Implementation

Where a particular material, design or type of implementation is specified, or implied by Contract drawings and the Landscape Contractor is not sure that the preference specified will satisfy the requirements of the Contract documents, then alternative proposals are to be made when submitting prices.

Approval of the Works

Throughout the Contract it will be necessary for the CA/Landscape Architect to inspect or give approval or agreement to the Contractor's proposals, working drawings, material samples,

analyses, Contract works as executed, etc. Such approval or agreement shall in no way imply or be construed as a relief or abatement of the Contractor's responsibility and liability for performance under this Contract.

Where any document, drawings, working method, soil condition, sample etc, is required by the Contract to be inspected or approved by, or be to the agreement or satisfaction of the CA/Landscape Architect, then the Contractor shall not proceed until he has verbal confirmation to do so.

Excluded Work

The Contractors Tender shall clearly describe any work necessary for the proper execution of the Contract which has not been included for in the Tender Return. Any such work not specifically stated and described in detail shall be deemed to have been included for in the Tender.

Ordering of Materials

Quantities or dimensions for ordering materials are to be taken from the drawings. The Contractor must first check the dimensions and details of such drawings and should also check and verify the dimensions of the drawings against the relevant site dimensions before taking quantities and before ordering materials. No claims resulting from neglect of these requirements will be entertained.

Suppliers

Within two weeks of being appointed, the Contractor shall submit a list to the CA/Landscape Architect of manufacturers, suppliers and sources of supply from whom it is intended to purchase materials necessary for the execution of the works.

Labour

All personnel employed on site by the Contractor shall be competent and experienced in all aspects of work on which they are engaged

Sub Letting

The Contractor shall not sub let any portion of the works without the written consent of the CA/ Landscape Architect

Defects, Shrinkages & Other Faults

The Contractor will be required to make good all defects, shrinkages or other faults of any nature arising in the execution of the works through fault or negligence, or from unacceptable standards of quality in workmanship or materials. Making good will be carried out at the Contractors expense.

Temporary Works

The Contractor shall provide and be fully responsible for all temporary works, including their design, and the adequacy of their construction for the purpose intended.

Site Cleanliness

The Contractor shall during the course of carrying out works ensure all necessary measures are taken so that the approach roads, site roads, footpaths and other pavings are kept free from obstruction, dirt, mud, debris, litter and fallen leaves.

Throughout the works the site shall be kept in a clean orderly condition at all times. Paving shall be cleaned and rubbish removed from site on a daily basis.

Nuisance

The Contractor shall avoid nuisance to neighbouring owners and occupiers by keeping the amount of noise to a minimum and confining it to reasonable hours.

Existing & Proposed Services

The Contractor shall allow for upholding and protecting all pipes, ducts, sewers, services, mains, overhead cables etc. and shall ensure that any damage caused by carrying out the works will be made good at the Contractors expense.

Notwithstanding any information contained within the Contract documents regarding the position of existing services etc., it shall be the responsibility of the Contractor to be satisfied as to the accuracy of their location and condition.

Existing Drainage

The Contractor must ensure that for the duration of the Contract all existing drains and gullies are kept clear of obstruction and that service covers are not damaged or buried under soil

Site & Topsoil Conditions

The Contractor will be deemed to have visited and be satisfied with the site and to have carried out any ground investigations that may be necessary and to the existing ground conditions.

Workshop / Shop Drawings

The Contractor is to provide details for all key elements, as outline below, for Client/Landscape Architect approval. These detail drawings are to be clear and readable.

- Seating details
- Edge details
- Planting details, including procurement and species/sizes schedule
- Play equipment and layout

Method Statement

The Contractor is to provide a method statement that outlines how the programme and design parameters are to be delivered, including team organisation, sequence of works, key dates, site access/operations and coordination/interface works.

C2o Demolition

- 5 SURVEY
- Scope: Before starting work, carry out a survey and submit a report and method statement covering the following:
 - Condition and demolition methods and sequences for the structures.
 - Removal methods of hazardous materials.
 - Type and location of adjoining or surrounding premises which may be adversely affected by the Works.
 - Identification, location, disconnection and removal of services.
 - Arrangements for protection of personnel and the public.
 - Arrangements for control of site transport and traffic.
 - Special requirements: Procedures and arrangements generally applicable to the demolition.
- 10 EXTENT OF DEMOLITION
- General: Subject to retention requirements specified elsewhere, demolish structures down to t o level indicated on enabling works drawings.
- 15 BENCH MARKS
- Unrecorded bench marks and other survey information: Give notice when found.
 - Do not remove or destroy.
- 20 FEATURES TO BE RETAINED
- General: Keep in place and protect the following trees noted on drawings, protect in accordance with BS 5837. Refer to enabling works and tree protection drawings.
- 25 LOCATION OF SERVICES
- Services affected by the Works: Locate and mark positions.
 - Mains services: Arrange with the appropriate authorities for locating and marking positions.
- 30 DISCONNECTION OF SERVICES ARRANGED BY CONTRACTOR
- Responsibility: Before starting demolition arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment.
- 35 DRAINS IN USE
- General: Protect drains and fittings still in use and keep free of debris.
 - Damage: Make good damage arising from demolition work. Leave clean and in working order at completion.
- 40 BYPASS CONNECTIONS
- General: Provide as necessary to maintain continuity of services to occupied areas of the same and adjoining properties.
 - Notice: Give adequate notice to occupiers if shutdown is necessary.

45 SERVICES WHICH ARE TO REMAIN

- Damage: Give notice and notify the service authority or owner of damage arising from the execution of the Works.
- Repairs: Complete to the satisfaction of service authority or owner.

50 WORKMANSHIP

- Standard: Demolish structures in accordance with BS 6187.
- Operatives: Appropriately skilled and experienced for the type of work. Holding or in training for relevant CITB Certificates of Competence.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of demolition to be used.

55 SITE HAZARDS

- Precautions: Prevent fire or explosion caused by gas or vapour: Prevent.
- Dust: Reduce by periodically spraying with an appropriate wetting agent.
- Site operatives and general public: Protect from vibration, dangerous fumes and dust arising during the course of the Works.

60 ADJOINING PROPERTY

- Temporary support and protection: Provide at each stage.
- Damage: Prevent. Promptly repair. Leave no unnecessary or unstable projections.
- Support to foundations: Do not disturb.
- Defects: Report when defects exposed or becoming apparent.

65 STRUCTURES TO BE RETAINED

- Parts which are to be kept in place: Protect.
- Extent of work: Cut away and strip out the minimum necessary.

70 PARTLY DEMOLISHED STRUCTURES

- General: Leave partly in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Keep safe outside working hours.
- Debris: Prevent from overloading scaffolding platforms.
- Unauthorized persons: Prevent access.

71 DANGEROUS OPENINGS

- General: Illuminate and protect as necessary.

76 ASBESTOS CONTAINING MATERIALS

- Discovery: Give note immediately of suspected asbestos containing materials discovered. Avoid disturbing such materials and submit details of methods for safe removal.

78 UNFORESEEN HAZARDS

- Unrecorded voids, tanks, chemicals, etc discovered during demolition: Give notice.
- Method for safe removal: Submit proposals.

85 SITE CONDITION AT COMPLETION

- Debris: Clear away and leave the site tidy on completion.
- Special requirements: refer to enabling works drawings.

86 SITE LEVELS AT COMPLETION

- Levels: Grade the site to follow the levels of adjacent areas.

91 EMPLOYER'S PROPERTY

- Components and materials to remain the property of the Employer: Description: as agreed with the employer.
- Protection: Until removed by the Employer, reused in the Works or end of the Contract.
- Specific limitations: None.

95 RECYCLED MATERIALS

- Materials arising from demolition work: May be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification.

D20 Excavating and filling

To be read with Preliminaries/General conditions

GENERALLY/THE SITE

109A SEQUENCE OF OPERATIONS

• Formation levels i.e. subsoil placement prior to topsoil placement to be installed within the earthworks package (by contractor) refer to contract drawings. The landscape contractor is deemed to have inspected, accepted and approved any subsoil placement carried out by others on the commencement of topsoil placement operations. Copies of package specification, record drawings/as built surveys and photographic records of works in progress are obtainable from the CA.

The Contractor is required to carry out the following operations:

- 1) Spreading, levelling and grading of site won subsoil.
- 2) Fine grading of formation levels (top of subsoil levels) including ripping in preparation to receive topsoil
- 3) Removal of weed/ vegetation from surfaces or within the stockpiles (if growth has accumulated on ground awaiting topsoiling).
- 4) Spreading, levelling, stone removal and lightly consolidating site topsoil, and supplying imported topsoil where necessary .
- 5) Supply placement and incorporation of all soil ameliorants to achieve finished ground profiles.

REFERENCE DOCUMENTS

British Standards Institution

BS 1377:	Methods for test for civil engineering purposes
Part2:1990	Classification test.
BS3882:	Recommendations and classification for topsoil.
BS4428:1989	Code of practice for general landscape operations (excluding
hard works)	
BS5930:1981	Code of practice for site investigations.
BS6031:1981	Code of practice for earthworks
BS8000:	Workmanship on building sites Part1: 1989 Code of practice for
excavating and filling.	

- 145 VARIATIONS IN GROUND WATER LEVEL
 - Give notice: If levels encountered are significantly different from levels in the site investigation report or previously measured.

- 150 EXISTING SERVICES/ FEATURES/ STRUCTURES
 - Services
 - Site features to be retained
 - Structures

CLEARANCE/EXCAVATING

- 163 SITE FEATURES
 - Verify with the CA which existing fences, gates, walls, roads, paved areas, and other site features are to be removed or protected. Materials arising, surplus to requirements for filling or reuse are to be removed from site to an approved tip.

- 163A EXISTING TREES RETAINED
 - Verify with the CA/Landscape Architect which trees, shrubs and hedges are to be removed.
 - Mark trees for felling with a paint mark.
 - Cut down, grub up main roots and fill voids with approved material. Dispose of all wood in accordance with this specification.

The Contractor shall undertake the removal of existing vegetation as follows:

- Any existing trees and hedgerows to be removed shall be agreed between the Contractor and the CA prior to their removal. Check for below and above ground services in the vicinity. Inform CA if they may be affected and obtain instructions before proceeding. Removal of trees shall be undertaken by a qualified and approved Arboriculturalist – details to be submitted to the CA for approval. Works adjacent to the Public Highway or path used by the public shall be carried out in accordance with all current relevant Health & Safety legislation. Works shall comply with Forestry and Arboriculture Safety and Training Council Safety Guides.

- The removal of trees and hedgerows shall include all growth above ground level and below ground roots. Any voids left by the removal of stumps or roots shall be filled with appropriate material to the satisfaction of the CA before removal off site by the Contractor. All roots and vegetation not constituting timber or to be disposed of in accordance with D20 177 shall be taken off site to an approved licensed tip. Comply with the Dutch Elm Disease (Restriction of Movement of Elms) Order.

- The Contractor is to submit a Method Statement for all tree works for the CAs/Landscape Architects approval prior to construction work commencing.

163B PROTECTION OF VEGETATION RETAINED

- The existing trees are protected by Tree Preservation Orders and are of considerable importance to the setting of the site and the local visual amenity. The Contractor may be liable for any damage to the trees which may result in prosecution from North Lincolnshire Council.
- Note the importance and legal status of existing trees on the site and be familiar with all relevant survey information and the tree protection measures.
- Protect all trees, shrubs and hedgerows located to remain within or adjacent to the extent of the site (as identified on the Tree Protection Plan) shall be protected during the course of the works in the following manner and in accordance with BS 5837 Trees in relation to Construction.
- Temporary protective fencing comprising Heras Temporary Fencing Panels (or equal approved) fixed to a scaffold pole framework to BS 5385.91 shall be erected a minimum of refer to contract drawings beyond the full extent of tree canopies and spread of shrubs (refer to Contract Drawings). The exact location of the fence(s) shall be agreed on site by the CA and Landscape Architect prior to works commencing.

Fencing panels obtainable from:

Heras Fencing Systems (UK) Ltd
Unit B1 Castle Road
Eurolink
Sittingbourne, Kent

(or equal approved)

- Make no change to the ground level within areas protected by temporary protective fencing unless instructed by the CA
- Ensure that no materials of any kind are stored within areas protected by temporary protective fencing and that access is limited to that required for maintenance purposes only.
- Take care when carrying out earthworks in the proximity of existing trees to be retained to avoid potential damage to the trees through flooding, changes to ground water levels, damage to roots and pollution of the ground.

164 TREE ROOTS

- Protected area: Do not cut roots within an area which is the larger of:
 - The branch spread of the tree.
 - An area with a radius of half the tree's height, measured from the trunk.
- Excavation in protected area:
 - Method: By hand.
 - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
- Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
- Cutting:
 - Make clean smooth cuts with no ragged edges.
 - Pare cut surfaces smooth with a sharp knife.
 - Treatment of cut roots: Not required.
- Backfill: As dug material, enriched with amelioration as section Q31.

166A SPECIAL TREE PROTECTION MEASURES: CERTAIN TREES REQUIRE SPECIAL PROTECTION MEASURES DURING THE CONSTRUCTION OF ADJACENT WALLS, SURFACES AND EDGES. THESE ARE IDENTIFIED ON THE TREE PROTECTION DRAWING.

Construction of Roadways/ Paths/ Kerbs Above Existing Tree Roots

- Submit a Method Statement for all works within the tree protection zones.
- Allow for carrying out all works within the tree protection zone by hand.
- Carefully remove existing surface layers and features to reveal depth and positions of principal roots in excess of 40mm Ø. All roots above 40mm Ø shall be retained and adequately protected from damage.
- Excavate to required formation level between protected roots ensuring that smaller roots are clean cut at end closest to tree trunk.
- Form clean smooth cuts with a hand saw, minimising the wound area and avoiding ragged edges.
- Place load bearing geotextile mat to Manufacturer's Specification.
- Carefully backfill between roots with approved sub base material avoiding damage to protected roots.

New Walls/ Earthworks Cutting into Existing Tree Root Zones

- Where proposed walls or earthworks cut into ground around existing tree take necessary measures to minimise impact on existing roots. Notify the CA if roots exceeding 40mm Ø are exposed by excavations. Do not cut roots in the protected area without approval of the CA.
- Extent of excavations shall be limited to the absolute minimum necessary to achieve construction of new features and shall be subject to approval by the CA/ Landscape Architect prior to excavation works commencing.
- All roots damaged by excavation shall be given a clean oblique cut with a handsaw to good Arboricultural practice and roots shall be kept moist (by covering with damp Hessian sacking) until covered by new construction works.
- Non structural backfill within future soft landscape zones shall consist of 2 parts site topsoil, 2 parts clean horticultural sand, 1 part approved soil ameliorant, e.g. Approved commercial planting compost (peat free).

Damage to Existing Vegetation and Grass to be retained.

- In the event of the Contractor damaging any trees, shrubs or hedgerows which are to be retained outside and within the Contract Working Area, remedial works shall be carried out by and at the Contractor's expense. Note: The Contractor may be liable for any damage to the trees which may result in prosecution from North Lincolnshire Council.
- Mature Trees: In the event of damage to trunks, branches or roots the Contractor shall:
 - If the damage is sufficiently limited, undertake all necessary surgery works; by an approved Arboriculturalist; or
 - If the damage will significantly reduce the trees viability or life expectancy, replace with new semi-mature trees and include all associated soil amelioration, guying and protective fencing as described by the CA following inspection of the type and nature of the tree.
- Mature Trees: In the event of compaction of the rooting area, which may precipitate the trees death the Contractor shall:
 - Replace with new semi-mature trees and include all associated soil amelioration, guying and protective fencing, as described and specified by the CA following inspection of the type and nature of the tree.

- Young Trees, Scrub and Shrubs, and Hedgebanks In the event of damage to the stems or branches the Contractor shall:
 - If the damage is sufficiently limited, undertake all necessary remedial pruning and other surgery works; or
 - If the damage is such that the plants will not recover, as identified by the CA, replace with plants of comparable size and species and protect with temporary protective fencing or other fencing for the establishment period including all soil preparation, amelioration, protection and other items as described in the specification.

- Areas of grass, not shown as proposed on the planting plans, damaged by works within the site shall be reinstated fully in accordance with this specification and as described by the CA following inspection, including subsoil decompaction, topsoil depths, and seeding and turfing as appropriate. Seed mix or type of turf shall be instructed by the CA.

168 SITE CLEARANCE

- Timing: Before topsoil stripping, if any.
- General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
- Treatment: Apply a suitable non-residual herbicide to areas to receive planting.

169 TREE WORKS - QUALITY OF WORKS

- In accordance with good current practice & shall conform to BS 3998: 1989: Recommendations for Tree Works and BS 5837 Guide for Trees in Relation to Construction.
- The standard of workmanship must be to the best possible standard capable from being produced by high calibre, highly experienced work people. All tree works to be carried out by a certified Arboriculturalist to the CA's approval.

170 REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS

- Identification: Clearly mark trees to be removed.
- Small trees, shrubs and hedges: Cut down
- Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.

175 FELLING LARGE TREES

- Definition: Girth over 600 mm.
- Identification: Clearly mark trees to be removed.
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.
- Felling: As close to the ground as possible.
- Stumps: Obtain approval before removing by winching. Do not use other trees as supports or anchors.
- Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

180 CHIPPING AND SHREDDING

- General: Permitted, remove arisings from site.

190 DISPOSAL OF VEGETATIVE ARISING

- Selected suitable arisings resulting from the works shall be sawn to varying log sizes (circa 500-1500mm lengths & min 80mm dia.) & stored to provide an ecological habitat i.e. log piles. The location and number of these piles will be determined on site by the Landscape Architect/CA.
- The Contractor shall allow for carting to tip any unsuitable arisings (those which can not be recycled as above).
- Comply with the Dutch Elm Disease (Restriction on Movement of Elms) Order.

200 TOPSOIL STRIP PREPARATION

Treatment to Existing Grass Vegetation on Topsoil Areas:

- Prior to the stripping of topsoil areas the existing surface vegetations shall be cut to a minimum height of 25mm and arisings disposed of in accordance with specification.
- Materials Arising: From the excavations and surplus to requirements for filling or reuse, are to be removed from site. Topsoil stripped from the site and surplus to requirements is to remain the property of the Employer unless the Contractor is instructed to remove it from the site or purchases it at a price to be agreed.
- Before beginning general excavation of filling, excavate topsoil from areas where there will be regrading, building works, paving/roads, site compounds and other areas where specified.
- Clearly mark out on site the extent of all areas to be stripped as defined on the Contract Drawings.
- No topsoil stripping shall take place, when in the opinion of the CA/Landscape Architect conditions are wet, frozen or such that soil structure damage may occur especially following prolonged rainfall.
- Excavate trial holes (1/500m²) prior to stripping in order to confirm topsoil and subsoil depths in locations as requested by the CA.
- Topsoil stripping shall be carried out using the most appropriate machinery in order to avoid compaction and soil structure damage. Machine movement over the unstripped topsoil shall be transported, whenever possible, directly to its final location and evenly spread to specified depths in order to prevent more handling than necessary.
- Grub up and dispose of shrubs, bushes, roots, fences, hedges or other vegetation met within the areas to be stripped as defined on the Contract Drawings.
- Allow for making adjustments to setting out as directed on site.
- Collect and dispose of all loose rubbish, metal, stones, etc. lying on the areas to be stripped.
- Carefully strip to the full depth of organic topsoil over any areas to be stripped.
- Do not remove topsoil from the area within the tree protection zone without CA approval. No mechanical stripping is to be carried out within the branch spread of any tree to be retained.
- Allow for handworks/approved mechanical works only within the tree protection areas.
- Topsoil shall not be buried by subsequent operations

220 STRIPPING TOPSOIL

- General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
- Depth:
 - Remove to an average depth of 150 mm.
 - Give notice where the depth of topsoil is difficult to determine.
- Handling: Handle topsoil for reuse or sale in accordance with clause 225.
- Around trees: Do not remove topsoil from below the spread of trees to be retained.
- Site storage: Keep separate from excavated sub-soil.

- 221 TREATING TOPSOIL
- Treatment: Apply a suitable translocated nonresidual herbicide.
 - Timing: Not less than two weeks before excavating topsoil.
- 225 HANDLING TOPSOIL
- Aggressive weeds:
 - Species: Included in the Weeds Act, section 2 or the Wildlife and Countryside Act, Schedule 9, part II.
 - Give notice: Obtain instructions before moving topsoil.
 - Earthmoving equipment: Select and use to minimize disturbance, trafficking and compaction.
 - Contamination: Do not mix topsoil with:
 - Subsoil, stone, hardcore, rubbish or material from demolition work.
 - Oil, fuel, cement or other substances harmful to plant growth.
 - Other grades of topsoil.
 - Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
 - Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit as defined by BS 3882, Annex N2.
- 240 ADJACENT EXCAVATIONS
- Proximity: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto must be completed before the higher excavation is made.
 - Angle of line from horizontal.
- 250 PERMISSIBLE DEVIATIONS FROM FORMATION LEVELS
- Beneath mass concrete foundations: ± 25 mm.
 - Beneath ground bearing slabs and r.c. foundations: ± 15 mm.
 - Embankments and cuttings: ± 50 mm.
 - Ground abutting external walls: ± 50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.
- 260 INSPECTING FORMATIONS
- Give notice: Make advance arrangements for inspection of formations for
 - foundations and filling formations;
 - service trenches; and
 - roads and pavings.
 - Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels, and remove loose material.
 - Seal: Within 4 hours of inspection, seal formations.
- 270 FOUNDATIONS GENERALLY
- Give notice if:
 - A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
 - The formation contains soft or hard spots or highly variable material.

280 TRENCH FILL FOUNDATIONS

- Excavation: Form trench down to formation in one operation.
- Safety: Prepare formation from ground level.
- Inspection of formations: Give notice before commencing excavation.
 - Period of notice: Three working days.
- Shoring: Where inspection of formation is required, provide localised shoring to suit ground conditions.
- Concrete fill: Place concrete immediately after inspection and no more than four hours after exposing the formation.

290 FOUNDATIONS IN MADE UP GROUND

- Depth: Excavate down to a natural formation of undisturbed subsoil.
- Discrepancy: Give notice if this is greater or less than depth given.

310 UNSTABLE GROUND

- Generally: Ensure that the excavation remains stable at all times.
- Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
- Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

320 RECORDED FEATURES

- Recorded foundations, beds, drains, manholes, etc: Break out and seal drain ends.
- Contaminated earth: Remove and disinfect as required by local authority.

330 UNRECORDED FEATURES

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

360 EXCESS EXCAVATION

- Excavation taken wider than required:
 - Backfill: refer to manufacturers specification.
- Excavation taken deeper than required:
 - Backfill: refer to manufacturers specification.

370 UNDERGROUND STRUCTURES IN LANDSCAPE AREAS

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

DISPOSAL OF MATERIALS

410 EXCAVATED TOPSOIL STORAGE

- Storage: Stockpile in temporary storage heaps location as instructed .

412 TOPSOIL STORAGE

- In order to prevent compaction of topsoil during stockpiling, the stockpiles shall be formed by tipping in mounds which shall not subsequently be tracked over by vehicles. Stockpiles shall be kept free of pernicious weeds. All arisings consequent upon this operation shall be removed off site to tip.
- Topsoil stored in stockpiles shall be carefully transported, in order to prevent compaction, to required locations and evenly spread to specified depths. Areas used as stockpiles shall be reinstated to the original condition or as directed by the CA. Areas designated for topsoil storage shall be stripped of topsoil first.
- Topsoil stockpiles shall be kept free of pollutants and other materials at all times.
- Topsoil shall not be stored with subsoil.
- Topsoil to be free of vegetation (either present at time of original stripping or subsequent growth on stockpile), at time of spreading.
- Topsoil, shall be deposited loose in spoil heaps and shall not be compacted by any means. Topsoil spoil heaps shall be 'turned' after a period of 6 months and shall be re-seeded with green manures as required.
- The spoil heaps are not to exceed **2m** in height unless otherwise authorised by the CA/Landscape Architect.
- Vehicles used to transport the topsoil, or any other vehicle, must not be allowed to run over the heaps at any time.
- Heaps shall be shaped to prevent surface water accumulation. Mound batters should have appropriate gradients to avoid risk of slumping and to facilitate the maintenance of the stored soils.
- Topsoil shall not be allowed to be contaminated with subsoil or any other unsuitable materials.
- Subsoil storage heaps shall not be formed on areas until underlying topsoil has been stripped.

415 EXCAVATED TOPSOIL REMOVAL

- General: Remove from site.

420 TOPSOIL STORAGE HEAPS

- Location: to be agreed with North Lincolnshire Council .
- Height (maximum): 2m .
- Protection:
 - Do not place any other material on top of storage heaps.
 - Do not allow construction plant to pass over storage heaps.
 - Prevent compaction and contamination.

431 MANAGEMENT OF TOPSOIL AND SUBSOIL HEAPS

Topsoil & Subsoil Quantities

- After stripping, the Contractor will assess and agree the quantity of topsoil and subsoil stripped with the CA and the Contractor is then responsible for ensuring that this is available for re-use.
- Maintain topsoil and subsoil stores free from weed growth at all times by approved hand or mechanical means. No chemicals shall be used unless authorised by the CA/ Landscape Architect.
- Immediately after storage operations the Contractor shall sow all soil heaps as scheduled below.

Note: No heavy machinery shall be used on topsoil or subsoil stores and sowing shall be carried out by approved lightweight machinery or hand only.

Seed Bed Preparation

- Prior to seeding of green manures and fallow swards, the Contractor shall shallow cultivate to produce a fine seed bed to Landscape Architect's/CA's approval and a 17:17:17 organic compound seed bed fertiliser (Perry fields Holding Limited - Organic seed fertiliser or equal approved) applied at a rate of 375kg/ha before sowing.

Topsoil Heaps: Green Manures

- Sow topsoil heaps with Red Merviot Clover (*Trifolium pratense*) at a rate of 250g/75m², all to supplier recommendations. Prior to the spreading of the topsoil all green manures shall be

turned in.

Subsoil Heaps - Fallow Sward

- Sow any subsoil heaps which it is anticipated will be stored for a period exceeding 6 months with the following seed mixture at 10g/m²:
 - 25% Italian Perennial Rye Grass
 - 15% Chewings Fescue
 - 10% Hard Fescue
 - 20% Slender Creeping Red Fescue
 - 15% Highland Browntop Bent
 - 5% Hula White Clover
 - 10% Common Vetch

Maintenance of Subsoil Heaps : Following establishment of the fallow sward, the Contractor shall maintain the sward between a height of 50-100mm and remove all arisings.

Seeds may be obtained from (or equal & approved):

EW King & Co Ltd
Monks Farm, Pantling Lane
Coggeshall Road
Kelvedon, Colchester CO5 9PG
Contact: Peter Miller - 01376 570 000

- Assess and agree the quantity of site won topsoil stored with the CA and the Contractor is then responsible for ensuring that this is available for re-use.
 - Contractor shall sow all soil heaps IF INSTRUCTED as scheduled below.
 - Note: No heavy machinery shall be used on topsoil or subsoil stores and sowing shall be carried out by approved lightweight machinery or hand only.

441 SURPLUS SUBSOIL

- Excavated material: Stockpile in temporary storage heaps.
- Retained material: Spread and level surplus subsoil on site.
 - Locations: to be agreed with North Lincolnshire Council .
 - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
- Remaining material: Remove from site.

450 WATER

- Generally: Keep all excavations free from water until:
 - Formations are covered.
 - Below ground construction are completed.
 - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
- Drainage: Form surfaces of excavations and fill to provide adequate falls.
- Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

454 GROUND WATER LEVEL/ RUNNING WATER

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

457 PUMPING

- General: Do not disturb excavated faces or stability of adjacent ground or structures.
- Pumped water: Discharge without flooding the site or adjoining property.
- Sumps: Construct clear of excavations. Fill on completion.
 - Locations: Submit proposals .

460 PERMANENT DRAINAGE SYSTEM

- Disposal of water from the excavations through system.

FILLING

500 PROPOSED FILL MATERIALS

- Details: Submit full details of proposed fill materials to demonstrate compliance with specification, including:
 - Type and source of imported fill.
 - Proposals for processing and reuse of material excavated on site.
 - Test reports as required elsewhere.
- Timing: At least 21 days before starting filling.

510 HAZARDOUS, AGGRESSIVE OR UNSTABLE MATERIALS

- General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
 - Frozen or containing ice.
 - Organic.
 - Contaminated or noxious.
 - Susceptible to spontaneous combustion.
 - Likely to erode or decay and cause voids.
 - With excessive moisture content, slurry, mud or from marshes or bogs.
 - Clay of liquid limit exceeding 80 and/or plasticity index exceeding 55.
 - Unacceptable, class U2 as defined in the Highways Agency 'Specification for highway works', clause 601.

520 FROST SUSCEPTIBILITY

- General: Except as allowed below, fill must be non frost-susceptible as defined in Highways Agency 'Specification for Highway Works', clause 801.17.
- Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non frost- susceptible:
 - Fine grained soil with a plasticity index less than 20%.
 - Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
 - Crushed chalk.
 - Crushed limestone fill with average saturation moisture content in excess of 3%.
 - Burnt colliery shale.
- Frost-susceptible fill: May only be used within the external walls of buildings below spaces that will be heated. Protect from frost during construction.

525 TESTING OF SUITABILITY OF FILL MATERIALS BEFORE START OF FILLING

- Laboratory: UKAS/ NAMAS accredited laboratory.
- Submit report to: Client (two copies).
 - Timing: 21 days before starting filling.
- Samples: Deliver to laboratory as required.
 - Additional requirements: not required.
- Tests: As directed.
- Frequency: Submit with tender proposed rate and frequency of testing to demonstrate continuing compliance of imported or reprocessed fill with specified properties.

530 PLACING FILL

- Excavations and areas to be filled: Free from loose soil, rubbish and standing water.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
- Adjacent structures, membranes and buried services:
 - Do not overload, destabilise or damage.
 - Submit proposals for temporary support necessary to ensure stability during filling.

- Allow 14 days (minimum) before backfilling against in situ concrete structures.
 - Layers: Place so that only one type of material occurs in each layer.
 - Earthmoving equipment: Vary route to avoid rutting.
- 535 **COMPACTION**
- General: Compact fill as soon as possible after placing.
 - After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
 - Defective areas: Remove and recompact to full thickness of layer using new material.
- 540 **BENCHING IN FILL**
- Adjacent areas: If, during filling the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches 600 mm minimum width and height equivalent to depth of a layer of compacted filling.
 - New filling: Spread and compact to ensure maximum continuity with previous filling.
- 550 **GEOTEXTILE SHEET**
- Manufacturer: Terram.
 - Product reference: Terram Geotextile 1000.
 - Jointing: 300 mm overlap.
 - Protect from:
 - Exposure to light, except for five hours (maximum) during laying.
 - Contaminants.
 - Materials listed as potentially deleterious by geotextile manufacturer.
 - Damage until fully covered by fill.
 - Wind uplift, by laying not more than 15 m before covering with fill.
 - Preparation: Before laying, remove humps and sharp projections. Fill hollows.
- 605 **GENERAL FILLING FOR LANDSCAPE**
- Exclude the following:
 - Material from marshes or bogs
 - Peat, logs, stumps, slurry, mud and perishable material
 - Material susceptible to spontaneous combustion
 - Material in frozen condition
 - Clay in liquid limit exceeding 80 and/or plasticity index exceeding 55
 - Material with excessive moisture content
- 610 **COMPACTED FILLING FOR LANDSCAPE AREAS**
- Fill: Material capable of compaction by light earthmoving plant.
 - Filling: Layers not more than 200 mm thick. Lightly compact each layer to produce a stable soil structure.
- 615 **LOOSE TIP FILLING FOR LANDSCAPE AREAS**
- Filling: Do not firm, consolidate or compact when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.
- 616 **ACCEPTANCE OF SUITABLE FILL**
- Give at least 72 hours before any earthworks operations , to provide the CM with test data obtained on the materials a to be used for filling, to prove their suitability, and identify the target density for End Produce compaction.
 - Provide daily records of testing of the material placed to show compliance with the specification. The minimum requirements are:

Grading: at least once a day or one test for every 50m³ placed
Moisture Content and Un-drained Shear strength (cohesive material): Three times a day

or at least one test every 20m³.

Plasticity Tests: One test per day for each source or for every 50m³ placed.

LANDSCAPE SUBSOIL GRADING AND CULTIVATION PRIOR TO TOPSOIL PLACEMENT

790A GRADE SUBSOIL

- Formation levels /bulk subsoil levels will be placed by the contractor appointed contractor.
- The Landscape Contractors rates shall include for the fine grading and adjustment to these levels ,so that the finished levels are accurately achieved using the prescribed topsoil depths.
- Prior to commencing fine grading the Landscape Contractor shall inspect/ check the formation levels and be satisfied with the works before acceptance. Written reason must be given immediately to the CA if any formation levels placed by others are considered unsatisfactory.
- All groundwork is to be carried out in accordance with BS4428 unless specified otherwise hereafter.
- To smooth flowing contours to achieve the specified finished levels of the topsoil. Excavate locally as necessary for areas of thicker topsoil. Small planting beds located in general landscape areas may be excavated separately at a later date.
- Cultivated areas are to be thoroughly cleaned and all extraneous matter, including broken brick, broken glass, tarmac and large stones(over 200mm dia), or organic matter exposed by this operation are to be removed and carted to tip.
- Carry out minor grading and regulating to remove local depression and high spots. Levels shall be brought to a uniform and even surface as required. The use of a heavy roller to roll out humps will not be permitted and any area that becomes unduly compacted during the grading operation shall be loosened by forking or harrowing.

795 BULKING

- The Contractors attention is drawn to the fact that any measurements of excavation and subsequent disposal are net measured and the Contractor price should allow for increase in bulk and for transportation excavated material to and from temporary heaps as may be necessary. The Contractor shall make allowance in placing for settlement to give (after settlement) depths as specified.

797 SUBSOIL DECOMPACTION

- Decompact all areas of subsoil prior to topsoiling to a depth of 300mm using a 3-tine ripper with tines set at 600mm spacing, and by crossing the ground twice at 90° in two directions (after checking for service locations to ensure no damage will be caused). Where stiff clays or other cohesive material is found, loosen subsoil with a single tine ripper, 450mm deep at 1m centres and drawn by a crawler tractor. The Contractor shall make allowance for the use of a long armed excavator, or a toothed excavator bucket, on steep banks to carry out the operation if restricted or in areas where ripping using a tine is inappropriate.

798 APPROVAL OF FORMATION OPERATIONS

- No top soiling is to be commenced until the grading and cultivation of the existing soil areas have been approved by the CA/Landscape Architect. Any topsoil spread before such approval is given must be stripped and subsequently re-spread at the Contractor's expense.

Q10 Stone/concrete/brick kerbs/edgings/channels

To be read with Preliminaries/General conditions.

TYPES OF KERBS/EDGINGS AND CHANNELS

- 110B PROPRIETARY PRECAST CONCRETE: [PIN KERBS]
Standard: To BS EN 1340.
Manufacturer: [Submit proposals].
- Product reference: [Submit proposals].
Designations: [Pin kerb for laying upright straight].
Size (width x height x length): [50 x 150 x 915 mm].
Special shapes: [not required].
Finish: [As cast].
Colour: [Grey].
Bedding: [Cement mortar].
Joints generally: [Dry, 2-3 mm gap].
Sealant movement joints: [Not required].
- 200A PROPRIETRY EDGE : Flexible Aluminium
• Manufacturer: Permaloc (or equal approved).
- Product reference: AsphaltEdge (or equal approved)
• Size: variable to suit pavement build-up and pathway radii.
• Type/ Material: aluminium.
- Finish: aluminium.
- Colour: aluminium.
• Accessories: 4no. driving pins per linear meter into subbase or concrete foundation where appropriate. All to manufacturers recommendations.
• Bedding: levelled with sharp sand where necessary. Subbase to manufacturers specification.
• Joints: 10mm expansion joints, unfilled between sections. Neat smooth finish and alignment with adjoining sections, no kinks or arward edge alignments.
- 250 MATERIAL SAMPLES
• Samples representative of colour and appearance of designated materials: Submit before placing orders.
- Designated materials: Special Proprietry Edge Restraint 200A.

LAYING

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

- 520 ADVERSE WEATHER
- Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.
- 530 CONCRETE FOR FOUNDATIONS, RACES AND HAUNCHING
- Standard: To BS 8500-2, and BS EN 206-1.
 - Designated mix: Not less than GENo or Standard mix ST1.
 - Workability: Very low.
- 540 CEMENT MORTAR BEDDING
- General: To section Z21.
 - Mix (Portland cement:sand): 1:3.
 - Portland cement: Class CEM I 42.5 to BS EN 197-1.
 - Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).
 - Bed thickness: 12-40 mm.
- 620 ACCURACY
- Deviations (maximum):
 - Level: ± 6 mm.
 - Horizontal and vertical alignment: 3 mm in 3 m.
- 630 NARROW MORTAR JOINTS
- Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.
 - Joint width: 3 mm.

Q22 Coated macadam/asphalt roads/pavings

To be read with Preliminaries/ General conditions.

TYPES OF PAVING

- 115A COATED MACADAM PAVING SURFACE TYPE 1 SUITABLE FOR OCCASIONAL VEHICULAR LOADING
- Materials and workmanship: To Highways Agency (HA) 'Specification for highway works'.
 - Granular sub-base: As manufacturers specification.
 - Thickness: As manufacturers specification.
 - Binder course: As manufacturers specification.
 - Thickness: As manufacturers specification.
 - Surface course: As manufacturers specification.
 - Thickness: As manufacturers specification.
 - Surface treatment: black macadam wearing course to match existing.
 - Other requirements: As manufacturers specification.

- 175B PROPRIETARY PAVING SURFACE TYPE 2 RESIN BOUND AGGREGATE APPLIED FOR PEDESTRIAN LOADING
- Granular sub-base: As manufacturers specification.
 - Thickness: As manufacturers specification.
 - Binder course: To BS 4987-1, As manufacturers specification.
 - Thickness: As manufacturers specification.
 - Laying/ Compaction: To BS 4987-2.
 - Surface course:
 - Manufacturer: Submit proposals
 - Samples: Contractor to submit samples to Client/landscape architect for approval prior to ordering and confirm aggregate mix code
 - Thickness: As manufacturers recommendations.
 - Colour: 6mm blue grey colour to match existing Westward Ho! beach pebbles
 - Laying/ Compaction: As manufacturers recommendations.
- Note: Contractor to provide all engineerings build-ups in respect to specific loading requirements.

PREPARATORY WORK/ REQUIREMENTS

- 220 BITUMINOUS MATERIALS GENERALLY
- Suppliers names: Submit.
 - Timing (minimum): 2 weeks before starting work.
 - Test certificates: At the time of delivery for each manufacturing batch submit certificate:
 - Confirming compliance with this specification and the relevant British Standard.
 - Stating full details of composition of mix.
- 230 SAMPLES
- Submit: Representative samples of resin bound aggregate - Stonebond and Clearmac.
- 240 ACCEPTANCE OF SUB-BASE
- Surface: Sound, clean and suitably close textured.
 - Levels and falls: To be within the specified tolerances:
 - Vehicular areas: +10 to -30 mm.
 - Pedestrian areas: ±12 mm.
 - Drainage outlets: 0 to -10 mm of the required finished level.
 - Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

250 ABUTMENTS

- Edges of manholes, kerbs and other abutments: Clean and paint with a thin uniform coating

LAYING

310 LAYING GENERALLY

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

320 ADVERSE WEATHER

- Frozen materials: Do not use.
- Suspend laying:
 - During freezing conditions
 - If the air temperature reaches 0°C, or in calm dry conditions -3°C, on a falling thermometer.
 - Hot rolled asphalt: During periods of continuous or heavy rain.

330 LEVELS

- Permissible deviation from the required levels, falls and cambers (maximum):
 - Finished surface: ±6 mm.
 - Adjacent to gullies and manholes: 0 to +3 mm.

340 FLATNESS/ SURFACE REGULARITY

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

Q28 Topsoil and growing media

To be read with Preliminaries/ General conditions.

130 SEQUENCE OF OPERATIONS

Formation levels i.e. subsoil placement prior to topsoil placement have been installed within the bulk earthworks package (by others). The landscape contractor is deemed to have inspected, accepted and approved subsoil placement (by others) on the commencement of topsoil placement operations. Copies of package specification, record drawings/as built surveys and photographic records of works in progress are obtainable from the CA. The Contractor is required to carry out the following operations:

- 1) Fine grading of formation levels (top of subsoil levels) including ripping in preparation to receive topsoil
- 2) Removal of weed/ vegetation from surfaces or within the stockpiles (if growth has accumulated on ground awaiting topsoiling).
- 3) Spreading, levelling, stone removal and lightly consolidating site topsoil, and supplying imported topsoil where necessary .
- 4) Supply placement and incorporation of all soil ameliorants to achieve finished ground profiles.

During spreading large stones or angular/sharp objects are to be removed.

REFERENCE DOCUMENTS

British Standards Institution

BS 1377:	Methods for test for civil engineering purposes
Part2:1990	Classification test.
BS3882:	Recommendations and classification for topsoil.
BS4428:1989	Code of practice for general landscape operations (excluding hard works)
BS5930:1981	Code of practice for site investigations.
BS6031:1981	Code of practice for earthworks
BS8000:	Workmanship on building sites Part1: 1989 Code of practice for excavating and filling.

140A GRADE SUBSOIL GENERAL

- Formation levels /bulk subsoil levels will be placed by main contractor.
- The Landscape Contractors rates shall include for the fine grading and adjustment to these levels ,so that the finished levels are accurately achieved using the prescribed topsoil depths.
- Prior to commencing fine grading the Landscape Contractor shall inspect/ check the formation levels and be satisfied with the works before acceptance. Written reason must be given immediately to the [CA/landscape Architect] if any formation levels placed by others are considered unsatisfactory.
- All groundwork is to be carried out in accordance with BS4428 unless specified otherwise hereafter.
- Cultivated areas are to be thoroughly cleaned and all extraneous matter, including broken brick, broken glass, tarmac and large stones(over 200mm dia), or organic matter exposed by this operation are to be removed and carted to tip.
- Carry out minor grading and regulating to remove local depression and high spots. Levels shall be brought to a uniform and even surface as required. The use of a heavy roller to roll out humps will not be permitted and any area that becomes unduly compacted during the grading operation shall be loosened by forking or harrowing.

- 200 GRADING SUBSOIL
- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
 - Areas of thicker topsoil: Excavate locally.
- 210 BULKING
- The Contractors attention is drawn to the fact that any measurements of excavation and subsequent disposal are net measured and the Contractotr price should allow for increase in bulk and for transportation excavated material to and from temporary heaps as may be necessary. The Contractor shall make allowance in placing for settlement to give (after settlement) depths as specified.
- 255 SUBSOIL DECOMPACTION
- Decomact all areas of subsoil prior to topsoiling to a depth of 300mm using a 3-tine ripper with tines set at 600mm spacing, and by crossing the ground twice at 90° in two directions (after checking for service locations to ensure no damage will be caused). Where stiff clays or other cohesive material is found, loosen subsoil with a single tine ripper, 450mm deep at 1m centres and drawn by a crawler tractor. The Contractor shall make allowance for the use of a long armed excavator, or a toothed excavator bucket, on steep banks to carry out the operation if restricted or in areas where ripping using a tine is inappropriate.
- 260 INSPECTING FORMATIONS
- Give notice: Before spreading topsoil for lawn areas and planting beds.
 - Notice period: 14 days.
- 300 TOPSOIL ANALYSIS
- Soil to be analysed: Imported topsoil.
 - Soil analyst: submit proposals.
 - Samples: Collect in accordance with BS 3882, Annex A.
 - Submit:
 - Declaration of analysis:
 - Chemical analysis and contaminants;
 - Maximum stone content, stone size and pH value;
 - Nutrient content, pH value and textural classification;
 - pH value and textural classification;
 - Phytotoxic and CLEA elements; and
 - Textural classification and maximum stone content.
 - Report detailing soil analyst's recommendations.
- 310 PREPARATION OF UNDISTURBED TOPSOIL
- Standard: In accordance with BS 4428
 - Grading and cultivation: To suit cultivation operations specified in Q30.
 - Hard ground: Break up thoroughly.
 - Clearing: Remove visible roots and large stones with a diameter greater than 75 mm.
 - Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
 - Fallow period (minimum): as per programme.
 - Weed control: At appropriate times re-cultivate at monthly intervals to suppress weed growth.
- 330 SURPLUS TOPSOIL TO BE RETAINED
- Generally: Spread and level on site:
 - Locations: stockpiles and or locations as agreed with CA/Landscape Architect.
 - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
- 335 SURPLUS TOPSOIL TO BE REMOVED
- Generally: Remove from site topsoil remaining after completion of all landscaping work. Contractor to offer excess topsoil first to Arboretum works.

340 IMPORTED TOPSOIL TO BS 3882

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard: To BS 3882.
- Grade: Multipurpose.
- Source: Submit proposals.
- Submit: Declaration of analysis including information detailing each of the relevant parameters given in BS 3882, clause 6 and table 2.
- Additional analyses: CLEAelements, electrical conductivity and Phytotoxic elements.

347 IMPORTED TOPSOIL CUSTOM MIX GENERAL

- Use the stripped site-won topsoil for all landscape works. The Contractor is responsible for ascertaining accurate quantities necessary for the execution of the works which include confirming that there is sufficient quantity of site-won topsoil to carry out the works. The Contractor shall confirm the above requirement at Tender stage.
- Any deficiency of topsoil existing on site shall be imported by the Contractor to fulfil the requirements of the Contract.
Provide full written analysis of any proposed imported topsoil will be required by the CA/Landscape Architect for approval before soil is transported to site.
- Sources of topsoil are to be identified, the preference is for local virgin soils. Screened soils without full and detail analysis, origin history and samples will not be approved. The written analysis must include a report on the suitability of the proposed topsoil for its intended use.
- Imported topsoil, shall be moderately fertile, good quality, well structured, fibrous, loam soil with a humus and fibre content of medium texture and shall comply to British Standards Specification No.3883 (Recommendations and Classification for Topsoil). It shall be PH 6.5-7.0, free draining, and of open texture, not more than slightly stony (20% max by weight) and shall be obtained from the top 250mm of the ground. It shall be free of debris and vegetation/grasses.
- Before an order is placed for imported topsoil, the CA/Landscape Architect shall give written approval of 5m³ load delivered to site. The CA/Landscape Architect shall be also be informed of the topsoil's source by the Landscape Contractor.
- Any topsoil brought onto the site without approval will be deemed to have been brought in at the Contractor's risk, and if instructed to cart such topsoil off site this will be at the Contractor's expense.

- Imported topsoil shall conform to the following specification:

To BS 3882

Texture: Well structured, free draining open texture,sandy loam-loam.

Soil Reaction: 6.5 PH

Stone Content: Reasonably free of stones ie. max by weight, 2 – 20mm Ø with maximum size of stones in any direction 50mm

Contamination: Free of weed seeds, roots of perennial weeds, sticks, subsoil or foreign matter

Particle size: (0? - 20?) 8-20%

(lower strength) (20? - 50?) < 60%

(50? – 2mm) < 80%

Conductivity: 3.0 milli O/cm

(Avery & Bascombe)

Limits of Toxic Elements

Element Threshold Concentration (lower strength)

Arsenic < 10mg/kg

Cadmium < 3mg/kg

Chranium < 600mg/kg

Lead (total) < 500mg/kg

Mercury (total) < 1mg/kg

Selenium < 3mg/kg
Boron (water soluble) < 3mg/kg
< 130mg/kg

Element	Threshold Concentration (lower strength)
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Nickel (total)	< 70mg/kg
Zinc (total)	< 300mg/kg
Phenols	< 5mg/kg
Free Cyanide	< 25mg/kg
Complex Cyanides	< 250mg/kg
Thiocyanate	< 50mg/kg
Sulphate	< 2000mg/kg
Sulphide	< 250mg/kg

Nutrients

Element lower strength

Organic Matter > >4.0%
Nitrogen (total) >0.2%
Phosphorous (available) > 45mg/kg
Potassium (available) > 240mg/kg

390 SOIL CONDITIONERS

- Peat free, organic Green Waste Compost/soil conditioner shall be Premier Bio Organic Tree & Shrub Planting Compost. Obtainable from:
Amenity Land Services
Long Lane, Wellington
Telford
Shropshire, TF6 6HA
Tel: 0192 641 949
(or equal approved).
- Organic fertilisers shall be: 6X Natural Poultry Manure Spread Pellets
Obtained from:
Organic Concentrates Ltd
3 Broadway Court
Chesham
Buckinghamshire, HP5 1EN
Tel: 01494 792 229
(or equal approved).
- Soil conditioner shall be: Seanure Seaweed Soil builder
Obtainable from:
Alginure Products Ltd
Bells Yew Green
Tunbridge Wells
Kent, TN3 9BQ
Tel: 01892 750 6
(or equal approved).
- Compost additives shall be: Perlite
Obtained from:
J Arthur Bower,s
Firth Road

Lincoln LN6 7AH
(or equal approved).

- Soil stabilisers shall be Netlon Advanced Turf.
Obtained from:

Netlon Ltd,
New Wellington Street
Blackburn
BB2 4PJ
Tel. 01254 262431
Fax.01254 694302
E-mail ats@tensar.co.uk
(or equal approved).

395 PEAT

- Peat or products containing peat: Do not use.

535A ON SITE AMELIORATION OF TOPSOIL

- Drawing Reference
- Following approval of topsoil placement, spread and incorporate soil ameliorants as follows.
Prior to commencing these works the Contractor shall submit a detailed method statement to the Landscape Architect / CA regarding application of ameliorants, and incorporation methods with the objective of providing an intimate and even mixture with a finished surface of a uniformly light consolidated crumb. The degree of consolidation shall be consistent with the use to which the area is to be put.
- When storing soil ameliorants they shall be stored in clearly identifiable stores and in strict accordance with the suppliers recommendations. The Contractor shall ensure that no mixing between the materials occurs and that bagged ameliorants are not subject to overheating or water damage.
- Sequence of Operations:
Apply topsoil to depths as specified. Fine grade and cultivate in preparation for soil amelioration.
Pre blend in ameliorates prior to topsoil placement all to agreed methodology apply ameliorated soil to depths as specified.

Tree Pits as defined on the contract drawings

- Backfill pits with a pre blended ameliorated topsoil ,comprising of 4 parts topsoil :1part Bio-organic Tree/Shrub Compost (or equal approved)
- Over fill trenches to allow for settlement as specified and to approved profiles.
Contractor to allow for top dressing and any necessary adjustment to turf during the maintenance period to make good profiles if excessive settlement occurs.

Grass and Turf as defined on the contract drawings also refer to Q30

Note:

Following incorporation of 6X pellets (or equal approved), thoroughly water in if deemed necessary. The plant bed shall be left fallow for a period of 5 days prior to planting (see suppliers recommendations).

Additional amelioration for tree, shrub and bulb planting are required to be incorporated at planting stations and in accordance with schedule 1: Pits Sizes, Amelioration and Fertilizers Q31.

650 NOTICE OF IMPORTING TOPSOIL

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

- 660 SAMPLE LOAD OF IMPORTED TOPSOIL
 - General: Deliver to site a sample load of not less than 5 m³.
 - Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
 - Notice period: 14 days.

- 670 CONTAMINATION
 - General: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - Corrosive, explosive or flammable.
 - Hazardous to human or animal life.
 - Detrimental to healthy plant growth.
 - Subsoil: In areas to receive topsoil, do not use subsoil contaminated with the above materials.
 - Give notice: If any evidence or symptoms of soil contamination are discovered on the site, or in topsoil to be imported.

- 680 TOPSOIL STORAGE HEAPS
 - Location: as agreed with NLC Parks/CA/Landscape Architect.
 - Height (maximum): 2.0 m.
 - Width (maximum): to be agreed with NLC Parks/CA/Landscape Architect.
 - Protection:
 - Do not place any other material on top of storage heaps.
 - Do not allow construction plant to pass over storage heaps.
 - Prevent compaction and contamination, by fencing and covering as appropriate.

- 682 TOPSOIL STORAGE HEAPS GENERAL
 - In order to prevent compaction of topsoil during stockpiling, the stockpiles shall be formed by tipping in mounds which shall not subsequently be tracked over by vehicles. Stockpiles shall be kept free of pernicious weeds. All arisings consequent upon this operation shall be removed off site to tip.
 - Topsoil stored in stockpiles shall be carefully transported, in order to prevent compaction, to required locations and evenly spread to specified depths. Areas used as stockpiles shall be reinstated to the original condition or as directed by the CA. Areas designated for topsoil storage shall be stripped of topsoil first.
 - Topsoil stockpiles shall be kept free of pollutants and other materials at all times.
 - Topsoil shall not be stored with subsoil.
 - Topsoil, shall be deposited loose in spoil heaps and shall not be compacted by any means. Topsoil spoil heaps shall be 'turned' after a period of [] months and shall be re-seeded with green manures as required.
 - The spoil heaps are not to exceed 2m in height unless otherwise authorised by the CA/Landscape Architect.
 - Vehicles used to transport the topsoil, or any other vehicle, must not be allowed to run over the heaps at any time.
 - Heaps shall be shaped to prevent surface water accumulation. Mound batters should have appropriate gradients to avoid risk of slumping and to facilitate the maintenance of the stored soils.
 - Topsoil shall not be allowed to be contaminated with subsoil or any other unsuitable materials. Subsoil storage heaps shall not be formed on areas until underlying topsoil has been stripped.

- 687 MANAGEMENT OF TOPSOIL HEAPS
 - Topsoil & Subsoil Quantities**
 - After stripping, the Contractor will assess and agree the quantity of topsoil and subsoil stripped with the CA and the Contractor is then responsible for ensuring that this is available for re-use.
 - Maintain topsoil and subsoil stores free from weed growth at all times by approved hand or

mechanical means. No chemicals shall be used unless authorised by the CA/ Landscape Architect.

- Immediately after storage operations the Contractor shall sow all soil heaps as scheduled below.

Note: No heavy machinery shall be used on topsoil or subsoil stores and sowing shall be carried out by approved lightweight machinery or hand only.

Green Manure and Fallow Sward Seed Bed Preparation

- Contractor shall sow all soil heaps IF INSTRUCTED as scheduled below.
 - Note: No heavy machinery shall be used on topsoil or subsoil stores and sowing shall be carried out by approved lightweight machinery or hand only.
- Prior to seeding of green manures and fallow swards, the Contractor shall shallow cultivate to produce a fine seed bed to Landscape Architect's/CA's approval and a 17:17:17 organic compound seed bed fertiliser (Perry fields Holding Limited - Organic seed fertiliser or equal approved) applied at a rate of 375kg/ha before sowing.

Topsoil Heaps: Green Manures

Sow topsoil heaps with Red Merviot Clover (*Trifolium pratense*) at a rate of 250g/75m², all to supplier recommendations. Prior to the spreading of the topsoil all green manures shall be turned in.

- Seeds may be obtained from (or equal & approved):
EW King & Co Ltd
Monks Farm, Pantling Lane
Coggeshall Road
Kelvedon, Colchester CO5 9PG
Contact: Peter Miller - 01376 570 000
- Assess and agree the quantity of site won topsoil stored with the CA and the Contractor is then responsible for ensuring that this is available for re-use.

690 HANDLING TOPSOIL

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

700 SPREADING TOPSOIL

- Temporary roads/surfacing: Remove before spreading topsoil.
- Layers:
 - Depth (maximum): 150 mm.
 - Gently firm each layer before spreading the next.
- Depths after firming and settlement (minimum): as shown on contract drawings.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

705A SPREADING TOPSOIL GENERAL

- Cut from the vertical faces of the stockpiles thus incorporating material from the surface and base together, rather than removing the soil in horizontal layers. This process will promote biological activity throughout the soil that is spread, ensuring that nutrient cycling and organic matter decomposition processes are maintained.

- Spread over prepared formation in layers not exceeding 150mm and firm each layer before spreading the next. Overall minimum depths after firming and settlement to be:
- Immediately before topsoiling, remove all debris such as stones and bricks over 50mm Ø, metal, timber or decayed and contaminated matter existing on the surface or uncovered during decompaction operations. Inform the [CA/Landscape Architect] if any evidence or symptoms of soil contamination are discovered on the site.

Finished topsoil depths:

Planting beds: Refer to Contract Drawings

Grass Areas: Refer to Contract Drawings

Tree pits as specified in Section Q31: Clause []

- Undertake topsoiling operations when the climatic conditions are suitable and in accordance with BS 4428. Topsoiling operations shall not be undertaken when the soil is waterlogged or frozen and once spread only machinery necessary to carry out subsequent operations shall be allowed access to the area. Such machinery shall be light in weight or of a suitable type to prevent compaction of the topsoil on underlying subsoil.
- Use hand tools around trees, plants and in confined spaces, where it is impracticable to use machinery.
Where finished levels are not given, the levels shall be such that the finished surface will be smooth, even fall, (or gently rolling curve) between the finished levels on the boundaries of the areas and to avoid ponding hollows.
Correct any shrinkages below the specified levels during the Contract or Defects liability Period.

710 LOOSE TIPPING OF TOPSOIL

- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.
- Depths after settlement (minimum): 300 mm.

915 FINISHED TOPSOIL CONDITIONS

- The finished surface shall consist of a uniformly consolidated crumb for the full working depth. The degree of consolidation shall be consistent with the use to which the area is to be put. As topsoiling proceeds, all consolidated wheel tracks shall be forked over.
- The surface shall be uniformly smooth, free from sharp bumps, small mounds or hollows and sufficiently smooth to allow the types of mechanical plant likely to be used in its maintenance to be operated with ease and without damage to the surface or machines due to unevenness of the ground. The surface of all top soiled areas are to be cleared free of rubble, bricks, stone, timber etc.
- Stone Picking
Shrub beds and native thicket areas: stones over 50mm in any one direction shall be removed.
Grass areas: stones over 30mm in any one direction shall be removed.
Turf areas stones over 20mm in any direction shall be removed.
- Topsoil works shall only be carried out when a reasonably dry crumbling tilth exists. No further landscape operations are to be commenced until the ground preparation works have been done.
- Unless otherwise stated, finished levels of topsoil shall be:
 - Grass areas shall be 30mm above paving or kerbs to allow for shrinkage and/ or settlement.
 - 150mm below finished floor levels and /or DPC of adjoining building
 - Not more than 75mm above previous soil levels at butt of existing trees
 - Shrub beds shall generally be finished 30mm higher than grass areas, but shall be graded down at edges to finish 50mm below grass or paved edges.

- Falls across grass areas should follow a rolling curve rather than a straight bonded line.

IMPORTANT NOTE:

On completion of topsoil placement and finishing the contractor shall prepare digital, full and accurately dimensioned record drawings showing the works as finally installed and surveyed confirming finished levels as spot heights (on 20m grid) and contours at 0.5m intervals. The drawings shall be submitted for [] and Landscape Architect approval. The works shall not be accepted as complete until agreed and suitable drawings have been submitted and approved.

920 DOCUMENTATION

- Timing: Submit at handover.
- Contents:
 - Full description of all soil components.
 - Record of source for all soil components.
 - Analyst's report for each test carried out.
 - Record drawings showing the location of all soils by type and grade.
- Number of copies: 2.

Q30 Seeding/turfing

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/REQUIREMENTS

- 115 SEEDED AND TURFED AREAS
- Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
 - Appearance: A closely knit, continuous ground cover of even density, height and colour.
- 117 SEEDING GENERALLY
- All works to be carried out to BS4428 and BS3069 unless otherwise specified. The contractor shall be responsible for the successful establishment of the grass sward and shall take all action to ensure its success
- 120 CLIMATIC CONDITIONS
- General: Carry out the work while soil and weather conditions are suitable.
- 130 SEASONAL CONSTRAINTS
- Carry out the work during appropriate seasons (Spring/Autumn) and while soil and weather conditions are suitable for the relevant operations. Programme to be agreed with CA . Autumn seeding is preferred to spring seeding.
- 145 WATERING
- Quantity: Wet full depth of topsoil.
 - Application: Even and without displacing seed, seedlings or soil.
 - Frequency: As necessary to ensure the establishment and continued thriving of all seeding/turfing.
- 150 WATER RESTRICTIONS
- Timing: If water supply is or is likely to be restricted by emergency legislation do not carry out seeding/turfing until instructed. If seeding/turfing has been carried out, obtain instructions on watering.
- 160 NOTICE
- Give notice before:
 - Setting out.
 - Applying herbicide.
 - Applying fertilizer.
 - Preparing seed bed.
 - Seeding or turfing.
 - Visiting site during maintenance period.
 - Period of notice: 2 weeks.
- 170 SETTING OUT
- Boundaries: Mark clearly.
 - Delineation: In straight lines or smoothly flowing curves as shown on drawings.

PREPARATION

- 205 PREPARATION MATERIALS
- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
 - Certification of source, analysis, suitability for purpose and absence of harmful substances:

- Submit.
- Certified materials:
 - Biosolids from sewage sludge;
 - Composted animal manures;
 - Composted food waste;
 - Composted horticultural waste; and
 - Composted sewage sludge.
 - Give notice: before ordering or using.
- 210 HERBICIDE FOR ALL GRASSED AREAS
- Type: Suitable for suppressing perennial weeds.
 - Timing: Allow fallow period before cultivation.
 - Duration: As manufacturer's recommendation.
- 212 SEED BED CLEANING BEFORE SOWING ALL GRASSED AREAS
- Operations: Remove weeds by hand weeding and hoeing..
- 217 WEED CONTROL
- Generally: 3 (three) to 5 (five) days before seeding all areas to be seeded shall be cleared of weeds and rubbish. All planted/grass areas are to be maintained weed free by mechanical or manual methods. The use of herbicides may only be used if so directed by the Landscape Architect and the contractor shall allow for within the programme sufficient period for the herbicide to act.
- 231 PEAT
- Peat or products containing peat: Do not use.
- 250 CULTIVATION
- Compacted topsoil: Break up to full depth.
 - Soil ameliorant/ Conditioner/ Fertilizer: Fully incorporate into topsoil to a depth of 100 mm.
 - Tilth: Reduce topsoil to a tilth suitable for blade grading.
 - Depth: 100 mm.
 - Particle size (maximum): 10 mm.
 - Material brought to the surface: Remove stones and clay balls larger than 50 mm in any dimension, roots, tufts of grass, rubbish and debris.
- 255 CULTIVATION GENERAL
- Break up any compacted topsoil to full depth.
 - Reduce top 100mm of all topsoil within the entire area to be seeded to a fine tilth suitable for blade grading (10mm down particles).
 - Remove undesirable material brought to the surface including stones and clay balls larger than 30mm in
- 265 GRADING GENERAL
- When topsoil is reasonably dry and workable grade to smooth, flowing contours, with falls for adequate drainage, removing all minor hollows and ridges.
 - Unless otherwise stated, finished levels after settlement to be 30mm above adjoining paving, kerbs, service covers etc.
 - Topsoil levels may be adjusted by blade grading ensuring that there is nowhere less than 150mm of topsoil. If the required levels cannot be achieved by movement of the existing soil, obtain instructions from CA.
- 277 ORGANIC FERTILIZERS: AMENITY GRASS ONLY
- Pre-Seeding**
- :Pre-seeding fertilizer shall be an organic compound granular, controlled release fertilizer.

12:6:6 + trace elements 50g/m². Ditrell 3 available from Perryfields. Tel: 01386 793135 or equal approved, to be applied in accordance with manufacturers recommendations.

Post-establishment

- Spring/Summer organic compound granular, controlled release fertilizer 21:1.5:0.7 + 2% Fe + trace elements - 35g/m². Pro Organic available from Perryfields. Tel: 01386 793135 or equal approved to be applied in accordance with manufacturers recommendations

280 FINAL CULTIVATION

- Timing: After grading and fertilizing.
- Seed bed: Reduce to fine, firm tilth with good crumb structure.
 - Depth: 25 mm.
 - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
 - Remove surface stones/earth clods exceeding:
 - General areas: 30 mm.
 - Fine lawn areas: 10 mm.
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

SEEDING

317A BESPOKE SEED MIXES

- Seeding: Seed shall be supplied by the contractor.
- Amenity Seed Mix to interface with existing sward
 - Seed Mix: Emorsgate EG22 (Strong Turf Grassland Mix)
 - Sown at 30g/m²

Grass seed shall be obtained at least 21 (twenty one) days before sowing and the Contractor shall protect the seed from damp and store in sealed containers to protect from vermin.

It shall be obtained from an approved supplier to specified prescription by weight accompanied by a Government Test Certificate indicating the date of test, origin, date of harvest, purity and germination for each of the individual grassed comprising mixture.

319 QUALITY OF SEED FOR ALL GRASSED AREAS

- Freshness: Produced for the current growing season.
- Certification: Blue label certified varieties.
 - Standard: EC purity and germination regulations.
 - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
- Samples of mixtures: Submit when requested.

332 SOWING GENERAL

- Sow seed using suitable calm weather conditions when temperature and rainfall are at their best for the majority of seed varieties. Time to be agreed with the Landscape Architect to ensure grass establishment prior to Practical Completion.
- Spread seed evenly at the specified rate(s) applied in two equal sowings in cross directions; by hand in confined areas or where possible seed shall be sown using a Brillion sowing machine or equal approved.
- Lightly harrow or rake.
- On light soils, roll and cross roll after seeding using a lightweight roller.
- The Contractor shall obtain the Landscape Architects approval as to the intended method for seed sowing in confirmed/narrow steep sloping areas.
- Seed shall be incorporated into the top 2-4mm of the seed bed and shall not be buried at a lower depth. To ensure sufficient depth of seed within the soil the Contractor shall allow for approved surface scarification and or rolling in addition to the 'in built' rolling of the Brillion sowing machine.

- Only machinery with low-pressure tyres shall be used.
- Seed shall be kept well mixed prior to sowing. Silica may be added as a bulking agent.
- Any areas which, in the opinion of the Landscape Architect, have been seeded in any way contrary to this Specification, unless instructed otherwise, shall be re-tilled and re-seeded as directed at no additional cost to the contract.

335 GRASS SOWING SEASON

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

336 WILDFLOWER SOWING SEASON

- Wildflower seed generally: March to May or August to October.

340 PRE-EMERGENT HERBICIDE FOR ALL GRASSED AREAS

- Standard: Pesticide Safety Directorate approved.
- Application rate: In accordance with manufacturer's written recommendation.
 - Timing: Immediately after sowing.

352 EDGES TO SEEDED AREAS ADJACENT TO PLANTING BEDS AND TREE PITS

- Timing: After seeded areas are well established.
- Edges: Clean straight lines or smooth curves.
 - Mulch and soil: Draw back to permit edging.
- Arisings: Remove.
- Completion: Respread soil and mulch.

TURFING

410 TURF TO BS 3969 Amenity Mix

- Standard: To BS 3969, free from undesirable grasses and weeds.
 - Grade: Suitable for amenity use.
- Source: Submit proposals.
- Herbicide treatment: Apply not less than four weeks and not more than three months before lifting.

420 DELIVERY AND STORAGE

- Timing: Lay turf with minimum possible delay after lifting. If delay occurs, lay turf out on topsoil and keep moist.
- Frosty weather or waterlogged ground: Do not lift turf.
- Delivery: Arrange to avoid need for excessive stacking.
- Stacking height (maximum): 1 m.
- Dried out or deteriorated turf: Do not use.

429A DRESSING FOR TURF

- Type: Sandy loam.
- Supplier: Submit proposals.
 - Product reference: Submit proposals.
- Additional analyses: Not required.
- Samples: Not required.
- Application rate: as required to completely fill joints when brushed in.
- Timing: Apply prior to cultivation.

435 TURFING GENERAL

- Lay turf during times agreed with CA.
- Do not lay turf when persistent cold and drying winds are likely to occur or soil is frost bound, waterlogged or excessively dry.
- Lay turf with half lapped joints, well butted up and evenly beaten twice over the whole area with wooden turf beaters approved by the Landscape Architect.

- Work from planks laid on previously laid turves. Turves which have been laid shall be protected with 3 planks laid side across the total length of those areas which will be trafficked by wheelbarrows etc, and turf layers.
- Use whole turves at edges. Trim to a true line.
- Adjust levels by raking out or infilling with fine soil under turve
- Consolidate by lightly and evenly firming with wooden beaters as the laying proceeds. Do not use rollers.
- Dress turf with finely sifted topsoil/peat alternative/sand and brush well in to completely fill joints.
- Thoroughly water the completed turf within 24 hours of laying.
- The Contractor shall be responsible for determining where turves required to be to avoid slippage due to gradients. Pins shall be approved by the CA and shall be of a type which will not impede grass cutting or present a hazard to future users.
- If staked, turves shall be placed grass to grass. Turves to be used on day of delivery.

450 TRIMMING TURF

- Newly planted tree pits: Neatly cut away around individual trees.
 - Diameter: 800 mm.
 - Tree pit surface: Respread existing mulch.

PROTECTING/CUTTING

545 FIRST CUT OF AMENITY GRASS AND TURF AREAS

- When grass is approximately 50mm high remove debris, litter and all stones and clay balls larger than 25mm in any dimension and evenly firm.
- About 48 hours later and when grass is reasonably dry, cut to approximately 25mm high with a rota scythe . Remove and dispose of all arisings.

547 FIRST CUT OF WILDFLOWER AREAS

- Cutting of wildflower mix to be in accordance with seed suppliers recommendations for establishment. The Contractor shall inform the CA 72 hours before the initial cut is carried out. The contractor shall submit (for all mixes) prior to seeding, a detail establishment cutting regime as advised by the seed suppliers. The contractor is deemed to have included within the tender for sufficient cuts to ensure full establishment of all mixes and to a regime that ensure true species representation/diversity within the sward. Failure to achieve this result in the need for remedial works at the contractors expense.

590 CLEANLINESS

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

MAINTENANCE

605 MAINTENANCE

- Duration: Carry out the following operations from completion of seeding/ turving until the end of the defects liability period.

610 FAILURES OF SEEDING/TURFING

- Defective materials or workmanship: Areas that have failed to thrive.
 - Exclusions: Theft or malicious damage.
- Method of making good: Recultivation and reseeding/ returving.
- Timing of making good: The next suitable planting season.

620 MAINTAINING GENERAL GRASSED AREAS

- Maximum height of growth at any time: 75 mm.

- Preparation: Before each cut remove all litter and debris.
- Cutting: As and when necessary to a height of 25 mm.
 - Arisings: Remove.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Trimming: All edges.
 - Arisings: Remove.
- Weed control: Substantially free of broad leaved weeds.
 - Method: Application of a suitable selective herbicide.
- Stones brought to the surface: Remove regularly.
 - Size: Exceeding 25 mm in any dimension.
- Areas of settlement: Make good.
- Watering: as and when required to ensure successful establishment.

650A MAINTAINING GRASSED AREAS WITH PERENNIAL WILD FLOWERS

- Preparation: Before each cut remove all litter and debris.
- Height and frequency of cut in first growing season:
 - Time of first cut: March/ April.
 - Height of first cut: 50 mm.
 - Frequency of subsequent cutting (minimum): Every 6-8 weeks until autumn.
 - Height of growth permitted (maximum): 100 mm.
- Height and frequency of cut in second growing season:
 - Time of cut: Single cut in October.
 - Height of cut: 100 mm.
- Trimming: All edges.
 - Arisings: Remove.
- Watering: as and when required to ensure successful establishment.
- Cutting of wildflower mix to be in accordance with seed suppliers recommendations for establishment. The Contractor shall inform the CA 72 hours before the initial cut is carried out. The contractor shall submit (for all mixes) prior to seeding, a detail establishment cutting regime as advised by the seed suppliers. The contractor is deemed to have included within the tender for sufficient cuts to ensure full establishment of all mixes and to a regime that ensure true species representation/diversity within the sward. Failure to achieve this result in the need for remedial works at the contractors expense.

690 MAINTENANCE ORGANIC FERTILIZER

- Organic Fertilizer to Amenity Grass Area: During the Defects Liability Period apply an organic fertilizer in spring or summer according to when during the year the Period falls. Fertiliser not to be applied for first 6 months after seeding.
 - Fertilizer to be: Pro Organic – 21:1.5:0.7 + 2% Fe + trace elements, compound granular, controlled release fertilizer or equal approved. Available from: Perry fields. Telephone: 01386 793 135 applied strictly in accordance with manufacturers specification. 35g/m²

695 HANDOVER

- No payment for reseeded or turfed shall be made to the Contractor if the seed or turf fails due to any cause whatsoever. The Contractor shall make good the soiling and repeat the seeding or turfing until a good sward is obtained.
- Grass areas will be only be accepted when germination has proved satisfactory and all weeds have been removed.
- Damage, failure or dying back of grass due to neglect, including lack of watering shall be the responsibility of the Contractor.
- Responsibility for the replacement of any areas of scorched, failed or damaged grass will be by and at the Contractor's expense.
- Any areas of damaged turf shall be re-laid, including all necessary recultivation and levelling, to match with the surroundings.
- Turves to be cut to enable a neat rectangular patch. Repairs shall use whole turves unless otherwise instructed i.e. torn or cut turves will not be accepted.
- Pre-Practical Completion maintenance shall conform to the standards set for Post-Practical Completion maintenance. In particular, attention shall be paid to grass cutting weeding and

watering. Maintenance shall be carried out at a time of year under weather conditions appropriate to each operation.

Q31 External planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

- 112 SITE CLEARANCE GENERALLY
- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
 - Stones: Remove those with any dimension exceeding 50 mm.
 - Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
 - Vegetation: Clear scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings.
 - Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
 - Additional requirements: refer to C20 & D20.
- 118 SOIL CONDITIONS
- Soil for cultivating and planting: Moist, friable and (excepting aquatic/ marginal planting) not waterlogged.
 - Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.
- 120 CLIMATIC CONDITIONS
- General: Carry out the work while soil and weather conditions are suitable.
 - Strong winds: Do not plant.
- 125 TIMES OF YEAR FOR PLANTING
- Deciduous trees and shrubs: Late October to late March.
 - Conifers and evergreens: September/ October or April/ May.
 - Herbaceous plants (including marginal): September/ October or March/ April.
 - Container grown plants: At any time if ground and weather conditions are favourable.
 - Watering and weed control: Provide as necessary.
 - Dried bulbs, corms and tubers: September/ October.
 - Colchicum (crocus): July/ August.
 - Green bulbs: After flowering in spring.
 - Wildflower plugs: Late August to mid November or March/ April.
 - Aquatic plants: May/ June or September/ October.
- 130 MECHANICAL TOOLS
- Restrictions: Do not use within 100 mm of tree and plant stems.
- 145 WATERING
- Quantity: Wet full depth of topsoil.
 - Application: Even and without damaging or displacing plants or soil.
 - Frequency: As necessary to ensure establishment and continued thriving of planting.
- 150 WATER RESTRICTIONS
- General: If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.
- 160 NOTICE
- Give notice before:
 - Setting out.
 - Applying herbicide.

- Applying fertilizer.
- Delivery of plants/ trees.
- Planting shrubs.
- Planting trees into previously dug pits.
- Watering.
- Visiting site during maintenance period.
- Period of notice: 2 weeks.

165 PREPARATION, PLANTING AND MULCHING MATERIALS

- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Certification of source, analysis, suitability for purpose and absence of harmful substances: Submit.
 - Certified materials:
 - Biosolids from sewage sludge;
 - Composted animal manures;
 - Composted food waste;
 - Composted horticultural waste; and
 - Composted sewage sludge.
 - Give notice before ordering or using.

200 PLANTS/ TREES - GENERAL

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Root system and condition: Balanced with branch system.
 - Standard: The National Plant Specification.
- Species: True to name.
- Origin/ Provenance: British grown, local provenance preferred wherever possible. Contactor to submit details of provenance to landscape architect for consideration.
Definition: Origin and Provenance have the meaning given in the National Plant Specification.

210A PLANT PROCUREMENT QUALITY OF STOCK (TO BE READ IN CONJUNCTION WITH CLAUSE 215, 216, 225 AND 235)

- Plant Materials
All plant material shall be first grade stock of the highest quality achievable. The Landscape Architect shall place great emphasis on the quality of roots and overall branch form / structure when inspecting plants for approval. Trees and shrubs with poor quality roots will be rejected regardless of quality of the shoot system.

All plants shall conform to BS 3936 and to the HTA National Plant Specification September 1997, unless otherwise scheduled / specified.

- Origin & Provenance / Acclimatization
Preference shall be given to UK GROWN / ORIGIN STOCK. In particular, field grown native transplants, native wildflower and native aquatics shall be of UK origin, grown from UK provenance seed, cuttings, bud wood or grafts etc. However, quality of available stock (particularly with regard to trees) shall take precedence over origin of stock and accordingly trees may be other than UK origins.

Note: Where plant stock is to be supplied outside the UK, preference will be given to northern European nurseries. All plants shall be properly hardened off before delivery. Accordingly, any stock source outside of northern European nurseries must be acclimatized and fully hardy before delivery.

FORM & CONDITION OF PLANTS

TREES

- Form

Transplants: shall have been transplanted or undercut at least once in its life. The age and height shall be stated and in accordance with the plant schedules. Root collar shall be as scheduled. All transplants shall have a well-developed fibrous root system, strong central leader (where appropriate) and well-structured laterals.

Feathered Trees: shall have a upright central leader and a stem furnished with evenly spread and balanced lateral growth down to, or within, 300mm of ground level.

Standard Trees: Shall have a substantially upright central stem, clean of lateral growth, supporting an even balanced / proportioned and well-branched crown. The crown shall have a central leader and branching appropriate for the species. No main branches shall cross. The clear stem shall be clean, free of recent legging up marks.

Semi Mature Trees: Shall be transplanted the number of schedule times and great emphasis shall be placed upon this, ie a 5X tree will have a field spacing and root structure which confirms its history. They shall have a substantially upright central stem, clean of lateral growth, supporting an even balanced / proportioned and well branched crown. The crown shall have a central leader and branching appropriate for the species. No main branches shall cross. They shall be selected to meet the very best quality and form available.

Multi Stem Trees: Shall have a minimum number of main stems and main stem to break from below ground level, as specified. They shall be true multi stem trees, ie. Originating from one root system. The minimum stem girth shall be in accordance with the Schedules. The tree structure shall be balanced and well branched with a minimum crown diameter in accordance with the plant schedules.

Bushy Trees: Shall have many main stems arising from or very near to ground level, growing from one root system. They shall be of a height and diameter in accordance with the plant schedules. The structure / crown shall be well balanced and dense with the majority of stems of equal diameter.

- Age / Condition or No. of Times Transplanted

Age / condition shall be in accordance with the Schedules. All trees shall be transplanted a sufficient number of times to encourage a compact and fibrous root system. Rootball holes at the supply nursery are to confirm this.

- Root Collar Girth or Diameter

Girth Trees: Shall be measured 1 metre above the ground level, and shall be in accordance with the plant schedules. All trees shall be tagged by colour marking ribbon using the standard industry code.

Root Collar Diameter (Transplants): Must be typical of species and representative of the specified height. Generally this should be 8/10mm or 10/12mm range.

- Root Condition

The root system must be well developed by good nursery practice. The system must not show any coiled main roots close to the collar, nor any physical damage.

Bare root Trees / Shrubs: Shall be supplied in bags, containing and enclosing the whole root system. All shall be root dipped in accordance with Clause 210. Rootballs shall be firm and solid and they must be well 'rooted through'. Rootballs must be enclosed in Hessian (Burlap). The size of the rootball must be appropriate for the species and cultivar, and its age and growth rates under the cultural and soil conditions in which it is growing.

For standard trees of girth 12-14cm and larger, and the equivalent size of multi stemmed trees, the rootballs must be additionally protected with ungalvanised wire netting.

Container Grown Trees: Shall be grown in the container for sufficient time for the root growth to have substantially penetrated the medium but not be root bound. Rooting must be well balanced in accordance with the container size.

Plants are to be centred in the container, well rooted, firm and moist on delivery, with the growing medium coming within a suitable depth of the pot rim. The surface of the growing medium shall be maintained, Moss, Liverwort and weed free at all times. Plants shall be supplied in rigid containers. The compost shall not contain peat from UK sites of Special Scientific Interest or equivalent designated from other countries.

- Top / Bottom Working
All trees shall be bottom worked unless otherwise specified

SHRUBS

- Age / Condition
The overall height and / or spread shall be in accordance with the Schedules
- Root Condition
The root system must be well developed by good nursery practice. The system must not show any coiled main roots close to the collar, nor any physical damage.

Container Grown Shrubs: Shall be grown in the container for sufficient time for the root growth

to have substantially penetrated the medium but not be root bound. Rooting must be well balanced in accordance with the container size.

The requirements set out in the schedules are a guide to the required heights and number of breaks (in the lower 1/2 of the plants). Whilst it is recognized that these may vary they will be regarded as a target for measurement for a production regime of 'pinching' or trimming to produce a bushy subject.

Plants are to be centred in the container, well rooted, firm and moist on delivery, with the growing medium coming within a suitable depth of the pot rim. The surface of the growing medium shall be maintained, Moss, Liverwort and weed free at all times. Plants shall be supplied in rigid containers. The compost shall not contain peat from UK sites of Special Scientific Interest or equivalent designated from other countries. The compost must be of open texture yet retain adequate moisture to encourage a good rooting system. The compost will hold sufficient reserves of nutrients, to be a slow release from 14-16 months, to maintain the plant in a satisfactory condition for a reason period from the time after leaving the supplier's nursery.

After potting or when growth dictates, or as instructed, all plant stock shall be spaced at a minimum of half pot width apart, depending upon species type, to facilitate a full and uniform leaf coverage to develop, to the crown evenly radiating around the pot. Stock which is allowed to grow into each other and is materially substandard shall be rejected. The Supplier shall make full allowances for maintaining the regime throughout the contract grow/ reservation period.

- Habit
A bushy shrub (as Scheduled) shall have numerous lateral shoots arising from either a central point or elsewhere (subject to variety). The plants shall be dense with an evenly balanced head with growth generally covering the pot.

A plant scheduled as 'leader & laterals' shall have a single dominant shoot with significant side shoots. In particular, shrubs scheduled as hedging planting and are to be fit for this purpose, ie. a dense even head through the plants height.

CLIMBERS

- Root Conditions
The root system must be well developed by good nursery practice. The system must not show

any coiled main roots close to the collar, nor any physical damage.

Container Grown Climbers: Shall be grown in the container for sufficient time for the root growth to have substantially penetrated the medium but not be root bound. Rooting must be well balanced in accordance with the container size.

Plants are to be centred in the container, well rooted, firm and moist on delivery, with the growing medium coming within a suitable depth of the pot rim. The surface of the growing medium shall be maintained, Moss, Liverwort and weed free at all times. Plants shall be supplied in rigid containers. The compost shall not contain peat from UK sites of Special Scientific Interest or equivalent designated from other countries.

- Habit

Climbers shall have several shoots (unless otherwise stated) arising from ground level. The number of breaks shall be in accordance with the Schedules. Shoot structure shall be strong and of even spread / growth and girth. Climbers shall be supplied on an approved fan framework which fully supports the plant for its full height and be designed to have a service

life of minimum 2 seasons following delivery.

HERBACEOUS PERENNIALS (Plants)

- Root System

The root system must be well developed and correspond to the species / cultivar, and its age and growth rates under the cultural and soil conditions within which it is growing. The system must show a good balance between the growing parts, ie. the buds and the roots and no physiological damage. This is especially important for plants grown from divisions.

Plants which have been stored in cool conditions must have good viability, must not have been allowed to dry out, and must be free from fungal infections. Perennials from cold store which are potted and grown on must have established a strong and vigorous root system before delivery. Perennials which are delivered out of cold storage after 1 May must be designated as cooled plants. The root system must not be allowed to dry out at any time.

- Root Condition and Form

Plants in containers shall have a good root system applicable to the species / cvs. Plants in growth must stand well and upright in the container, the pot or container must be filled for a least 90% with plant roots and soil and the compost must be moist. The surface growing medium shall be free of Moss, Liverwort and weeds. The compost shall not contain peat from UK sites of Special Scientific Interest or equivalent designated from other countries.

The Nursery will be expected to ensure that appropriate species are suitably grown to encourage full flowering in the year of planting. All plants shall show a high degree of extension growth typical of the species and appropriate to the specified container size. The plants shall be spaced on the nursery to allow full and uniform branch/ leaf structure coverage to develop, evenly radiating around the pot.

HERBACEOUS PERENNIALS (Bulbs)

- Generally

All bulbs and corms shall be in accordance with BS 3926, Part 9, and be clean and healthy, sound and ripe, free from pests and diseases, virus free and conform to the size and type scheduled. When scheduled as Topside the largest grade bulb commercially available shall be supplied.

NATIVE WILDFLOWER & AQUATICS

- Generally

Wildflower and aquatic plants shall be container grown and conform to the size and type scheduled. They shall be pure breed, native species and shall only be obtained from an approved source.

The Nursery shall confirm the origin of any seed for seed raised plants or origin of propagation material used in vegetative production. LOCAL SITE ORIGIN is preferred, all stock must be of BRITISH PROVENANCE.

- Age / Establishment

Plants grown from seed, must have sufficient time in the container to germinate and establish a well rooted and vigorous plant.

The Nursery shall carefully program potting / growing up of wildflower plants so that well grown plants, which are rooted through the volume of compost within the container (but not root bound) and are available to supply at the required times.

If the plants are showing any signs of becoming pot bound, then the Nursery shall pot on the plants at their own expense. Severely pot bound plants delivered to site will be rejected.

Plants shall have a high degree of extension growth typical of the species and appropriate to the season and specified container size. The plants shall be spaced on the nursery as specified to allow a full and uniform structure / leaf coverage to develop, evenly around the pot.

All submerged free growing aquatic plants shall be supplied weighted (to approved detailing) and bunched as scheduled.

SUPPORTING DOCUMENTS:

HANDLING AND ESTABLISHMENT OF PLANTS

(CPSE) Part 1 and 2

PLANT SCHEDULES

PROFORMA

ALTERNATIVES

SUPPORTIVE IMAGES/ SPEC NOTES

PROFORMA 1
DELIVERY NOTICE

Nursery:

Project:

Address:

Contractor:

Schedule of Plants:
(See attached)

To be completed by the contractor and forwarded to the above Nursery:

Delivery Required :
(minimum 14 days notice)
Off Loading Location /
Comments:

Signed -

Date-

This form is incomplete unless signed by the contractor

Copies:

- q Construction Manager
- q Landscape Architect

PROFORMA 2

NOTICE OF REJECTION

Nursery:

Project:

Address:

Contractor:

Date of Delivery:

Schedule of Plants Rejected

Reason for Rejection

Signed-
(Contractor)

This form is incomplete unless signed by the contractor

Copies

- q Construction Manager
- q Landscape Architect

- 215 PLANTS/ TREES - SPECIFICATION CRITERIA
- Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification.
- 216 PLANTS/ TREES - SPECIFICATION CRITERIA
- Name, forms, dimensions and other criteria: To the relevant part of BS 3936.
- 225 BULBS/ CORMS/ TUBERS
- Condition: Firm, entire, not dried out or shrivelled.
 - Health: Free from pests, diseases and fungus.
 - Handling: Remove from packaging immediately.
 - Storage: Permitted only when necessary.
 - Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
 - Duration: Minimum period.
 - Temperature: 18-21°C.
- 235 CONTAINER GROWN PLANTS/ TREES
- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
 - Plants: Centred in containers, firmed and well watered.
 - Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
 - Hardiness: Grown in the open for at least two months before being supplied.
 - Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.
- 245 LABELLING AND INFORMATION
- General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
 - Full botanical name.
 - Total number.
 - Number of bundles.
 - Part bundles.
 - Supplier's name.
 - Employer's name and project reference.
 - Plant specification, in accordance with scheduled National Plant Specification categories.
 - Additional information: Submit on request: Country of origin.
- 246 LABELLING AND INFORMATION
- Standard: To BS 3936.
- 260 PLANT/ TREE SUBSTITUTION
- Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
 - Price.
 - Difference from specified plants/ trees.
 - Approval: Obtain before making any substitution.
- 270 PLANT HANDLING GENERAL
- All plants shall be lifted, handled, packaged and stored all in accordance with the HTA National Plant Specification 1997, in particular Parts I and II and CPSE Handling and Establishing Landscape Plants (Nov 1995) except in so far as the recommendations in the code of practice booklet are modified in the following clauses. Refer to Appendix 2.
 - No deliveries to site shall be carried out on Mondays. Loading shall be undertaken

immediately prior to delivery, ie. plants are not to be stored / loaded on lorries for a duration extending 16 hours.

- All packaging for either container grown or open ground plants shall be adequate to protect the Plants and prevent them heating or drying out or damage of any kind during transportation.
- All plants must be in a turgid state and stacked in such a way that breakage or crushing by the weight of the Plants above or securing ropes will not occur during transit.
- The plants shall be loaded in a manner suitable to facilitate simple unloading techniques which are not labour intensive and minimise the risk of damage.
- All bare root trees, shrubs and transplants are root dipped in a 1:3 Alginate root dip solution to manufacturer's recommendations.

277 PLANTING OPERATION GENERAL

- Standard of Workmanship: All materials and horticultural workmanship shall be the best of their kind, and comply with the Specification.
- Carry out the work while soil and weather conditions are suitable for the relevant operations. Planting programme to be approved by landscape architect
- Use only machinery and tools suitable for the site conditions and the work to be carried out. Use hand tools around trees, plants and in confined spaces where it is impracticable to use machinery
Watering: Attention must be paid to watering all plant material and particularly to containerised plant material before, during and after planting to ensure successful establishment.
- Notwithstanding any prevailing restrictions by the Statutory Undertakers on the use of water for watering plants, the Contractor shall be deemed totally responsible for making any special arrangements which may be necessary to ensure successful establishment. The Contractor will not be released from the obligation to replace all dead and dying plants at the end of the first season of growth or any plants which have suffered visually due to a lack of an availability of water.
- Notice to landscape architect/NLC PARks: Make advance arrangements with landscape architect/NLC PARks to give an opportunity of being present during:
 - Setting Out of all plant stock
 - Application of ameliorants
 - Planting of shrubs
 - Planting of trees into previously dug pitsEach site visit during maintenance period

279 PLANT SPACING GENERAL

- Setting Out: Clearly mark boundaries of planting areas and location of trees and obtain approval before starting work. Note: within the forestry plantation the contractor shall permanently mark out each climax blocks with 4no (1no at each corner) 600mm longx50mmx50mm treated softwood timber stakes painted red and driven into firm fixing with 300mm protruding above ground.
- Tree positions shall be set out on site well before planting or pit excavation and marked with canes or stakes.
- Landscape Architect must be given notice/ opportunity to approve setting out prior to planting holes being excavated
- Plant Spacing: shall be carried out in accordance with the drawings and schedules. The Landscape Architect reserves the right to adjust the exact position of specimen shrubs after they have been pegged out and the contractor is deemed to have included for such adjustments within the tender. The aim will be to space the plants evenly so when established

they will completely fill the area indicated.

280 TREATMENT OF TREE WOUNDS

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

285 PROTECTION OF EXISTING GRASS

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

290 SURPLUS MATERIAL

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

PLANT CONTAINERS

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

302 CHEMICALS GENERALLY

- Weed clearance shall only be by hand or mechanical means only. Chemicals may only be used with the written approval of the CA.
- Use only where specified or approved, and then only products on the current list of the Agricultural Chemicals Approval Scheme.
- Where work is near water, drainage ditches or land drains, comply with the Ministry of Agriculture, Fisheries and Food (MAFF) Code of Practice for the use of herbicides on weeds in water courses and lakes.
- Observe all precautions recommended by the manufacturer and remove containers from site immediately they have been emptied or are no longer required.

304 HERBICIDE APPLICATION GENERAL

- Herbicide application shall only be carried out by persons legally qualified to do so. The Contractor shall submit evidence of such qualifications to the CA prior to the application of herbicide
- The Contractor shall not carry out spraying during unsuitable conditions, eg. during rainfall or when extensive rainfall is forecast or during windy weather etc. which may cause spray to drift onto adjoining land. The Contractor will be held responsible for any damage or injury to persons or property resulting from this operation and must indemnify the Client against all claims from damage.
- Spraying or spreading equipment shall be of an approved design and suitable for the type or terrain. Knapsack sprayers and other forms of portable equipment shall be used on banks and areas with difficult access. All spray equipment shall be fitted with a guard to prevent spray reaching the trees and shrubs to be retained. Any trees or shrubs (defined as to be retained) damaged by chemicals shall be replaced by and at the Contractor's expense.
- All relevant Acts of Parliament, in particular 1998 COSHH regulations, and the manufacturer's instructions concerning the handling, use and storage of chemicals shall be followed. Containers and other contaminated equipment shall be cleared from site after each days work.

375 CULTIVATION

- Compacted topsoil: Break up to full depth.

- Cultivation: Loosen, aerate and break up soil into particles of 2-8 mm.
 - Depth: 350 mm.
 - Timing: Within a few days before planting.
 - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels:
 - 25 mm above adjoining paving or kerbs;
 - 50 mm above adjoining lawns; and
 - Minimum 150 mm below dpc of adjoining buildings.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 50 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

407 PLANTING SHRUBS AND TRANSTPLANTS

- Plant at the same depth as previously grown, care being taken to avoid damage to the root system and stems.
Position showing their best side to the front.
- Bare roots shall be carefully spread out and packed around with soil. The plants shall be gently shaken to allow the fine soil to surround the roots. As the rest of the soil is returned it shall be well consolidated and firmed round the roots to eliminate all air pockets.
- Sufficient soil shall be taken out from the bed to enable the roots to be fully spread.
- All plants shall be pit planted in accordance with schedule clause Q31, 507.
- Notch planting of transplants will not be approved.

409 POST PLANTING OPERATIONS

- Immediately after planting shrubs, carefully cut back any damaged, dead or diseased branches and remove any weak, thin or malformed growth. Where and to the extent appropriate for the species, cut back to encourage growth.
- Water plants thoroughly, immediately after planting, using a fine rose.
- Allow for cutting back shrubs and transplants as directed by the Landscape Architect

417 MYCORRHIZAL INOCULANT

- Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
- Application: Apply to roots of bare root plants before planting and backfilling.

435 CLIMBING PLANTS USED AS GROUND COVER

- Planting:
 - Canes or other supports: Remove.
 - Arrangement: Spread stems.
- Fixing: Pinned to ground to ensure good contact.

445 PLANTING BULBS/ CORMS/ TUBERS

- Depth: Top of bulb/ corm/ tuber at a depth of approximately twice its height, base in contact with bottom of hole.
- Backfilling: Finely broken soil. Lightly firm to existing ground level.
- Naturalized planting in existing grassed areas:
 - Scattering: Random. Plant bulbs/ corms/ tubers where they fall.
 - Planting: Neatly remove a plug of turf and replace after planting.

450 BULBS GERNERAL OPERATIONS

- Throw on the ground in loose drifts to ensure natural spacing then carefully planted with a trowel, bulb planter or other approved planting methods to the following depth:

Medium bulbs (eg Alliums)	100 mm
Small bulbs (eg Bluebells)	50 mm

- All bulbs and corms shall be planted in the appropriate season with a suitable planting tool of appropriate pattern and at the correct depth. The hole formed shall be of sufficient diameter to accommodate the bulb or corm which shall have its base in contact with the soil at the bottom.
 - In fine turf a plug or turf shall be neatly removed and replaced after planting.
 - Within lawns extent of bulb planting to be pegged out and agreed with landscape architect .
- 455 PLANTING WILD FLOWER PLUGS
- Handling: Keep plants watered and in shade until planted. Do not allow to dry out.
 - Preparation: Remove brambles, coarse and invasive weeds from planting sites.
 - Planting in grass: Close mow to approximately 50 mm. Remove arisings.
 - Planting sites: As directed by landscape architect.
 - Planting: Into a hole to suit plug size and shape. Create a cleft at bottom of hole to improve rooting. Gently firm plant into hole.
- 476 SHRUB, HERBACEOUS AND BULB BACKFILLING MATERIAL
- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required:
 - Ameliorant/ Conditioner: Green Waste compost.
 - Application rate: To manufacturer's/ supplier's recommendations.
 - Fertilizer: Organic.
 - Application rate: To manufacturer's/ supplier's recommendations.
- 480 AFTER PLANTING
- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
 - Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
 - Top dressing: Not required.
 - Depth: not required.
- 482 WATERING:
- During establishment of planting ensure that sufficient water is applied to maintain healthy growth. Attention must be paid to watering all plant material and particularly to containerised plant material before, during and after planting to ensure successful establishment
 - Notwithstanding any prevailing restrictions by the Statutory Undertakers on the use of water for watering plants, the Contractor shall be deemed totally responsible for making any special arrangements which may be necessary to ensure successful establishment. The Contractor will not be released from the obligation to replace all dead and dying plants at the end of the first season of growth or any plants which have suffered visually due to a lack of an availability of water
- 485A MULCHING GENERAL Applicable to Coastal Colour planting and Coastal Ecology planting
- Apply 75mm depth to all planting beds as identified on the softworks plans.
 - Immediately on completion of planting mulch the whole surface of planting beds with natural stone pebbles to match colour and form of existing Westward Ho! beach pebbles.
 - Graded natural stone mulch to have an even particle size distribution between 10-60mm. All dust and fine material to be excluded. The mulch shall be pest, disease, weed and contamination free.
 - Landscape Architect to approve a sample of mulch prior to use.
 - Remove any spillage of,soil, ameliorants and mulches from all hard surfaces and grassed areas and leave the works in a clean tidy and pristine condition at Practical Completion.

PLANTING TREES

499B PLANTING ROOTBALL PLANTS

- Plant to the depth of the nursery soil mark on the stem. The soil shall be distributed evenly around the root system.
- All work shall comply with BS 4031 1996, recommendations for transplanting semi-mature trees.
- During periods of intense and prolonged frost, measures shall be taken to protect the bottom and sides of the excavated trench and the root balls of trees awaiting planting.
- Dig pits do not glaze or compact the surface. If any glazing or compaction occurs it shall be thoroughly roughened and worked to ensure unrestricted movement of water.
- Orientated to present the best face to an edge of road or building as agreed with the Landscape Architect/CA.
- Prior to planting the rootball shall be measured and any necessary adjustments to the pit/trench made.
- The tree shall be set in the pit/trench so that the top of the rootball is 50mm proud of surrounding ground levels to allow for settlement.
- Plant to give a vertical trunk and leader.
- The outer surface of the rootball shall be examined for damage, where required by the Landscape Architect, by rolling back or cutting the burlap. Any hard surfacing or glazing shall be carefully slit or scarified.
- Fertiliser shall be incorporated into the backfill in accordance with the schedule in clause Q31 (Pit Sizes, Fertilisers and Ameliorants).
- Root balls of all trees under this Contract shall be seated on watering pipe 35mm diameter as specified, installed around the rootball coming to surface as detailed. End of pipe shall be flush with adjacent ground levels and pipe ends shall be fitted with a hinged inspection cap to landscape architect approval.

Type: Root Rain Metro RR1-RR4 all rootballed trees except courtyard specimen trees (Quercus robur) which are to be fitted with RRPC4 as (equal or approved)

Obtained from:

Greenleaf

The Old Dairy, Croft Road

Hastings, East Sussex Tel. 01424 717797

- The Contractor shall ensure that openings to watering pipes are kept free from ingress of all materials.
- The trees shall be securely anchored so that the rootball does not pivot in the soil under windy conditions.
- On completion of planting any broken branches shall be pruned, damaged areas of bark shall be neatly pared back to sound tissue

514 AERATION PIPES

- All trees and specimen shrubs within this contract are to be planted incorporating tree pit irrigation systems Root Rain Metro RR1 – RR4 and RRMC4 Green leaf Urban Tree Products or equal approved.
Note: All to be fitted in accordance with suppliers recommendations and sized as scheduled by suppliers information pack.

514D RABBIT GUARDS (TUBES)

- Install where necessary for all plant material located outside of areas protected by rabbit proof fencing i.e. play area & academy.
- Rabbit guards shall be black polyethylene mesh, grid size 13mm, erected for form a tube of 150-200mm \varnothing , 600mm height around individual plants. Guards may be obtained from Netlon. Tel (01254) 262431 or equal approved. Sample to be submitted to landscape architect for approval.
- Stakes to secure rabbit guards shall be 32x32mm section CCA pressure treated softwood

stakes with a pointed end for driving. They shall be 1000mm length for use with 600mm high guards. Galvanised staples (3.5x30mm) shall be used to secure the mesh to the stakes at 3 no. per stake.

520 TREE DRAINAGE GENERAL

- The Landscape Contractor is responsible for the supply and installation of tree drains as shown on the contract drawings o.
Generally
 - Install to all connections and falls to ensure the drains are fit for purpose.
 - Tree drains shall not be pvc.
 - Provision for all connections of tree drains to service chambers (installed by others) shall be included in the Landscape Contractors rates.
- Before starting work, check the invert levels and positioning of the existing drains , sewers, catch pits , inspection chambers and service holes against the information shown on the drawings and report any discrepancies to the CA/landscape architect .
- Adequately protect existing drains to be retained and maintain their normal operation during work.
Pipes
 - Pipes shall be flexible plastic perforated land drains to BS 4246 1982 and non pvc.

522 INSTALLTION OF TREE DRAINS

- Pipes shall be flexible plastic perforated land drains to BS 4246 1982 and non pvc.
- Lay pipes in good weather conditions using methods suitable for the site conditions to prevent compaction, smearing, top ponding and damage to the soil structure.
 - Pipes shall be laid to line and gradient on a firm bed free from loose soil backfill or slurry.
 - Pipe junctions between branches and mains shall be formed with purpose made components
 - Pipes shall be carefully backfilled with filter material ensuring the pipes are not damaged, distorted or displaced.
 - Plastic pipes shall not be laid at temperatures lower than 5C
 - Laying of pipe work beyond the tree trench shall be in accordance with the site wide Drainage strategy.
- Granular fill shall be approved, clean local stone shingle, nominally 10-20mmdia to BS 822.
- Terram synthetic fabric membrane shall be 1000 gauge as manufactured by ICI Ltd (or equal approved).
- Lay and wrap filter membrane around granular fill to prevent ingress of fines into pipe.

535A STAKING GENERALLY

- Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
 - Preservative treatment: Not required.
- Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
- Stake size (minimum): 50 mm diameter.
- Tree Ties:
Shall be approved black plastic strap and buckle type with rubber spacers eg.'Tom' ties (or equal approved).

542A TREE SECURING SCHEDULE

- All trees shall be secured as scheduled below.
- Ensure all trees remain firm and upright at all times and shall include within the tender rates for increase in scheduled stake lengths , dia. and guying systems specification to achieve this criteria if deemed necessary by varying site micro climate and soil conditions.
- Tree stake shall be orientated to suit the prevailing wind conditions and all shall align with each

other in an ordered manner .

- Tree stakes shall be sweet chestnut poles forest thinnings with the bark neatly stripped with laterals neatly removed by handheld chainsaw or similar. i.e. not machine stripped. Timbers shall be obtained from a UK certified sustainable source. Refer to detail for tree staking arrangement. Sample for CM approval prior to bulk ordering.
- Lengths shall be cut to suit the staking detail and the diameter shall range from 150 - 75mm Ø (dia selected to suit tree sizes). A sample shall be submitted for the landscape architect approval prior to bulk ordering.

STAKING/ GUYING SCHEDULE

Trees up to 16cm girth - Single stake at 45 degree minimum 750 into ground as detailed

Multi stem tree 1.8-3.5 m ht . - 3no. stakes to form triangle around tree (providing mowing protection) set circa 300mm above ground with approved strap and tie system.

Trees 16cm-20cm - Underground guyed with platipus ground anchor and mat or equal approved. Size and fixtures to suppliers recommendations, tender rates to allow for mud feet or similar to ensure secure fixing in areas of fill / soft ground.

Trees 20cm+ - Underground guyed with platipus ground anchor and mat or equal approved. Size and fixtures to suppliers recommendations, rates to allow for mud feet or similar on fixing in areas.

Evergreen Small - Approved staking/ cane system to provide robust but visually unobtrusive fixing. Tie to be adjustable.

NOTE:Contractor to ensure staking / guying system does not damage lake liner system and root barrier is installed at all pit interfaces adjacent lake liner.

585 UNDERGROUND GUYING

- All trees as schedule within clause 542 to be underground guyed with 1 (one) no. guy kit per tree will be required unless otherwise specified. Size and kit type to be to supplier recommendations and to suit ground conditions and anticipated wind loads/ micro climate. Platipus Earth Anchoring System with Plati-mat system (or equal approved). Obtainable from:

Platipus Ltd
Kingsfield Business Centre
Philanthropic Road
Redhill
Surrey RH1 4DP
Tel: 01737 762300

- All rootballs shall be protected with a Plati-mat (or equal approved), installed in accordance with suppliers specification.

585A Planting Pit Sizes, Ameliorants , Fertilisers & Watering Pipes

- The diameter of each pit shall be a minimum 100 mm greater than the average spread of the root system at the time of planting.
- This schedule gives the minimum pit sizes, the maximum being derived from the above provision:

Ground cover - Pit size 300 x 300, Pit depth 250 mm, Fertiliser / Backfill ameliorated soil (as dug)

Containerised Shrubs - Pit size 300 x 300, Pit depth 3000 mm, Fertiliser / Backfill 30g Alginate, blended with 3 parts ameliorated soil (as dug) and 1 part ALS Bio Tree &

Shrub Compost

1+2 transplants - Pit size 300 x 300, Pit depth 250 mm, Fertiliser / Backfill ameliorated soil (as dug) Ficote 140 (16 – 10 – 10) 20gms in accordance with suppliers recommendations, backfilled with as dug

Specimen shrubs - Pit size 450 x450, Pit depth 300 mm, Fertiliser / Backfill ameliorated soil (as dug) 75g Alginure, blended & back-filled
5litre +with 3 parts ameliorated soil: 1 part Bio Tree & Shrub Compost ALS

Trees 8-18cm - Pit size 1200x1200x900mm, Fertiliser / Backfill Pre blended backfill comprising of 300g Alginure, 5L perlite,40 litres of ALS Bio Tree Shrub Compost and as dug ameliorated soil.

Trees 20cm-35cm - Pit size 1750x1750x 1200mm, Fertiliser / Backfill Pre blended backfill comprising of 300g Alginure ,15 litre of perlite, 120L of ALS Bio Tree and Shrub Compost and as dug ameliorated topsoil.

Trees 30cm+ - Pit size 2000x2000x1500mm, Fertiliser / Backfill Pre blended backfill comprising of 400gAlginure, 30 litre of perlite, 160 L of ALS Bio Tree and Shrub Compost and as dug ameliorated soil.

680 SETTING OUT

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

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710 MAINTENANCE

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

720 FAILURES OF PLANTING

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

725 PLANT REPLACEMENTS PRE PRACTICAL COMPLETION

- At Practical Completion all plants shall be **healthy, in pristine**. Any defective plants shall be replaced by and at the Contractor's expense and immediately.
- Any materials, trees or other plants which are found to be defective (e.g. does not show leaf, make adequate growth, or shows signs of excessive stress) during the period following planting defect liability period incorporating one full growing season (two for advance nursery stock trees tree 20cm girth and above when planted and all evergreen tree species Quercus ilex, Taxus baccata and Ilex aquifolium irrespective of planting sizes) shall be replaced by and at the Contractor's expense.
- Plants damaged by vandalism prior to Practical Completion shall be noted by the Contractor and shall be replaced by and at the Contractor's expense.
- Replacements to make good defects pre practical completion must be planted immediately.
- Any stakes, ties, guys, etc shall be replaced as soon as possible after being found defective.
- The relevant planting rates shall be deemed to include all such costs and no additional payment will be made for defective work under any circumstances.

740 CLEANLINESS

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

747 PLANTING MAINTENANCE : SCOPE AND FREQUENCY

Generally:

- The responsibility for the maintenance of completed work is at the Contractor's expense during the progress of the works up to Practical Completion and during the following 24 months defects liability period. Contractor to also refer to section Q35.

Pre Practical Completion Maintenance:

- Shall conform to the standards set for post practical completion maintenance, except where specified otherwise. In particular, attention shall be paid to planted and grass areas, including cutting, weeding and watering. The cost of Pre Practical Completion maintenance shall be included in the tender. The number of visits carried out prior to practical completion shall not form part of the total identified in clause "frequency of visits".

Post- Practical Completion Maintenance / Defects Liability Period

- Refer to Q35

750 PLANTING MAINTENANCE GENERALLY

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

752 MAINTENANCE KEY OPERATIONS

Watering: Manual

- Attention must be paid to watering all plant material including grass, during the construction period of the works. Refer to Q35.
- Carry out all watering as necessary to ensure the successful establishment of all plant material and grass areas.
- Special attention to watering is particularly required during the first spring /summer months following planting.
 - Include within the tender rates for the watering of all transplants and trees (via irrigation tubes) within all plantations by the use of bowser or similar approved means.
- Include with the tender an indicative programme of watering, schedule of quantities to be applied for shrub, and grass areas trees (litres per tree) and detailed methodology confirming machinery and water sources.

Site Cleanliness: The Contractor shall carry out all necessary measures to ensure that drains and plant areas are kept clear of litter and fallen leaves at all times.

Weed Control- Generally

- The Contractor shall suppress weed growth to planted areas either by hand, or approved mechanical means.
 - Shrub, forestry and ground cover areas shall be kept free from weed growth at all times. pppo
Hoe and weed all cultivated areas, removing weeds to tip as required to maintain a clean and tidy appearance.
 - All perennial weeds, unless instructed otherwise, shall be removed and their roots destroyed. Growing plants shall not be disturbed by hoeing.
 - All planted areas are to be maintained weed free by mechanical or manual methods.
 - The use of herbicides may only be used if so directed by the Landscape Architect. Herbicides shall be applied strictly in accordance with the manufacturer's instructions. The Contact herbicide shall contain ingredients which do not persist in the soil in a toxic form.
- 755 PLANTING MAINTENANCE - FERTILIZER
- Time of year: March or April.
 - Fertilizer: Organic.
 - Manufacturer: Submit proposals.
 - Product reference: Submit proposals.
 - Application: Evenly spread, carefully incorporating below mulch materials.
 - Application rate: To manufacturer's recommendations.
- 760 PLANTING MAINTENANCE - PRUNING
- General: Prune to promote healthy growth and natural shape.
 - Dead, dying, diseased wood and suckers: Remove.
 - Timing: As appropriate to the species.
 - Trees: Favour a single central leading shoot.
 - Arisings: Remove.
- 772 PEST AND DISEASES
- Monitor all plant material for any pests and diseases and report to the CA of any symptoms and proposed recommendations /actions.
 - Allow for treatment of any problematic plant disease or eradication of pests via approved means.
- 780 MAINTENANCE INSTRUCTIONS
- General: Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide a schedule of any ongoing maintenance problems experienced during the defects liability period.
- 790 FINAL MULCHING
- Timing: At end of the maintenance period.
 - Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
 - Planting beds: Remulch.
Depth (minimum): 75 mm.
 - Trees: Remulch.
Depth (minimum): 75 mm.

Q35 Landscape maintenance

To be read with Preliminaries/ General conditions.

GENERALLY

104 POST PRACTICAL COMPLETION / DEFECTS LIABILITY MAINTENANCE

- Any materials, trees or other plants which are found to be defective (e.g. does not show leaf, make adequate growth, or shows signs of excessive stress) during the period following planting defect liability period incorporating one full growing season (two for advance nursery stock trees tree 20cm girth and above when planted and all evergreen tree species *Quercus ilex*, *Taxus baccata* and *Ilex aquifolium* irrespective of planting sizes) shall be replaced by and at the Contractor's expense.
- Plants damaged by vandalism post Practical Completion shall be noted by the Contractor and report to LANDSCAPE ARCHITECT Replacements to make good defects must be planted during the planting season immediately following their loss.
- Any stakes, ties, guys, etc shall be replaced as soon as possible after being found defective. The relevant planting rates shall be deemed to include all such costs and no additional payment will be made for defective work under any circumstances.

Inspections : Defects Liability Period:

- At the end of the growing season (Sept / Oct) of the first 12 months Defects Liability Period, the CA / Landscape Architect and the Contractor shall carry out a joint inspection of the works.
- Rectify any defective work or materials by the Contractor by 31 December of the same year this is deemed to include any advanced nursery stock trees that fail within the first 12 month period.
- At the end of the second growing season (Sept/Oct) of the 24 months Defects Liability Period the Landscape Architect and the Contractor shall carry out a second and final inspection to assess the required replacements for any Advance Nursery Stock trees which may have failed. This is deemed (if necessary) to include replacement of replacements carried out under the initial 12 months defects period.

107 MAINTENANCE SCOPE AND FREQUENCY

Post- Practical Completion Maintenance / Defects Liability Period

- Carry out all maintenance operations as defined within this specification for the entirety of the works implemented under the landscape package as defined within this specification and associated drawings and contracts.

Definition of 'Maintenance':

'Maintenance' as applied to work included in this Contract will include all operations necessary for the establishment of and proper growth of plants and to keep the works in a neat and tidy condition, e.g. watering; pruning; disease and insect control; replacement of dead or dying plants; adjustment of duckbill anchors and tree stakes; rubbish picking (from soft landscape areas); fertiliser application; removal of leaves from drains and paved areas; trimming the edges of grass areas, mowing grass areas, adjusting tree ties; resetting plants and mulching.

Frequency of Visits:

- The Contractor is responsible for making regular maintenance visits to the site. The Contractor shall carry out minimum of 35 visits per year, giving the Landscape Architect 72 (seventy two) hours notice of the intention to commence work on each operation. The number of maintenance visits shall be increased as necessary to maintain the specified standards.

The maximum intervals between visits by the Contractor shall be:

- i) April to October, inclusive: 7 days (to an agreed programme)
 - ii) November to February, inclusive: 20 days (to an agreed programme).
- The Contractor's Tender shall include a preliminary maintenance programme confirming the minimum number of staff employed on site during each maintenance visit.

Labour

- The Contractor shall employ an approved competent Supervisor on the works, who is to be present during all maintenance visits, and any instruction given to the Supervisor by the CA / Landscape Architect shall be deemed to have been given to the Contractor.
- All work people employed on site by the Contractor shall be competent and experienced in all aspects of work on which they are engaged.

108 MAINTENANCE REPORTS

- Within two working days of each maintenance visit the Landscape Contractor shall submit to the CA/Landscape Architect, a record report outlining the condition of the works, a schedule of the works carried out and any items that require the attention of, or the approval of the Landscape Architect, including drainage problems, areas of suspected soil toxicity or vandalism.
- Payment for maintenance work will only be certified for correctly recorded, approved work in accordance with this clause.

109 MAINTENANCE OPERATIONS GENERAL

Site Cleanliness : The Contractor shall carry out all necessary measures to ensure that drains and plant areas are kept clear of litter and fallen leaves at all times.

Weed Control- Generally

- The Contractor shall suppress weed growth to planted areas either by hand, or approved mechanical means.
- Shrub, forestry and ground cover areas shall be kept free from weed growth at all times.
- Hoe and weed all cultivated areas, removing weeds to tip as required to maintain a clean and tidy appearance.
- All perennial weeds, unless instructed otherwise, shall be removed and their roots destroyed. Growing plants shall not be disturbed by hoeing.
- All planted areas are to be maintained weed free by mechanical or manual methods.
- The use of herbicides may only be used if so directed by the Landscape Architect. Herbicides shall be applied strictly in accordance with the manufacturer's instructions. The Contact herbicide shall contain ingredients which do not persist in the soil in a toxic form.

Re-cultivation:

- Allow for the re-cultivation of planting areas, by approved hand or machinery means, which have become compacted due to any cause whatsoever.

Stakes & Fixings:

- Trees stakes shall be maintained secure and vertical. Blocks and belts shall be maintained secure but not over tight. The
- Contractor shall monitor the stem of staked trees and take away any action necessary to prevent damage.

Adjustment of Tree Guys, Ties & Training Wires:

- Tree anchors shall be maintained tight at all times, re-tensioned periodically to prevent excessive wind rock and to compensate for settlement. Protective covering shall be regularly checked and made good where necessary.

Tree Guards:

- Ensure that at all times the tree guards are secure and undamaged and acting as effective protectors against rabbit damage.

Top-Up Mulch:

- Maintain (at all times) mulch areas to their original specified depths using materials which conform to the mulching specification.

Aeration Pipes:

- Aeration pipes shall be kept fully operational and shall be kept free of ingress of any material. Replace damaged or missing caps to pipes

130 REINSTATEMENT

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

140 CONTROL OF MAMMALIAN PESTS

- Specialist firms: Submit proposals.
 - Method: Submit proposals.

155 WATERING

- Supply: submit proposals.
- Quantity: Wet to field capacity .
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: As necessary for the continued thriving of all planting.

160 WATER RESTRICTIONS

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

165 WATERING GENERAL

Watering: Manual

- Attention must be paid to watering all plant material including grass, during the maintenance period of the works.
- Carry out all watering as necessary to ensure the successful establishment of all plant material and grass areas.
- Special attention to watering is particularly required during the first spring /summer months following planting.
- Include within the tender rates for the watering of all transplants and trees (via irrigation tubes) within all plantations by the use of bowser or similar approved means.
- Include with the tender an indicative programme of watering, schedule of quantities to be applied for shrub, and grass areas trees (litres per tree) and detailed methodology confirming machinery and water sources.

175 DISPOSAL OF ARISING

- General: Unless specified otherwise, dispose of arising as follows: off site to approved tip unless otherwise instructed.

180 CHIPPING OR SHREDDING

- General: Not permitted on site.

181 MECHANICAL EQUIPMENT

- General: Minimize.
- Prohibited equipment: not specified.
- Timing: Use of mechanical equipment allowed between the hours of 10:00 am and 4:00 pm only.

190 LITTER

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

195 PROTECTION OF EXISTING GRASS

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

197 CLEANLINESS

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

GRASSED AREAS

210 MAINTENANCE OF GRASSED AREAS

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

211 MAINTENANCE OF GRASSED AREAS

- Standard: To BS 7370-3. Carry out maintenance appropriate to each category of turf, as follows:
 - Objectives: To BS 7370-3, table 6.
 - Programme: To BS 7370-3, clause 11.
 - Mowing methods: To BS 7370-3, table 3.

220 GRASS CUTTING GENERALLY

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

225 TREE STEMS

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

235 BULBS AND CORMS IN GRASSED AREAS

- Before flowering: Do not cut.
- Interval between end of flowering and start of grass cutting (minimum): As agreed maintenance manual.

250 LEAF REMOVAL

- Operations: Collect fallen leaves.
- Special requirements: Remove by hand raking.
- Disposal: Shred and compost on site.

260 MOWING LAWNS

- Grass height: Maintain between 25 and 50 mm.
- Arisings: Remove.

272 MAINTAINING GRASSED AREAS WITH PERENNIAL WILD FLOWERS

- Preparation: Before each cut remove litter and debris.
- Height and frequency of cut in first growing season:
 - Time of first cut: March/ April.
 - Height of first cut: 50 mm .
 - Frequency of subsequent cutting (minimum): Every 6 to 8 weeks until autumn.
 - Height of growth permitted (maximum): 100 mm.
- Height and frequency of cut in second growing season:
 - Time of cut: Single cut in October.
 - Height of cut: 75 mm.
- Trimming: All edges.
 - Arisings: Remove.
- Watering: as required to ensure establishment.

275 CUTTING SUMMER FLOWERING WILD FLOWER MEADOWS

- Times of year/ Frequency of cutting: As instructed.
- Height of cut: 75 mm.
- Arisings: Leave for 2-3 days after cutting then remove.

280 CUTTING SPRING FLOWERING WILD FLOWER MEADOWS

- Times of year/ Frequency of cutting: As instructed.
- Height of cut: 75 mm.
- Arisings: Leave for 2-3 days after cutting then remove.

309 EDGES TO SEEDED AREAS

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

320 LEVELLING HOLLOWES AND BUMPS IN TURF

- Standard: To BS 7370-3, clauses 12.4 and 12.5.

325 RELIEVING SURFACE COMPACTION IN TURF

- Standard: To BS 7370-3.
- Method: Spiking.
- Top dressing: Fine sand.
 - Depth: 2-3 mm.

381 REINSTATEMENT OF WORN OR DAMAGED LAWNS

- Worn or damaged areas: Make good by returfing or reseeding:
 - Returfing standard: To BS 7370-3, Clause 12.2.
 - Reseeding standard: To BS 7370-3, Clause 12.6.
- Turf or seed: To match existing in appearance and quality.
- Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

- Duration: One year.
 - Weed control:
 - Method: Keep planting beds clear of weeds by hoeing and screefing .
 - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
 - Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
 - Trees: When in leaf, spray crowns during warm weather.
 - Timing: After dusk.
 - Watering: as required to ensure establishment.
- 502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER
- Time of year: March or April.
 - Type: Slow release.
 - Spreading: Spread evenly. Carefully lift and replace any mulch materials.
 - Application rate: As manufacturer's recommendations.
- 510 TREE STAKES AND TIES
- Inspection/ Maintenance times: As scheduled and immediately after strong winds.
 - Stakes:
 - Replace loose, broken or decayed stakes to original specification.
 - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
 - Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
 - Where chafing has occurred, reposition or replace ties to prevent further chafing.
 - Removal of stakes and ties: When instructed.
 - Fill stake holes with lightly compacted soil.
- 515 TREE GUY WIRES
- Inspection/ Maintenance times: In spring.
 - Operations:
 - Replace or resecure loose or missing guy wires.
 - Adjust to suit stem growth and to provide correct and uniform tension.
 - Removal: When instructed.
- 520 REFIRMING OF TREES AND SHRUBS
- Timing: After strong winds, frost heave and other disturbances.
 - Refirming: Tread around the base until firmly bedded.
 - Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.
- 525 TREE GUARDS
- Loose or defective guards: Adjust, refix or replace to original specification and to prevent chafing.
- 530 TREE SHELTERS
- Loose or defective shelters: Adjust, refix or replace to original specification and to prevent chafing.
 - Removal: When instructed.
- 535 TREE GRILLES
- Operations: Lift grilles, remove weeds, adjust levels as necessary and lightly compact. Refit grilles, refill interstices and lightly compact to correct level.
 - - Material for making up levels and refilling: 6 mm to dust granite aggregate.
- 540 PRUNING GENERALLY

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

542 PRUNING GENERAL

Pruning - Generally

- All works shall be carried out to BS 3998 (1988) or any subsequent revision, unless specified otherwise.
- Any dead or damaged limbs, water shoots epicormic growths or suckers occurring around the base of trees shall, if required by the Landscape Architect be removed and disposed.
- Allow for topping all trees and carry out any canopy management required by the CA/Landscape Architect. (Canopy management will be carried out once per annum).
- Allow for the cutting back or light pruning of shrubs to encourage correct shaping and bushiness.
- Pruning shall be carried out in the appropriate season for each species, winter pruning shall not be carried out in frosty weather.
- Bulbs and herbaceous perennials shall be dead headed at a time and frequency appropriate to their species.
- Each autumn, or as appropriate to each plant, withered or dead herbaceous material shall be cut out of the plant (unless directed otherwise) and removed from site to keep each plant in a tidy condition.

Sympathetic Pruning

- The Contractor shall be experienced with pruning techniques and plant responses to pruning. Pruning shall be carried out with due regard to natural growth patterns, and shall accentuate natural tendencies.
- Where plants have out grown their position and hard cutting back is required, pruning shall reflect the natural form of the plant (unless specified otherwise) which shall not be clipped to a formal shape forming straight lines and edges.

Season

- Light pruning to control spread, the removal of obstacles and the removal and repair of damage may occur at any time of year, and shall be carried out at the time it first becomes apparent. Branches that hang too low from the weight of leaves or fruit may be thinned during the growing season.
- Formative pruning and crown management for broad leaved trees shall be carried out in the dormant season between September and February.
- Species that are prone to bleeding, particularly Carpinus, Betula and Acer species shall only be pruned in late July or August.

555 PRUNING TREES AND SHRUBS

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

570 FORMATIVE PRUNING OF YOUNG TREES

- Standard: Type and timing of pruning operations to suit the plant species.
 - Time of year: Do not prune during the late winter/ early spring sap flow period.
 - Young trees up to 4 m high:
 - Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
 - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
 - Whips or feathered trees: Do not prune.
 - Operatives: Member of the Arboricultural Association.
- 575 PRUNING ORNAMENTAL SHRUBS
- General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
 - Suckers: Remove by cutting back level with the source stem or root.
- 580 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES
- Time of year:
 - Winter flowering shrubs: Spring.
 - Shrubs flowering between March and July: Immediately after the flowering period.
 - Shrubs flowering between July and October: Back to old wood in winter.
 - Rose bushes: Early spring to encourage basal growths and a balanced, compact habit.
- 600 TRIMMING RAPIDLY ESTABLISHING HEDGES
- General: Allow to reach planned height as rapidly as possible.
 - Form: Trim back lateral branches moderately.
- 605 TRIMMING SLOWLY ESTABLISHING HEDGES
- Operations:
 - Timing: Cut back hard in June and September to encourage bushy growth down to ground level.
 - Form: Allow to reach planned dimensions only by gradual degrees, depending on growth rate and habit.
- 615 TRIMMING FIELD HEDGES
- Operations: Trim to specified height and profile using suitable mechanical cutters.
- 620 REMOVAL OF DEAD PLANT MATERIAL
- Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.
- 630 DEAD AND DISEASED PLANTS
- Removal: As soon as possible.
 - Replacement: In the next suitable planting season.
- 635 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS
- Dead and damaged plants: Remove.
 - Mulch/ matting materials:
 - Carefully move to one side and dig over the soil, leaving it fit for replanting.
 - - Do not disturb roots of adjacent plants.
 - Replacement plants:
 - Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - Additional requirements: None.
 - Dressing: Slow release fertilizer:
 - Type: Organic.
 - Application rate: As manufacturer's recommendations.

641 THINNING AND RE-FIRMING

- Remove by approved means any plants which in the opinion of the Landscape Architect are out-competing other plants and adversely affecting the development of adjoining plants.
- All plant materials shall be re-firmed in the spring following planting. The Landscape Contractor shall ensure that all plants loosened due to late frosts, strong winds or surface water movement shall be firmed as required.

650 HAND WEEDING

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

680 SOIL AERATION

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

685 SOIL LEVEL ADJUSTMENT

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

690 MAINTENANCE OF LOOSE MULCH

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

695 FERTILIZING ESTABLISHED TREES AND SHRUBS

- Time of year: During April or May.
- Type of fertilizer: Organic.
- Application: Spread evenly.
 - Rate: As manufacturer's recommendations.

705 WINTER LEAF REMOVAL

- Operations: Take down temporary leaf fences. Collect accumulations of drifted leaves from the vicinity and from planting beds.
- Arisings: Remove.

TREE WORK

810 TREE WORK GENERALLY

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

815 ADDITIONAL WORK

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

820 PREVENTION OF WOUND BLEEDING

- Standard: To BS 3998, clause 8.

825 PREVENTION OF DISEASE TRANSMISSION

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

830 CLEANING OUT AND DEADWOODING

- Remove:
 - Dead, dying, or diseased wood, broken branches and stubs.
 - Fungal growths and fruiting bodies.
 - Rubbish, wind blown or accumulated in branch forks.
 - Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
 - Other unwanted objects, e.g. tree houses, swings.
 - Climbing plants as schedule.

835 CUTTING AND PRUNING GENERALLY

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

865 BARK DAMAGE

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

HARD LANDSCAPE AREAS/FENCING

910 HARD SURFACES AND GRAVEL AREAS

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

920 FENCING

- Fences: Inspect and repair to maintain protection against intruders.

Q50 Site/street furniture/equipment

To be read with Preliminaries/ General conditions.

110A FOR ALL STREET FURNITURE CONTRACTOR TO REFER TO CONTRACT DRAWINGS FOR TYPE AND NUMBER

SITE AND STREET FURNITURE

- 220A BENCHES : Linear and Curved benches
" Manufacturer: Streetlife (or equal & approved)
Contact: Streetlife
Oude Singel 144
2312 RG Leiden
T: ++31 71 524 6845 (direct line)
F: ++31 71 524 6849
W: www.streetlife.nl
E: yroebroek@streetlife.nl
- Product reference: Top Seats and R+R Curved Top Seats (or equal and approved).
 - Material: FSC hardwood
 - Finish: As Manufacturers Specification
 - Colour: As Manufacturers Specification
 - Size: 600mm seat width. As Manufacturers Specification
 - Accessories/ Special requirements: Fixing Bracket. Insitu concrete base protruding 300mm from finished floor level
 - Method of fixing: As per manufacturers details

NOTE : Contractor to proposed product or method to achieve timber topped seating to alignments shown in contract drawings. Product above provided to identify desired character, quality and performance. All to Client approval.

INSTALLATION

- 510 CONCRETE FOUNDATIONS GENERALLY
- Standard: To BS 8500-2.
 - Mix: Designated concrete not less than GEN 1 or Standard prescribed concrete not less than ST2.
 - Admixtures: Do not use.
- 515 SETTING COMPONENTS IN CONCRETE
- Foundation holes: Neat vertical sides; bottom covered with a 50 mm layer of concrete.
 - Components: Accurately positioned and securely supported.
 - Depth of foundations, bedding and haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.
 - Concrete fill: Fully compacted as filling proceeds.
 - Temporary support: Maintain for 48 hours (minimum) and prevent disturbance.
 - Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.

Drawing Register

Appendices

Potential Products and Suppliers
(All Equal and Approved)

Manufacturers, formulators and suppliers of quality resin surfacing systems.

addaset[®] Decorative Resin Bound Surfacing

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Cleaning and Maintenance

Addaset FAQ

Base Build-ups

Addaset Swatches

The Addaset Resin Bound Surfacing System provides a smooth, hard wearing and low maintenance porous/semi porous surface using a range of natural and recycled aggregates and recycled glass. The finished surface is a seamless bound paving system which is flexible and resistant to cracking and can be applied on to asphalt and concrete or other stable substrates.

SUDS (Sustainable Urban Drainage Systems)

Addaset is porous allowing water to permeate/percolate through the surface and beyond, when a suitable base build up configuration for SUDS (Sustainable Urban Drainage Systems) has been installed.

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Benefits

Porous

Applications

Choice of Aggregates

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- Aesthetically pleasing
- Durable
- UV stable
- Low maintenance
- Anti-slip
- Wheelchair friendly

- Footpaths
- Landscaping schemes
- Heritage sites
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- Cycle paths
- Driveways
- Pedestrian precincts
- Theme parks
- Retail units
- Footbridges
- Housing developments
- Office developments

A standard range of Addaset finishes are available, each an exact formulation of aggregates bound with specific quantities of resin.

The standard Addaset finishes are illustrated by clicking the swatches button below.



addaset[®] addastone[®] EcoPave[®] addastone TP[®] addagrip PPS[®] addalevel SL2K[®] addaZing[®] addaflor[®] addatex[®] 

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Addagrip Surface Treatments UK Limited Addagrip House, Bell Lane Industrial Estate, Uckfield, East Sussex TN22 1QL, United Kingdom
Telephone: +44 (0)1825 761333 Fax: +44 (0)1825 768566

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AsphaltEdge Aluminum Asphalt Restraint



AsphaltEdge™ is a patented line of flexible, L-shaped aluminum asphalt restraints. One of the biggest drawbacks of asphalt compared to concrete and brick is an inconsistent edge. With Permaloc AsphaltEdge, you get a strong, uniform 90-degree edge. It installs quickly and easily, making your work stand out and providing a "finished look" - an excellent compliment to any asphalt installation.



- Engineered to extend the life of asphalt pavement by helping to prevent broken edges, providing uniform thickness throughout the pavement surface, and providing a finished, maintainable look along the asphalt border.
- Permaloc's patented AsphaltEdge is the only product specifically designed to be installed and perform as an integral restraint system for asphalt.
- AsphaltEdge is designed for asphalt over aggregate, asphalt overlay, and asphalt over concrete, including residential, commercial and industrial applications.

Sizes & Finishes (wall x base)

1" x 2-1/4"	(25.4mm x 57.15mm) For asphalt applications
1-1/2" x 2-1/4"	(38.1mm x 57.15mm) For asphalt applications
2" x 2-1/4"	(50.8mm x 57.15mm) For asphalt applications
2-1/2" x 2-1/4"	(63.5mm x 57.15mm) For asphalt applications
3" x 3"	(76.2mm x 76.2mm) For asphalt applications
4" x 3"	(101.6mm x 76.2mm) For asphalt applications

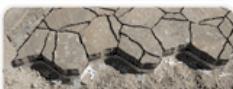


Application Detail Downloads

	Asphalt Restraining Single Course of Asphalt over Compact Gravel Base Asphalt Running Track Restraining Single Course of Asphalt over Compact Gravel Base CAD Files AE-1	PDF	DWG
	Asphalt Restraining Double Course of Asphalt over Compact Gravel Base Asphalt Running Track Restraining Double Course of Asphalt over Compact Gravel Base CAD Files AE-2	PDF	DWG
	Asphalt - Restraining Finish Course of Asphalt over Asphalt Base (Binder) Course CAD Files AE-3	PDF	DWG
	Asphalt - Restraining Finish Course of Asphalt over Concrete Base CAD Files AE-4	PDF	DWG



LIVE HELP CHAT:
Product specialists are available to you



CAN YOUR PAVER RESTRAINT DO THIS?
Permaloc BrickBlock can be formed to any shape.

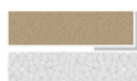


PERMALOC GREEN:
Designing for the future with sustainable design



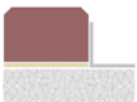
Asphalt - Restraining Double Course of Asphalt over Concrete Base
CAD Files AE-5

[PDF](#) [DWG](#)



DG/Aggregate - Restraining Decomposed Granite or Aggregate over Compact Base
Driveway/Walkway/Running Track
CAD Files AE-6

[PDF](#) [DWG](#)



Paver - Restraining Paver and Setting Course on Compact Base
Course Restraint Away from Paver (Typical)
CAD Files AE-9

[PDF](#) [DWG](#)



Paver - Restraining Paver and Setting Course over Asphalt Base
CAD Files AE-7

[PDF](#) [DWG](#)



Paver - Restraining Paver and Setting Course over Concrete Base
CAD Files AE-8

[PDF](#) [DWG](#)

Specifications / Technical Data Downloads

[10 Part Specification](#)

[3 Part Specification](#)

[Technical Data Sheet](#)

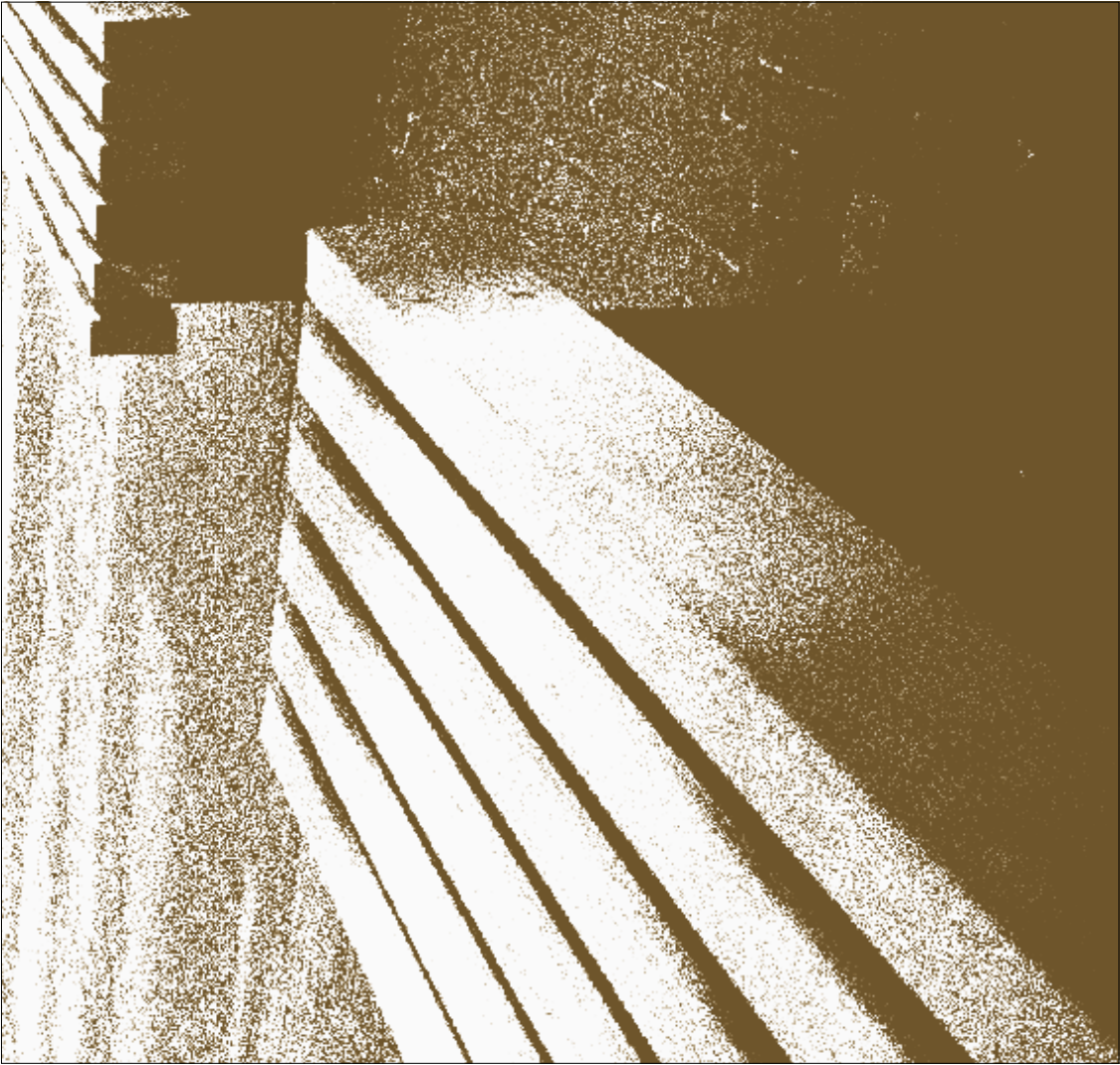
[Installation Instructions](#)

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2A



All Rough & Ready products are sturdy and robust. This unique programme comprises: Straight benches, Linked benches, Curve benches, Circular benches, Topseats, R&R Bicycle Parking racks and Lineparking, Bollards, Tree tubs and Tree isles with R&R sitting rims. In conjunction, they form a coherent programme for exceptional urban locations!

3A

Rough & Ready 5 Benches



234 x 48,5 x 45, 4-seater
R&R-5-2340, bench FSC hardwood



234 x 48,5 x 72, 4-seater
R&R-5-2340, bench FSC hardwood, with R&R-1540-Back incl. supports

Rough & Ready 10 Benches



234 x 100 x 45, 8-seater
R&R-10-2340, bench FSC hardwood / Basralocus
Optional: 2x R&R-1540-Back incl. supports



59 x 59 x 45
100 x 100 x 45
R&R-6-Cube, FSC hardwood / Basralocus
R&R-10-Cube, FSC hardwood / Basralocus

Design: Peter Krouwel

Protected by Int. Model Depots and Patents

www.streelife.nl
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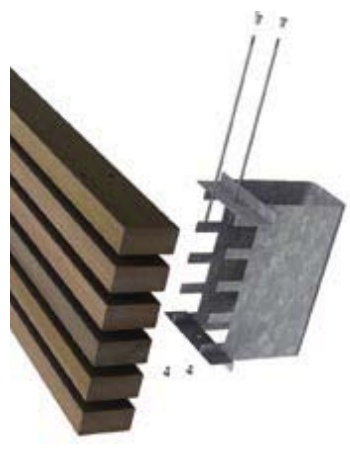
Rough & Ready 5 en 6

The **Rough & Ready benches** are sturdy and robust. The beams of durable FSC hardwood are 15 cm thick. Alternatives are beams sawn from 20 years old harbour posts of Basralocus wood, which is used untreated or the All Black beams. They are fixed to the legs (thermo galvanized) by means of the Streetlock comb system: stainless steel and theft-proof. The optional backrest has been convexly planned and can be fixed at various positions. R&R-5 has 5 beams and triangular legs. R&R-6 has 6 beams and rectangular legs which can be linked to create a very long bench. R&R-10 is double sided bench which can also be linked.

With larger orders (20 benches) we can offer CorTen steel legs. There is also a 300 cm long FSC hardwood bench available in the R&R-6 en R&R-10 versions

Minimum order is 5 benches. Delivery time 10-12 weeks.

The R&R bench has the Streetlock® system incorporated in the leg design. The robust beams are locked with two sets of theft proof stainless steel nuts. This construction allows the beams to be exchanged and turned over to conceal any vandalism. By sanding every 1 or 2 years graffiti will be removed and the bench becomes even more appealing.

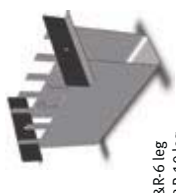


MON-R&R, assembly set R&R benches
MON-R&R-BACK, assembly set backrest

Patented Streetlock® comb with theft proof nuts.



R&R-5 leg



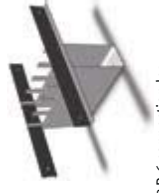
R&R-6 leg
R&R-10 leg



R&R-1540-Backrest, the backrest is convexly planned.



R&R-5-FUN, concrete foot M12
R&R-6-FUN, concrete foot M12



R&R-6 connection leg
R&R-10 connection leg



R&R-ASK-1, anti-skate ball of stainless steel



R&R-6-KAM, spacer

For the 300 cm and interlinked R&R benches a spacer is provided to ensure the lining of the beams. The spacer is mounted underneath the beams.

Rough & Ready 6 Benches



234 x 59 x 45, 4-seater
R&R-6-2340 bench FSC hardwood / Basralocus

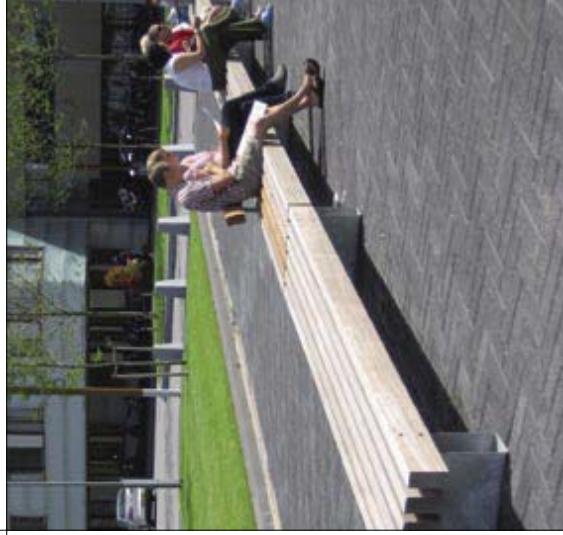


234 x 59 x 72, 4-seater
R&R-6-2340 bench FSC hardwood / Basralocus with R&R-1540-Back



300 x 59 x 45 / 72, 6-seater
R&R-6-3000, bench FSC hardwood (incl. R&R-6-KAM, spacer)
R&R-6-3000, bench FSC hardwood, with R&R-1540-Back (incl. R&R-6-KAM, spacer)

The 300 cm R&R bench is only available in the FSC hardwood



6A

Rough & Ready 6 Benches

The robust beams in the **R&R programme** are available in 3 materials:

- a- Standard: FSC hardwood with a 300 cm maximum length.
- b- Antique hardwood sawn from 20 years old harbour posts of Basralocus wood with a 234 cm maximum length. They have a natural imperfection.
- c- Solid recycled black plastic from agricultural plastic sheeting and plastic bags: All Black. These beams are thoroughly black and have a coarse wood texture. Only available in 200 and 275 cm length.

See page 14 and 15: Rough & Ready All Black.

Maintenance:

Sanding of the wooden beams will remove graffiti and the bench becomes even more beautiful. The black plastic versions require zero maintenance. The beams are graffiti repellent and can be turned over if required.



905 x 59 x 45
3 x R&R-6-3000, bench FSC hardwood, incl. 2 R&R-6 leg + 2 R&R-6 connecting leg + 3 x spacer



Rough & Ready Curve

As the name implies, the **Rough & Ready Curve benches** are curved and display unique character. The single bench is 200 cm long and 60 cm deep. By linking several benches together, one can create a long, curved bench or a twisting serpentine configuration. The accompanying backrest is slightly convex and can be mounted at almost any required position.

The benches are available in FSC hardwood, antique 20-year-old Basralocus, or in All Black beams which are black through and through.

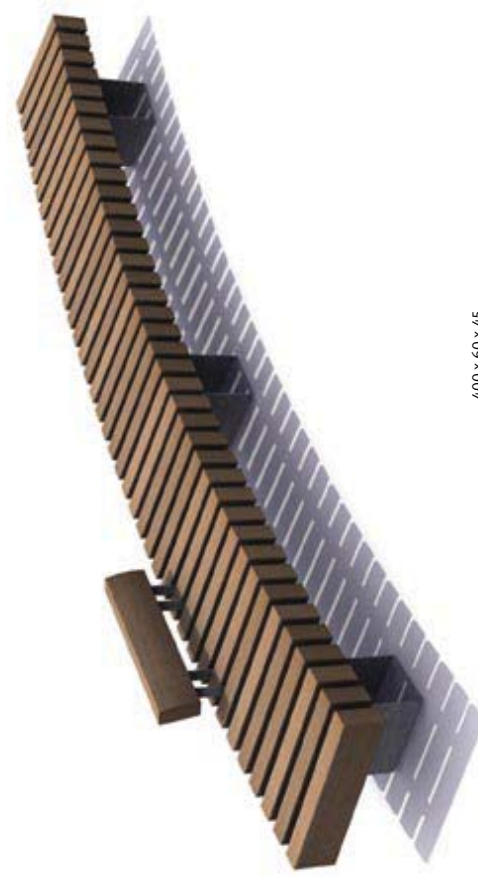
The radius of this R&R Curve bench is approx. 800 cm.
 Minimum order: 5 items. Delivery time: 10-12 weeks.



R&R-Curve-60-Back



200/400 x 60 x 45
 R&R-Curve-200 bench, FSC hardwood / Basralocus / All Black
 R&R-Curve-400 bench, FSC hardwood / Basralocus / All Black



400 x 60 x 45
 R&R-Curve-400 bench, FSC hardwood / Basralocus / All Black
 with R&R Curve-60-Back

This 40 meter long R&R Curve bench makes a grand gesture in a dune landscape near the watertower in Scheveningen (Holland).

Rough & Ready Topseats

The **R&R Topseats** are loose seats that are mounted on a stone, brick or concrete wall 30 cm high. The FSC hardwood beams are robust and locked into stainless-steel Streetlock® comb fittings, which are invisibly embedded on the wall or concrete block. Two different models are available:

- The R&R 5/6 Topseats are long, straight seats. The modules have a length of 234 or 300 cm. The beams are attached by means of a double rod and stainless-steel theft-proof flanged nuts (see p. 5A). A backrest element is optional: R&R-1540-Back.
- The R&R Curve Topseats are ideal for topping slightly curved walls or for circular configurations. The modules are not self-supporting. They can be equipped with slightly convex backrests if required: R&R Curve-60-Rug. The short beams are incorporated into long stainless-steel Streetlock® comb fittings, and are supplied in module lengths of approx. 2 m.

Minimum order: 10 metres of seat length, delivery time: 10-12 weeks.

Length: approx. 200 cm, seat depth is 60 cm, height, including comb fittings, approx. 16 cm. The exterior radius of this R&R - Curve Topseat is 800 cm. Made-to-measure items will be dealt with on request.



NEW

MON-R&R, assembly set R&R beams
 R&R 5-Top 2340, sitting depth ca. 50 cm
 R&R 6-Top 2340, sitting depth ca. 60 cm
 R&R 6-Top 3000, sitting depth ca. 60 cm
 Lengths: 234 & 300 cm.

NEW

Design: Peter Krowetz

Protected by Int. Model Deposits and Patents

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