CROWDHILL GREEN, FAIR OAK

Soft Landscape Specification

Prepared for: Bloor Homes Southern

SLR Ref: 416.04627.00010
Version No: 2

BASIS OF REPORT

This document has been prepared by SLR Consulting Limited with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with Bloor Homes Southern (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

CONTENTS

D20 EXCAVATING AND FILLING 1

Q28 TOPSOIL, GROWING MEDIA AND AMELIORANTS 7

Q30 SEEDING/TURFING 13

Q31 EXTERNAL PLANTING 21

D20 Excavating and Filling

TO BE READ WITH PRELIMINARIES/GENERAL CONDITIONS.
The following provides soft landscape-related clauses only.

GENERALLY/THE SITE

151A EXISTING SERVICES
The Landscape Contractor shall ensure he is acquainted with the location of existing services. These are to be protected during construction. Any damage is to be rectified at the Contractor's cost.

153B APPROVALS
The approval of the CA is to be sought prior to carrying out the following operations:

- Following erection of protective fencing around trees and topsoil heaps.
- Topsoil stripping.
- Topsoil heap spraying.

Any of the above carried out without the CA's approval of the preceding operation shall be repeated at the Contractor's expense if the CA deems necessary.

CLEARANCE/EXCAVATING

164A TREE ROOTS

- In the absence of an arboricultural assessment of root protection areas (RPAs), it shall be assumed that RPAs extend 3m beyond the branch spread of trees and 1m beyond the branch spread of hedges or shrubs.
- Inside RPAs:
  - Do not cut roots, excavate soil, increase soil depths, excavate service trenches or foundation for kerbs, rip subsoil, or compact soil, except where shown on the landscape drawings.
- Outside RPAs:
  - Make clean smooth cuts with no ragged edges.
  - Pare cut surfaces smooth with a sharp knife.
  - Backfill: Ensure cut surfaces are covered with topsoil to the original ground levels or to 50mm depth.

166B TREE ROOT BARRIERS

- Where trees will be planted less than 3m from new services or in proximity to building and road foundations, the engineer is to advise upon the appropriateness of a proprietary root barrier.
- Unless otherwise instructed, install the barrier to the full depth of the excavation and extend the root barrier past the tree trunk, where possible. Install in accordance with manufacturer's recommendations.
- Do not install barriers on more than two sides of any tree in order to allow the trees to anchor themselves on the two remaining sides.
- Backfill the trench with subsoil and topsoil, pushing the barrier against the side of the trench which is furthest from the tree.
- Where lengths of root barrier need to be joined, overlap the ends of rolls by 500mm and seal on both sides with 100mm wide heavy duty tape.

168A SITE CLEARANCE

- Timing: Before topsoil stripping, if any.
- Generally: Clear site of rubbish, debris and vegetation.
- Large roots: Grub up and dispose of roots without undue disturbance of soil and adjacent areas.
- Treatment: Apply a suitable herbicide to regrowth of weeds (Q28:405 and 756).

170B REMOVING TREES, SHRUBS AND HEDGES

- Before starting work, verify with CA which trees, shrubs and hedges are to be removed.
- Carry out outside the bird nesting season, i.e. October to mid February. At all other times checks are to be made to ensure there are no nesting birds present or bats roosting in trees.
- Check for below and above ground services in the vicinity. Inform CA if they may be affected and obtain instructions before proceeding.
- Comply with HSE/Arboriculture and Forestry Group Safety leaflets.
- Cut down and grub up roots of shrubs and smaller trees. Fell larger trees as close to the ground as possible.
- Take down large 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.
- Obtain CA's approval before removing stumps by winching and do not use other trees as supports or anchors.
- Comply with the Dutch Elm Disease (Restriction on Movement of Elms) Order.
- Tree stumps: Remove.

181B JAPANESE KNOTWEED

Report to CA immediately if evidence is found.

183A TREE SURGERY

All surgery to trees being retained is to be carried out by a qualified tree surgeon as approved by the CA.

185B PROTECTION OF EXISTING VEGETATION

Where shown on the arboriculturist's plans, protect existing vegetation in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations', Figure 2, or to a standard as agreed with the Local Planning Authority:

- Fences are to be erected upon arrival on site and before any site construction works commence, in accordance with the arboriculturist's recommendations. Retain fencing in good condition until Practical Completion or until immediately before access is required within the protected zones for construction work, then remove from site.
- Service trenches must be designed to avoid protected zones, unless incursion is agreed beforehand in writing with a qualified arboriculturist. Within protected zones, service trenches and other excavations are to be carried out by hand and no roots over 25mm diameter are to be severed. Where finer roots are severed, cut cleanly with a sharp knife, saw or secateurs. Backfill against severed roots as soon as possible.
- Erection of building scaffolding shall avoid damage to adjacent tree canopies. Where agreed beforehand with the local authority, remedial crown works to facilitate development shall be carried out by a qualified arboriculturist. If necessary, branches can be temporarily and carefully tied back clear of scaffolding without tearing or breaking. Release branches once the scaffolding is removed.
- Under no circumstances are building materials, subsoil, topsoil, fuel or other materials to be stored within the fenced-off zones. No Contractors' cabins or vehicles are to be located here.
- Where the set-back of the tree protection barrier would expose unmade ground to construction damage, install temporary ground protection as part of tree protection works. The protection shall be capable of supporting traffic without distortion or compaction of underlying soil. Ground protection options are to be as set out in BS 5837 paragraph 6.2.33 depending on predicted trafficking.
- The Contractor is to replace any tree, hedgerow or shrub which, in the opinion of the CA, has been killed, removed without approval, or badly damaged so as to severely affect its overall shape or likely survival. Any replacement species must be the same species and size to those damaged/removed/killed, unless otherwise agreed by the CA and local authority. The need to replace a tree is to be determined by a qualified arboriculturist, employed at the Contractor's cost.

188A ENVIRONMENTAL PROTECTION ACT 1990

The Contractor shall note that he has a duty of care to properly dispose of all waste to a licensed disposal site. Any Contractor who causes damage by unauthorised dumping or allowing waste to escape can be liable to prosecution and all resultant legal costs and fines. The definition of 'waste' includes vegetation.

210 MATERIALS ARISING

- Ownership: Excavated materials, including topsoil, surplus to requirements for filling remain the property of the Employer, unless the Contractor:
  - is instructed to remove them from the site; or
  - purchases them at a price to be agreed.

211 HERBICIDE

- Not less than two weeks before stripping topsoil, treat with a glyphosate herbicide such as Round-Up. Apply in accordance with manufacturers' recommendations. Refer also to Clause Q28:756.
- Where grass or other vegetation exceeds 200mm in height, cut down to 100mm and remove from site prior to spraying herbicide to ensure the topsoil heap does not become anaerobic.

212A WET WEATHER OPERATIONS

- Stripping, excavating, moving, ripping, digging, spreading or cultivating subsoil and/or topsoil shall not be carried out when the soil is wet or during or immediately following wet weather. Soil is too wet to handle, if machinery moving or cultivating the soil smears the soil rather than shatters it, or if the soil can be rolled into a 5mm diameter sausage without crumbling.
- The approval of the CA is required before soil movement or working can recommence following wet weather.

220B STRIPPING TOPSOIL

- General: Before beginning general excavation of filling, strip topsoil from areas where there will be regrading, buildings, pavings/roads and other hard areas.
- Before beginning general excavation or filling, excavate topsoil from required areas to a depth specified in the ground condition report and keep separate from excavated subsoil. The depth of excavation shall be varied as necessary on site to ensure that subsoil is not mixed with the topsoil. Carry out using a 360 excavator with a grading bucket, not a box scraper or bulldozer, in order to avoid compaction.
- Do not remove topsoil within tree protection areas of trees to be retained.

222A RETAINED IN-SITU TOPSOIL

Where topsoil is left in-situ, and it will later be seeded, turfed or planted, it must not be trafficked or compacted in any way. The area is to be fenced off with a chestnut pale or high density polyethylene fence (see Clauses 185 and 432), where outside of tree protection fencing areas. Where compaction occurs, the Contractor shall make good at his cost and to the satisfaction of the CA.

225A HANDLING TOPSOIL

- Standard: to BS 3882.
- Aggressive weeds:
  - Species: Included in the Weeds Act, Section 2 or the Wildlife and Countryside Act, Schedule 9, Part II.
  - Give notice: Obtain instructions before moving topsoil.
- Contamination: Do not mix topsoil with:
  - Subsoil, stone, hardcore, rubbish or material from demolition work.
  - Other soil or material containing aggressive weeds, sharps, plastics and non-soil forming materials and notifiable animal or plant diseases.
  - Oil, fuel, cement or other substances harmful to plant growth.
  - Other grades of topsoil, as defined by an engineer or archaeologist.
- Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
- Earthmoving equipment: Select and use to minimise disturbance, trafficking and compaction.

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.

DISPOSAL OF MATERIALS

420A TOPSOIL STORAGE HEAPS

- Location: To be determined by the Contractor.
- Standard: To BS 3882.
- Height: Wet topsoil (as described in Clause 220) shall be stored in long, narrow heaps not exceeding 2m in height. Friable soil can be stored in high wide heaps.
- Protection:
  - Do not place any other material on top of spoil heaps.
  - Any excessively stony topsoil shall be stockpiled separate to the rest.
  - Do not allow construction plant to pass over storage heaps to seal them in order to avoid damaging the soil structure.
  - Prevent compaction and contamination.
  - Cover the heap in black polythene, well weighted down, for example with tyres, to stifle weed growth and keep the heap dry.

421A TOPSOIL HEAP TREATMENT

- Where the topsoil heap is not covered, the Main Contractor is to prevent weed growth and seeding of weeds on topsoil heaps by spraying with a glyphosate herbicide such as Round-Up or other approved herbicide at six weekly intervals during the growing season.
- All herbicides are to be applied in accordance with the manufacturers' recommendations. Refer also to Clause Q28:756.

422A WET TOPSOIL

- If topsoil has been stockpiled when wet (as defined in Clause 220), it shall be cultivated when in a dry state ideally during the early summer period (June to July) to reverse the physical damage done by stripping and stockpiling. Dig over and turn all the topsoil with a 360 excavator or, on compacted soils with a high clay fraction, cultivate dry layers of topsoil with a reciprocating rotary spade prior to spreading to break down the soil clods. Do not move soil until it is friable and suitably dry.
- Repeat the exercise on lower depths of soil which are still wet.
- If necessary, protect the friable cultivated soil with polythene sheeting if wet weather is anticipated prior to respreading.

427A ANAEROBIC TOPSOIL

If topsoil smells anaerobic when spreading commences, spread out topsoil without firming, cultivating or planting, and leave it to re-aerate and lose its sour smell and olive grey colour. This could take several weeks.

432A TEMPORARY FENCING OF TOPSOIL HEAPS

- Where shown on the drawings, protect topsoil heap with either:
  - A 1.2m high strained chestnut pale fence.

  or
  - A Tenax Barrier Warning Fence 1m high, supported by 1.4m metal fencing stakes at 2m centres (Tenax UK Ltd, Tel. 01978 664667). Fence to be orange high density polyethylene.
- Retain in good condition and do not remove from site until immediately prior to spreading topsoil.
- Where the fence is not maintained and topsoil is contaminated with subsoil or other materials, the topsoil is to be discarded and be replaced by imported topsoil.

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.

470A BUILDING MATERIALS

The Main Contractor is responsible for removing impermeable surfaces, building materials and rubbish within planting areas and establishing subsoil depths to allow for topsoiling. All existing hard surfaces are to be fully broken up and removed from site, together with any hardcore, unless otherwise instructed.

FILLING

610A COMPACTED FILL FOR LANDSCAPE AREAS

Fill must not be compacted in areas to be planted or seeded in order to avoid waterlogging and plant/turf failure.

Q28 Topsoil, Growing Media and Ameliorants

To be read with Preliminaries/ General conditions.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

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

310A MATERIALS NOT PERMITTED

- Materials: Peat.
- 'Topsoil' comprising 100% sugar beet washings.

315A IMPORTED TOPSOIL TO BS 3882: 2007

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard: To BS 3882.
- Classification: Sandy clay loam or clay loam.
  - Grade: Multi purpose topsoil .
  - Soil pH: 6.0-8.5
  - Topsoil characteristics: As Table 1 in BS 3882.
  - Screened/blended topsoil from a mixture of sources is unlikely to be acceptable due to its inconsistency and contaminants.
- Source: From an approved source. The source may need to be agreed with the local authority . The classification and characteristics of the soil for each project needs to be consistent.

345B AGGREGATES (PROVISIONAL, IF REQUIRED)

- Grit to improve drainage in heavy clay.
- Source: Contractor to source.
  - Product reference: Washed 2-5mm nominal size grit. Preferably a dark colour .

350B MINERALS (PROVISIONAL, IF REQUIRED)

- Type: Lime to flocculate heavy clay soil.
- Source: Bruce Osborne @ Francis Flower (Tel. 07768 241901) or contact 01749 841146.
  - Product reference: Granulated lime .

365A COMPOSTED MATERIALS

- Type: Spent mushroom compost containing only well rotted manure, chalk and residual mushroom growth for topsoils with a pH of less than 7.8 or well composted pine bark where soil pH is over 7.8.

- Refer to Clause Q31:362 for compost for planting pits.

385A GEL IRRIGATION SYSTEMS, OR SIMILAR, FOR ORNAMENTAL AND SEMI-ORNAMENTAL PLANTING CARRIED OUT BETWEEN MARCH AND OCTOBER
Refer to Q31:334.

390A FERTILISERS TO BE INCORPORATED INTO SOIL/GROWING MEDIA FOR PLANTING
Refer to Q31:335.

405 HERBICIDES
A non-residual, glyphosate herbicide.

EXECUTION

607 SAMPLE LOADS OF PROPOSED IMPORTED TOPSOIL

- Deliver to site a sample load: 1-5m³.
- Give notice: Allow inspection by CA to determine texture and weed content before making further deliveries to site or obtaining a topsoil analysis. If the analysis is successful, retain for comparison with subsequent loads. If unsuccessful, remove soil from site or use as subsoil as directed.
  - Notice period: 2 days.

610B TOPSOIL ANALYSIS

- Soil to be analysed: Proposed imported topsoil.
- Soil analyst: Environmental Scientifics Group Ltd, Burton-upon-Trent, Tel: 01283 554400.
- Samples: 1 sample every 1000m³.
- Notice: Analysts require 4 weeks minimum notice.
- Submit the following for landscape architect's approval:
  - Completed Annex E 'Suppliers declaration of compliance' from BS 3882:2007.
  - A report detailing soil analyst's recommendations confirming the soil's suitability for semi-ornamental and ornamental tree and shrub planting and the nutrients or materials required to be added to ensure it is fit for purpose.

630A DOCUMENTATION FOR IMPORTED TOPSOIL
An analysis may be requested from the Contractor for each load of topsoil to ensure it complies with the sample, if the CA so deems.

645 WET WEATHER OPERATIONS

Stripping, excavating, moving, ripping, digging or spreading subsoil and topsoiling shall not be carried out when the soil is wet or during or immediately following wet weather. Soil is too wet to handle, if machinery moving or cultivating the soil smears the soil rather than shatters it, or if the soil can be rolled into a 5mm diameter sausage without crumbling. The approval of the CA is required before soil movement or working can recommence following wet weather.

650B NOTICE

- Give notice before:
  - Digging over subsoil formations prior to topsoiling.
  - Sample of topsoil to be imported and topsoil analysis.
  - Completion of topsoiling.
  - Cultivation of topsoil, including incorporation of lime, grit and compost as applicable.
  - Excavation of tree pits and roughening prior to topsoiling.
- Period of notice: 2 days.
- Any of the above operations carried out without the CA's approval of the preceding operation shall be repeated at the Contractor's expense if the CA so deems.

655A MECHANICAL TOOLS

- Restrictions: Do not use mechanical tools within root protection areas of retained trees, shrubs or hedgerows.

660A GRADING SUBSOIL

- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Areas of thicker topsoil: Excavate locally.

665A SUBSOIL SURFACE PREPARATION

- General: Excavate and/or place fill to required profiles and levels, as Section D20.
- Loosening:
  - Light and non cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300mm.

  or
  - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 500mm. The purpose is to shatter the subsoil and ensure any compacted layers are below the tree rooting zone. Any large lumps of subsoil are to be tamped down gently with the bucket of a JCB. Where the programme allows, leave rips open to allow the soil to be broken up by frost action. It is the Contractor's responsibility to ensure that the subsoil is completely free-draining and that operators do not damage underground services.

  or
  - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Stones: Immediately before spreading topsoil, remove stones larger than 100mm.
- Remove from site: roots, tufts of grass, turf, builder's materials, surplus concrete and other foreign or contaminated matter .

666 SUBSOIL RIPPING ON BANKS Where gradients are too steep to allow use of conventional tracked/wheeled machinery for ripping, the Contractor shall ensure that ripping is undertaken to the same standard by use of a tine fitted to appropriate plant working from the top and/or bottom of slopes.

667 BREAKING UP SUBSOIL

- In small, inaccessible areas or where services are present, the Contractor shall ensure free -drainage by digging over the subsoil with the bucket of a JCB to 300mm (light soils) or 500mm depth (in clay or other cohesive soils). Carry out in suitable weather conditions (Clause 645).
- Scratching the subsoil with the teeth of a bucket will not suffice.
- Care must be taken not to damage services.
- Any large lumps of subsoil which will protrude into the topsoil are to be lightly tapped down with the JCB bucket.

675A PREPARATION OF UNDISTURBED TOPSOIL

- Prepare areas to receive soft landscaping as necessary, to ensure that the topsoil is in a suitable state for the cultivation operations specified in Sections Q30 and/or Q31. In particular:
  - Where the ground is hard, break up with a ripper, operated in transverse directions, removing any roots, builders materials, rubbish or other foreign or contaminated matter.
  - Where the ground is covered with turf or rough grass/weeds, spray with Round-Up at least two weeks prior to ploughing or cultivation. If grass is very long, cut to 100mm maximum before spraying and remove arisings.

691A SPREADING TOPSOIL

- Temporary roads/surfacing: remove, including hardcore, before spreading topsoil.
- Spread topsoil over prepared subsoil in layers not exceeding 150mm and firm each layer before spreading the next. Do not compact.
- The following overall minimum depths are to be achieved. An allowance has been made for firming, settlement and for soil to fall into subsoil rips (hence the depths are greater than stated in Clause D20:615):
  - 0-25mm for wildflower or marginal wetland grass.
  - 175mm for grass areas (150mm settled depth).
  - 400mm for woodland/understorey planting (300mm settled depth).
  - 575mm for general planting (450mm settled depth).
- Refer to Clause Q31:505 for tree pits.
- Grade to smooth flowing contours. Ensure that embankment slopes are rounded off at the top and bottom.
- Crumb structure. Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

695A TOPSOIL CULTIVATION

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
  - Particle size (maximum): 8mm.
  - Timing: Within a few days before planting.
- Incorporate: compost, grit and lime as required to a depth of 150mm minimum.
  - Weather and ground conditions: Suitably dry.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 100mm.
- Soil within root protection of trees, hedgerows and shrubs to be retained: Do not dig or cultivate.
- For final cultivation and grading and incorporation of Broadleaf P4 and fertilisers refer to Clauses Q31:334 and 335.

720A FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- Above adjoining paving, kerb or manholes: 20mm.
- Below dpc of adjoining buildings: Not less than 150mm.
- Shrub areas: Higher than adjoining grass areas by 20mm.
- Within root spread of existing trees: Unchanged.
- Thickness of turf or mulch: Not included.
- Thoroughly married-in with adjoining soil areas, with no buried plants or increased soil level beneath plants where an existing landscape scheme adjoins a new one.
- If topsoil is left for any time prior to cultivation and weed growth occurs, apply herbicide in accordance with Clause 756.

756 HERBICIDE

- Apply herbicide to all weed growth on subsoil or topsoil formations of all areas to be planted/grassed and allow the period of time recommended by the manufacturer to elapse before ripping, topsoiling or cultivating. It is the Contractor's responsibility to select a herbicide which is suitable for its purpose. He shall notify the Landscape Architect of the herbicide he intends to use, the location in which it is to be applied, and the proposed dose rate.
- The Contractor must use a certified operator, take appropriate safety precautions and comply with the Control of Pesticides (Amended) Regulations 1997, the conditions of approval for the chemical, the manufacturers' label recommendations and any relevant Code of Practice issued by MAFF.
- The Contractor must dispose of unwanted containers and chemicals, including unused dilute tank mixtures, in a safe way, in accordance with the methods approved by the Control of Pesticides Regulations, unless prior arrangements have been made.
- The Contractor must use an accurate sprayer (where sprayer is required), calibrated for the correct height off the ground and for the correct walking or riding speed appropriate to the site conditions. All reasonable effort must be taken to avoid spray drift. Chemicals must not be applied during unsuitable weather conditions.
- The operator must calculate the intended area to be sprayed and mix up the appropriate amount of chemical to minimise waste. Any excess dilute chemical must not be dumped on-site.
- The operator must constantly check for and correct nozzle faults.
- Unintentional spray overlap must be avoided. Spraying must stop whilst turning. The Contractor must mark the point where spraying has stopped for refilling or for breaks.
- Herbicide must never drift, fall or run-off onto open water or onto adjacent sites, gardens or ground not intended for treatment. Residual herbicides must not be used on porous paving areas or near water.
- The Contractor must keep full and accurate records of all herbicides used, the areas in question, the amounts, and the date of application.
- Where work is near water, drainage ditches or land drains, comply with the Guidelines for the use of Herbicides on Weeds in or near Water Courses and Lakes (Defra, 1995).
- Observe all precautions recommended by the manufacturer for storage, handling and applications of fertilisers and herbicides. Remove containers from site immediately when they have been emptied or are no longer required.

COMPLETION

916 SETTLEMENT

- Where, in the opinion of the CA, excessive subsoil, topsoil or Tree Soil settlement has occurred and planting has not taken place, the Contractor will be required to top-up with topsoil/Tree Soil.
- If settlement occurs prior to Final Completion, the CA will require plants to be lifted, additional topsoil spread, followed by replanting and remulching.

Q30 Seeding/Turfing

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/REQUIREMENTS

120A CLIMATIC CONDITIONS

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

- Carry out seeding between mid April-mid May or early September-mid October.
- Carry out wildflower seeding between March-May or in August-September.
- Lay turf during autumn or early winter or at times agreed with the CA.
- Do not sow seed or lay turf when persistent, cold, drying winds or frosts are likely to occur or when soil is frost-bound, waterlogged or excessively dry. Failure of the seed to germinate and give a satisfactory cover will be made good at the Contractor's expense.

130A MACHINE AND TOOLS

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.

140A WATER

Water will be provided by the Main Contractor up to Practical Completion of the main Contract works and/or thereafter by the Employer, in each case subject to availability of supply. It is the Landscape Sub-contractor's responsibility to check the locations of watering points.

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.

160A NOTICE

- Give notice before:
  - Setting out.
  - Applying herbicide.
  - Applying fertiliser.
  - Seeding or turfing.
  - Visiting site during maintenance period.
- Period of notice: 2 days.

170A SETTING OUT

Clearly mark boundaries of seeding/turfing areas and obtain approval before starting work. Adjust setting out if manhole covers appear to be half in grass and half in planting. Include covers wholly in planting if possible; if not, they should be entirely in grass.

190A SUITABILITY OF TOPSOIL

- Before commencing work, the Sub-contractor must confirm to the Main Contractor that the topsoil, after the specified preparation, will be suitable for seeding/turfing.
- Seeding/turfing will be taken as further acceptance by the Main Contractor and the Sub-contractor of the suitability of topsoil.

PREPARATION

210B HERBICIDE TO CREATE A CLEAN SEED/TURF BED

- Allow a 2-3 month fallow period prior to cultivation, whenever possible.
- Cut down and remove weeds over 100mm high.
- Apply a suitable herbicide to perennial weeds and allow period of time to elapse as recommended by manufacturer before cultivation.

212A SEED BED CLEANING BEFORE SOWING WILDFLOWERS

- Remove perennial weeds and woody plants using suitable herbicides and machinery.
- Strip topsoil as Clause D20:220. Establish finished soil levels with subsoil and no topsoil, except on extremely impoverished substrate where 25mm topsoil shall be spread (accepting that the distribution will be patchy).
- Spread subsoil, plough/harrow/rotovate or create final levels in weather conditions set out in Clause D20:212.
- If a subsoil substrate is not heavily compacted, remove existing weeds and cultivate by ploughing to a depth of 200mm. If soil is heavily compacted, cultivate with a chisel plough.
- Repeat ploughing or herbicide application to remove weeds at 4-6 week intervals prior to seeding.
- Break soil down soil to a medium tilth with a tractor mounted disc, tined cultivator or harrow. In small areas, use a rotovator.

222A SOIL AMELIORANT/CONDITIONER: SAND

- Type: Coarse grained washed river sand with neutral pH.
- Samples: To CA's approval.
- Application rate: 50mm depth.
- Timing: Apply prior to cultivation, integrate thoroughly into top 150mm topsoil.

250B CULTIVATION

- Compacted topsoil: Break up to full depth.
- Tilth: Reduce topsoil to a tilth suitable for blade grading.
  - Depth: 100mm.
  - Particle size (maximum): 10mm.
- Material brought to the surface: Remove stones and clay balls larger than 50mm in any dimension, roots, tufts of grass, rubbish and debris.

260A GRADING

- When topsoil is reasonably dry and workable, grade to smooth, flowing contours, with falls for adequate drainage, removing all minor hollows and ridges.
- Maximum gradient to be 1:3 to permit mowing without specialist equipment.
- Ensure that embankment slopes are rounded off at the top and bottom.
- Topsoil levels may be adjusted by blade grading, ensuring that there is nowhere less than 175mm of topsoil (prior to settlement).

280A FINAL CULTIVATION

- Timing: After grading and fertilising.
- Seed bed: Reduce to fine, firm tilth with good crumb structure.
  - Depth: 25mm.
  - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
  - Remove surface stones/earth clods exceeding:
    - General areas: 20mm.
    - Fine lawn areas: 10mm.
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

SEEDING

310B GRASS SEED FOR MOWN AMENITY GRASS AREAS

- Mixture: A22 (Low Maintenance).
- Supplier and reference: Germinal Seeds, or similar and equivalent approved.
- Rate of application: 50g/m².
- Increase rate of application by 50% for slopes exceeding 1:3 (30 degrees).

312B WILDFLOWER MEADOW GRASS SEED

- Mixture: EM10 Seed Mix.
- Supplier and reference: Emorsgate, or similar and equivalent approved.
- Rate of application: 4g/m².
- Increase rate of application by 50% for slopes exceeding 1:3 (30 degrees).

313A MARGINAL WETLAND GRASS SEED

- Mixture: EP1.
- Supplier: Emorsgate, or similar and equivalent approved.
- Rate of application: 4g/m².
- Increase rate of application by 50% for slopes exceeding 1:3 (30 degrees).

319A QUALITY OF SEED

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

330 SOWING

- General: Establish good seed contact with the root zone.
- Method: Broadcast by hand or machine.
  - Distribution: Spread evenly at the specified rate(s) in 2 equal sowings in transverse directions.

335A WILDFLOWER SEEDING

- Thoroughly mix seed with fine lime-free, dry sand and spread evenly at the specified rate (s), applied in two equal sowings in transverse directions.
- Lightly harrow or rake in with a spring tined rake.

TURFING

400A CULTIVATED TURF FOR FRONT GARDENS

- Supplier: Rowlawn (Tel. 0845 6046050) or Inturf (Tel. 01759 521000).
  - Product reference: Rowlawn Medallion Turf or Inturf Classic, or similar and equivalent approved.

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.

423C SAMPLE TURF

Make arrangements for CA to inspect turf sample for turf areas and obtain approval before delivery.

429A DRESSING FOR TURF

- Type: 50% topsoil and 50% sand (Clause Q30:222) thoroughly mixed.
- Application rate: Sufficient to fill any open joints in turf or hollows in turf bed.

430C TURFING GENERALLY

- Timing of laying:
  - Spring and summer: Within 18 hours of delivery.
  - Autumn and winter: Within 24 hours of delivery.
- Weather conditions: Do not lay turf when persistent cold or drying winds are likely to occur or soil is frost bound, waterlogged or excessively dry.
- Working access: Planks laid on previously laid turf. Do not walk on prepared bed or newly laid turf.
- Jointing: Laid with broken joints, well butted up. Do not stretch turf.
- Edges: Whole turfs, trimmed to a true line.
- Adjusting levels: Remove high spots and fill hollows with fine soil.
- Consolidating: Lightly and evenly firm as laying proceeds to ensure full contact with substrate. Do not use rollers.
- Dressing, brushed well in to completely fill all joints.
- Watering: Thoroughly water completed turf immediately after laying. Check that water has penetrated into the soil below.

440B TURFING ON BANKS EXCEEDING 30° SLOPE

- Lay turves diagonally or horizontally and secure with:
- Biodegradable 15cm turf ties; or:
  - Pointed softwood pegs, 200mm long x 25mm square; or
  - Galvanised wire pins, bent or hairpin pattern, 200mm long x 4mm diameter.
- Remove all pegs or pins when turf is well established.

450B TRIMMING TURF

- Newly planted trees: Neatly cut away in a circle around individual trees, with a diameter of 1m:
- Existing trees: neatly cut away in a circle around individual trees.
  - Juvenile specimens: 0.5m from the trunk.
  - Semi-mature or mature specimens: 1m from the trunk.

PROTECTING/CUTTING

510A PROTECTIVE FENCING

Protect newly seeded/turfed areas with metal posts (e.g. reinforcement rods or pins) connected by one strand of wire with orange plastic tags approximately 1m above ground level, or a chestnut pale fence (see Clause D20:185), where damage could be caused by others. Maintain fencing until grass is well established, then remove and reinstate the ground. Make good any damage to grass. The fencing will remain the property of the Contractor.

520A WATERING

- During establishment of grass areas, ensure that sufficient water is applied using a fine sprinkler or oscillating spray to maintain healthy growth.
- In drought periods, watering shall be at least once per week.
- The Contractor will be responsible for assessing the requirements for and carrying out watering without any specific instructions from the CA. The Contractor should give the CA 48 hours written notice of his intention to water. Carry out using a fine rose or sprinkler until full depth of topsoil is saturated to field capacity.

521A MAINTENANCE PRIOR TO PRACTICAL COMPLETION

The Contractor will be responsible for carrying out maintenance operations in accordance with the specification between completion of any areas of grass seeding and the issue of a Practical Completion Certificate.

522A REMOVAL OF WEEDS

- If the seedbed has annual or perennial weeds over 150mm prior to the first cut, the weeds are to be dug out or strimmed and removed. If part or all of the seedbed comprises over 10% perennial weeds, it will be rejected.
- It shall be sprayed with a herbicide, recultivated and reseeded.
- Alternatively, the Contractor could use a selective herbicide, such as Spearhead from Rhone Poulenc, eight weeks after seed germination.

540B FIRST CUT OF MOWN AMENITY GRASS

- When grass is approximately 100mm high, remove debris, litter and all stones and clay balls larger than 20mm in any dimension.
- About 48 hours later, cut with a rotoscythe to approximately 50mm high. Remove and dispose of all arisings.

541B FIRST CUT OF WILDFLOWER MEADOW AND MARGINAL WETLAND AREAS

- In March/April following autumn sowing, cut to 50-75mm when sward reaches 100mm. Collect and remove arisings.
- Following spring sowing, carry out the first cut six weeks after sowing. Cut to 50-75mm when sward reaches 100mm, and collect and remove all arisings.

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.

591A FAILURES OF SEEDING/TURFING BEFORE PRACTICAL COMPLETION

Bare areas, areas of dead grass and shrinkage below finished approved levels which become apparent before Practical completion or six weeks after the first cut, whichever is later, will be regarded as defects due to materials or workmanship not in accordance with the Contract. They must be made good by recultivation and reseeding/turfing.

MAINTENANCE

605A MAINTENANCE

Carry out the following operations from completion of seeding/turfing until Final Completion or as instructed by the CA.

610A FAILURES OF SEEDING/TURFING

Bare areas, areas of dead grass and wildflowers that have failed to thrive, which are apparent during the period stated in Clause 605, will be regarded as defects due to materials or workmanship not in accordance with the Contract, and must be made good by recultivation and reseeding/returfing at times agreed with the CA.

620B MOWN AMENITY GRASS MAINTENANCE

Prior to practical completion and throughout the Defects Liability Period, carry out maintenance of the grass areas as follows:

- Before each cut, remove all litter and debris.
- Progressively reduce the height of the grass sward over a number of weeks.
- The height of growth must not exceed 100mm at any time. Cut as and when necessary to a height of 30mm and remove all arisings. Allow for a minimum of 15No. fortnightly cuts, except in dry periods when cutting heights are to be increased or cutting ceased.
- Areas of settlement: make good.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Remove weeds, as set out in Clause 691.
- Ensure that sufficient water is applied to maintain healthy growth.
- Stones brought to the surface: Remove regularly.
  - Size: exceeding 25mm in any dimension.

650B WILDFLOWER MEADOW AND MARGINAL WETLAND GRASS

- In the first year after seeding, cut wildflower areas to 50-75mm when sward is 150mm. First cut to be in March, last cut in October. Arisings must be collected and removed from site. The number of cuts will be dependent upon soil fertility and weather conditions, therefore a provisional sum shall be allowed for 7No. visits. This sum is to be expended as required upon instruction from CA. Control pernicious weeds as follows:
  - Spot treat docks with Round-Up in May.
  - Cut sward in June to suppress common nettle and thistle.
  - Pull out ragwort when flowering.

690A EDGES TO SEEDED AREAS

- When seeded areas are well established, form edges to planting beds and around newly planted trees with a suitable edging tool, to clean straight lines or smooth curves, as shown on the planting plans. Draw back soil from edges to permit use of edging shears and remove all arisings.
- Firm edges as necessary, infill hollows or gaps with topsoil and overseed.
- Trim edges at the time of each grass cut to prevent grass invading planting or overhanging hard surfaces, including around the base of trees, manhole covers etc.

691B WEEDS

- Any weeds or moss in grass areas are to be treated in appropriate weather conditions with a selective herbicide or moss killer. Repeat applications through the summer as necessary, and during appropriate weather, to remove weed growth. Do not apply to bulb areas until bulbs have died down.
- Carry out a suitable length of time after new seeding has taken place or three weeks after the March fertiliser application where grass is established (refer also to Clause 522).
- All herbicides are to be used in accordance with the manufacturer's recommendations. The Contractor shall note that special care is to be taken to avoid drifting spray adjacent to the ponds.
- Avoid contact or drift into any adjacent wildflower areas.

The objective is to achieve mown grass areas 75% free of broadleaf weeds and moss.

693B WATERING

- In drought or prolonged dry periods, watering shall be at least once per week. The Contractor will be responsible for assessing the requirements for and carrying out watering without any specific instructions from the CA. The Contractor is to give the CA 48 hours written notice of his intention to water. Carry out using a fine rose or sprinkler until full depth of topsoil is saturated to field capacity.
- Failure to carry out watering may result in the Landscape Architect recommending to the Client that another Contractor is brought in to carry this out - the cost of which would be deducted from the Contract sum.

694A TREES IN GRASS

Maintain in circular grass and weed-free area, as set out in Clause 450.

695A LEAVES

All fallen leaves are to be removed from grass and paving areas in November/December.

696A WHEEL RUTS

The Contractor is to allow for and carry out reinstatement to wheel ruts within grass areas. These areas are to be decompacted, infilled with topsoil and reseeded/returfed to marry in with adjacent soil areas.

698A TURF

All shrinkage of turf is to be made good with additional topdressing, as Clause 430.

700A HEAVY SHADE

In heavily shaded areas beneath mature trees, maintain as clear bare ground, do not overseed/returf unless tree canopy is sufficiently high to allow grass to germinate and flourish.

701A CLEANLINESS

Remove grass cuttings and soil from all hard surfaces, and leave the works in a clean tidy condition following each grass cutting visit.

Q31 External Planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

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. Do not plant during periods of frost or strong winds.

125B TIMES OF YEAR FOR PLANTING

- Deciduous trees and shrubs: Late November to mid March.
- Herbaceous plants: September/October or March/April.
- Container grown plants: At any time if ground and weather conditions are favourable. Ensure that adequate watering and weed control is provided.

130A MECHANICAL TOOLS

- 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.
- Do not use a rotovator within the root protection areas of trees to be retained.

141 WATER

Water will be provided by the Main Contractor up to Practical Completion of the main Contract works, and thereafter by the Employer, in each case subject to availability of supply. The Landscape Contractor is responsible for checking the location of water supplies.

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.

160A NOTICE

- Give notice before:
  - Setting out.
  - Applying herbicide.
  - Delivery of plants.
  - Tree pits prior to backfilling.
  - Planting.
  - Watering.
  - Visiting site during maintenance period.
- Period of notice: 2 days.
- Any of the operations carried out without the CA's approval of the preceding operation shall be repeated at the Contractor's expense, if the CA so deems.

165A PREPARATION, PLANTING AND MULCHING MATERIALS

- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Mulch must not be a fire hazard.

200B 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, discolouration, weeds and physiological disorders, including vine weevils, phytophera, anthracnose and willow scab.
- Budded or grafted plants: Bottom worked.
- Root system and condition: To requirements of the National Plant Specifications and balanced with branch system.
- Name, forms, dimensions and other criteria: To the relevant part of BS 3936.
- Species: True to name.
- Origin/ Provenance: British grown.
  - Origin and Provenance have the meaning given in the National Plant Specification.

201 TREE LEADERS

Trees must have well defined leaders (subject to species). The removal of leaders to encourage bushy crowns must take place at least two years prior to delivery to site. There shall be no evidence of stumps where the original leader was cut out, and no tape where the new leader was trained in.

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.

245A 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.
- When requested by the CA, provide a certificate that plants comply with the specification.
- Ensure that if, for example, different varieties of roses or lavenders are supplied, all plants are to be labelled to prevent them being muddled.

260A PLANT/TREE SUBSTITUTION

To ensure fair tendering, the tender must be based on plants species and sizes in the schedule. No substitutions are to be made at this stage.

265A PLANT HANDLING, STORAGE, TRANSPORT AND PLANTING

- Standard: To HTA 'Handling and establishing landscape plants'.
- Frost: Protect plants/trees from frost.
- Handling: Handle plants/trees with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: black polyethylene bags or plastic plant pots.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.

266 STORAGE

Plants which are not to be planted on the day of delivery to site are to be stored as follows or by other approved methods:

- In a sheltered shaded location, protected from extremes of temperature.
- Root-balled plants: Plant close together and cover root-balls with lime-free coarse sand.
- Bare-rooted plants: Those not in protective bags are to be heeled-in in prepared trenches, with bundles opened and the plants spaced separately. Cover with soil, not mushroom compost, firm in well. Heel-in at an angle of between 20 and 30 degrees, with their crowns facing south. Plants in protective bags that are likely to remain in store for more than four days are to be removed and treated as above.
- Water all stored plants immediately. Irrigation to continue during storage, as necessary On no account are bare-root or container grown plants to be allowed to dry out.

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.

285A 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

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

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

300B HERBICIDE

- General: Prevent weeds from seeding and perennial weeds from becoming established, by applying a suitable herbicide and delay planting for a period recommended by manufacturer (refer to Clauses Q28:405 and 756).

334A BURIED GEL IRRIGATION SYSTEM FOR PLANTS PLANTED BETWEEN MARCH AND SEPTEMBER (PROVISIONAL, IF REQUIRED)

- Manufacturer: Agricultural Polymers International Ltd (Tel. 01452 521733).
  - Product reference: Broadleaf P4 .
- Depth: To maintain contact with root ball.
- Rate: 100gms/sq m. Fork in as necessary to 150mm depth, do not leave on the surface.
- Surface: Once hydrated, dig in excess gel left on soil surface .

335B GENERAL FERTILISER

- Locations: All shrub planting areas.
- Supplier: Amenity Land Solutions Ltd (Tel. 01202 593601).
  - Product reference: Scotts Sierrablen Flora yellow granular fertiliser 15N:9P:9K:3MgO .
- Application: Spread evenly.
  - Timing: Immediately before cultivation. Rotovate into top 150mm of topsoil. Do not leave on the surface.
  - Coverage: 35g/sq m , or as set out in Clause 586 for tree pits.

341 PEAT

- Peat or products containing peat: Do not use.

362 COMPOST FOR TREE PITS

- Manufacturer: Amenity Land Solutions Ltd (Tel. 01952 641949).
  - Product Reference: Premier Tree and Shrub Planting Compost

  or
- Manufacturer: ECO Sustainable Solutions Ltd (Tel. 01202 593601).
  - Product Reference: ECO Tree and Shrub Compost.

  or
- Similar approved peat-free compost based or organic green waste, composted wood waste or spent mushroom compost.

375A CULTIVATION

- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2-8mm.
  - Depth: Top 150mm.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: As required in Sections D20 and Q28.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 50mm, builder's materials and rubbish.
- Soil within root spread of trees and shrubs to be retained: Carefully dig over by hand without damaging roots. Do not use a rotovator.
- Incorporate: Mushroom compost, fertiliser and Broadleaf P4 during cultivation.

376 CULTIVATION

Where slopes for general planting exceed 1:2.5, all cultivation should be carried out by hand to achieve a minimum 50mm deep tilth suitable for raking to finished grades (particle sizes up to 15mm will be permitted). Remove from site undesirable material, as Clause 375 above. It is the Contractor's responsibility to assess the methods to be most suitably employed to achieve the specific result.

378 FINAL GRADING

- When topsoil is reasonably dry and workable, grade to smooth, flowing contours, with falls for adequate drainage, removing all minor hollows and ridges.
- Ensure that embankment slopes are rounded off at the top and bottom, and that there are 300mm wide flat areas behind kerbs to conceal concrete haunching.

379 FINISHED LEVELS OF TOPSOIL

- After settlement, unless otherwise stated, to be:
  - 50mm above adjoining paving, kerbs or manholes etc.
  - Not less than 150mm below dpc of adjoining buildings.
  - Married-in with adjoining soil areas.
  - 30mm higher for shrub areas and adjoining grass areas.

396 SETTING OUT

- The Contractor shall allow for temporary setting out of all shrubs, trees and other plant material, and repositioning them as necessary to the entire satisfaction of the CA. The CA reserves the right to make any alterations he thinks fit.
- No edge plants with an ultimate spread over 500mm are to be planted within 500mm of the back edge of kerbs, to minimise pruning and car bumper damage.
- Ensure plants are positioned at even centres. This is particularly important for plants with a hemispherical form such as Hebe.

398 INSPECTION FOLLOWING PLANTING

The CA may request the lifting of any plant to inspect that the size of planting pits and planting methods comply with this specification.

PLANTING SHRUBS/CLIMBERS AND HEDGEROWS

417 MYCORRHIZAL INOCULANT

- Manufacturer: Amenity Land Solutions Ltd - Tel: 01952 641949.
  - Product reference: Roots 'Root dip' gel.
- Application: Apply to roots of bare root plants before planting and backfilling, as scheduled.

420B CLIMBING PLANTS

- Planting holes for climbers to be 300mm wider than root spread and 500mm deep. Soil level around Clematis to be 75-100mm above the original soil mark.
- Plant 150mm clear of wall with roots spread outward. Lightly secure branches to supports. Remove canes.
- Continue to train climbers onto supports throughout the maintenance period.
- Climbing plants which are to be trained into trees shall be planted on the north side of the tree.
- Climbers used as ground cover are to have their canes removed, e.g. Hedera species.

422A CLIMBER SUPPORTS

- Retain canes and lean at an angle against the wall to encourage plants to cling.
- Twiners , e.g. Lonicera: Fix vertical wires at 300c's. Train plants into contact with support.
- Tendrils and clasping leaves , e.g. Clematis: Fix horizontal climber wires at 300c's, starting above the ground. Using a finer wire, create a vertical framework by looping around the horizontal wires. At the top and bottom, fix by twining around the thicker horizontal wires Vertical wires to be at 250c's.
- Hooking ramblers , e.g. Rosa spp: If grown on a framework, tie in or train by fixing lead headed wall nails and tie in.

470B MONOCULTURE HEDGEROWS

- Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.
- Planting: In trenches large enough to take full spread of roots. Set out plants evenly.
- Backfill: with topsoil, ameliorants, fertiliser and Broadleaf P4.

475B PLANTING

- Excavate pits on the day of planting.
- Remove any non-perishable containers and prune any badly damaged roots.
- Containerised plants to have approximately one tenth of their roots carefully teased out of the rootball and spread out before planting.
- Sizes: 150mm wider than root spread and 400mm deep or 150mm deeper than roots for large stock.
- Bottom of holes to be broken up to ensure they are free-draining. Plant upright or well balanced, with best side to the front. Carefully return excavated topsoil, packing around evenly spread roots or rootball and heel well in.
- Finished level to be at original soil mark on shrubs, hedging plants and climbers; the exception is Clematis - refer to Clause Q31:420.

476B SHRUBS WITHIN WOODLAND AND UNDERSTORY PLANTING

Dip bare-root whips and transplants in mycorrhizal inoculant in accordance with manufacturer's recommendations (refer to Clause 417). Plant in accordance with Clauses Q31:505 and 586. Bottom of planting holes to be well broken up to 150mm, to ensure they are free-draining.

477A CONTAINER GROWN CLIMBERS AND SHRUBS PLANTED AFTER MID-MARCH (PROVISIONAL IF REQUIRED)

- Backfill in accordance with Clauses 420 and 475.
- Immediately after planting, irrigate to field capacity.
- Mulch in accordance with Clause 485. Irrigation is to continue at least three times a week for three weeks, and thereafter in accordance with Clause 765.

478 PRUNING

- Immediately after planting shrubs, carefully cut back any broken, or damaged branches, leaving a clean wound with no snags.
- Cut back native whips as set out in the plant schedule to encourage bushy growth.

480A AFTER PLANTING

- Water plants thoroughly immediately after planting, using a fine rose or sprinkler where necessary to avoid damaging plants.
- Lightly firm soil around plants when soil is workable. Fork and/or rake soil, without damaging roots, to a fine tilth with approved gentle cambers and no hollows. This is to be carried out prior to mulching.

485A MULCHING PLANTING BEDS

- After watering, spread a 75mm layer of woodbark mulch over the whole planting area. Pull back slightly from herbaceous plants to prevent them being smothered.
- Mulch to be graded softwood bark flakes. Nominal particle size (as measured using BS sieving techniques) shall be 5-75mm, with approximately 75% falling between 10mm and 50mm, and no more than 15% below 10mm.
- Material consisting largely of long thin particles will not be accepted.
- The bark shall have been removed from parent timber and matured for a minimum of four months prior to application as mulch. It shall be free of methyl bromide. Combined timber/sawdust/shaving content shall be no more than 5%. The pH shall be between 4 and 7. Available manganese shall be no greater than 35ppm. It shall be free-flowing, pest, disease and weed-free.
- A one litre sample of the mulch must be submitted for the CA's approval at time of tender.

PLANTING TREES

505C TREE PITS

Excavate to the following minimum dimensions:

- Bush, whip/transplants up to 900mm and Ilex species: Pit plant as shrubs.
- 1.2-1.5m feathers and back garden trees: Diameter 600mm; depth 450mm.
- Street trees: Achieve a minimum of 5m³ where space allows within the planting area, avoiding extending into hard surfaced areas.
- Trees within open space areas: Diameter 1200mm; depth 750mm.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Pit bottoms: With slightly raised centre. Break up to a depth of 150mm.
- Pit sides: Scarify without undermining kerbs.
- Backfilling material: See Clause 586. Remove surplus subsoil from site.
- Accessories: For root barriers, see Section D20.

508A WATERING SYSTEM FOR STREET TREES

- Supply and install watering system to the trees shown in the plant schedule.
- Product: Greenleaf Root Rain Civic, length 3m or larger to suit size of rootball.
- Supplier: Amenity Land Solutions Ltd.
- Install: In accordance with manufacturer's recommendations. Allow only top of inlet pipe and cap to be visible when backfilling is complete.

535A STAKING GENERALLY

- Stakes: Softwood, peeled chestnut, larch or oak, free from projections and large or edge knots and with pointed lower end.
- Nails: To BS 1202: Part 1, galvanised, minimum 25mm long and with 10mm diameter heads.

555C SHORT SINGLE STAKING FOR SELECTED STANDARDS

- Staking: Position stake close to tree on windward side and drive vertically at least 300mm into bottom of pit before planting.
  - Backfilling: Consolidate material around stake.
- Diameter and height of stakes: 75mm diameter. Cut to approximately 600mm above ground level.
- Ties: 1No.
- Tying: Secure tree firmly, but not rigidly, to stake within 25mm of top of stake.

575B SHORT DOUBLE STAKING FOR STREET TREES AND EXTRA HEAVY STANDARD TREES IN OPEN SPACE AREAS

- Staking: Drive stakes vertically at least 300mm into bottom of pit on either side of tree position before planting.
  - Backfilling: Consolidate material around stakes.
- Diameter and height of stakes: 100mm diameter. Cut to approximately 600mm above ground level.
  - Firmly fix on windward side of tree and as close as possible to stem.
- Ties: 1No. minimum.

576 TREE TIES

- Black rubber or plastic webbing with spacer/buffer to prevent abrasion.
- Types to be approved.
- Tree ties must be adjustable and fixed horizontally not at an angle.
- All methods of tying must be approved by the CA.
- No timber crossbars are to be used.
- Double staking spacer to be SP2A long spacers, 37mm wide and cut to suit from Amenity Land Solutions Ltd (Tel. 01952 641949).

578 DAMAGED STAKES

Replace any stakes which are split. Remove any snags and burrs which will cause chafing to the trees.

586C BACKFILLING MATERIAL

- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required.
- Ameliorant/Conditioner: Compost as Clause 362 - rates as below.
- Fertiliser: Sierrablen Flora as Clause 335 - rates as below.

- Extra-heavy standards or street trees: fertiliser 150gms; compost 40L, or sufficient to backfill 5m³ for street tree pits.
- Selected standards: fertiliser 105gms; compost 40L.
- Light standard trees and feathered trees, including back garden trees: fertiliser 60gms; compost 20L.
- Bare root whips and transplants: fertiliser 35gms/sqm; no compost.

- All compost to be moist prior to mixing with topsoil. Thoroughly mix topsoil and compost before planting. No compost to be added to tree pits containing 'Tree Soil'.
- Plant trees upright, unless otherwise instructed, in centre of pit and at original soil depth.
- Cut back any broken or damaged roots to sound growth.
- Place backfilling material in 150-250mm layers and firm to eliminate air pockets.
- Carefully tease away from the rootballs any spiralling roots.
- Heel in firmly around root collar.
- Irrigate thoroughly as required.

587A CONTAINER GROWN TREES, PLANTED AFTER MID-MARCH (PROVISIONAL, IF REQUIRED)

- Incorporate into planting pit ingredients as stated in Clause 586. All ingredients to be well mixed before planting.
- Immediately after planting, irrigate to field capacity all planted areas.
- Mulch in accordance with Clause 485.
- Irrigation is to continue at least three times a week for three weeks, and thereafter in accordance with Clause 765.

590A MULCHING TREES

- Irrigate thoroughly prior to mulching.
- Mulch as Clause 485. Spread over the whole pit. Do not mulch trees in tree grilles.

594 PRUNING TREES

- Immediately after planting trees, carefully cut back to between 5mm and 10mm of a live branch or trunk any dead, damaged or diseased branches, weak, thin, malformed, crossing or rubbing branches, reversion shoots or suckers; leaving a clean wound with no snags.
- Trees with broken leaders are to be replaced by the Contractor.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710A MAINTENANCE

- Duration: Carry out the operations in the following clauses from completion of planting until Final Completion.

720B 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 practical 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: within 6 weeks of Practical Completion inspection .
- Any trees or plants which are the incorrect species or variety, but not identifiable as such at Practical Completion, must subsequently be replaced by the Contractor, e.g. Rosa rugosa 'Alba' planted instead of Rosa rugosa 'Rubra'.
- All snagging items must be thoroughly checked on site by the Contractor upon their completion, prior to the inspection by the CA. If it is evident that this has not been done, the CA's inspection will be aborted until the Contractor has checked and rectified all the items.

721 DEFECTS LIABILITY PERIOD

- Any trees, shrubs, or plants which are dead, dying or, in the CA's opinion, defective at final completion, shall be replaced by approved equivalent trees, shrubs or plants unless otherwise instructed.
- This will not apply if the defects have arisen through malicious damage or theft.
- The Final Completion Certificate will not be issued until all defects have been remedied to the CA's satisfaction.
- Where the Final Completion date is between 15 March and 15 November, the Contractor must allow for replacing defective plants with container grown stock.
- If defects are not remedied prior to the Final Completion date, the Contractor will be responsible for continuing maintenance of the whole site at his own cost until defects are remedied.
- All snagging items must be thoroughly checked on site by the Contractor upon their completion, prior to the inspection by the CA. If it is evident that this has not been done, the CA's inspection will be aborted until the Contractor has checked and rectified all the items.

723 VANDALISM

- When plant material/fencing/hard landscaping is damaged or removed as a result of vandalism or malicious damage following Practical Completion, the Contractor shall inform the CA within 14 days of the vandalism occurring, stating the location, the extent of reinstatement works needed and replacement plants required.
- Failure to notify the CA within 14 days of the occurrence will be deemed to imply that no vandalism has taken place.

724 REMOVAL OF DEAD, DYING AND DEFECTIVE PLANTING

- The Contractor will be required to remove all dead, dying and defective planting, including those not true to the specified type, during the course of the summer and, in any case, prior to the end of September of each year's maintenance.
- This must be carried out prior to commencing any replacement planting. Failure to do this may delay Final Completion until such time as the CA is satisfied that all defects have been made good.If the Contractor and Landscape Architect disagree regarding species being true to type, the Contractor shall obtain, at his cost, independent advice/confirmation from a horticulturist.

725 SNAGGING LIST

- The Contractor shall note that the issue of snagging lists by the CA during the defects period is a guide only and does not relieve the Contractor of his full responsibility to make his own assessment and replace all dead, dying or defective plants up to the end of the maintenance period.
- All defects must be made good prior to Final Completion.

733A TREE SHELTERS FOR UNDERSTOREY AND WOODLAND PLANTING

- Material: recycled HDPE & LDPE. Photodegradable. Green.
- Product: Shelterguards and Shelterguard Plus.
- Manufacturer: Acorn Planting Products Ltd, Norwich (Tel. 01508 528763). Fix to plants shown in the schedule.
- Sizes to be:
  Roe Deer protection : Height: 1.2m, Diameter: 130-160mm or 150-180mm, 1 stake and 2 ties prefitted.

- Support with timber stakes, 25 x 25mm in section pointed at one end and driven firmly into the ground. Stake to be 50-100mm below the top of the shelter and positioned on the outside of it.
- Fix ties.
- Shelters over 1.2m to be supported by 32 x 32mm minimum stakes and those 1.8m to be 75 x 75mm, both with sufficient length to anchor below ground.
- Shelters over 150mm diameter to have two stakes.

734A NETTING GUARDS FOR HOLLY

- Tree guards to be formed from high density polyethylene black mesh rolls from Amenity Land Solutions Ltd (Tel. 01952 641949). Available in 50m rolls, 1.2m wide.
- Cut lengths required from the roll to form tubes which are 300mm in diameter.
- Fix and support as follows:
  - Provide 25 x 25mm diameter softwood stakes pointed at one end, with sufficient length to anchor below ground. 250mm minimum of stake to be below ground. Attach netlon with wire rings or staples. Attach to stake at 150mm centres.
  - Fix to all plants indicated in the schedule. Plant to be located in the centre of the guard. Netting guard stakes are not to double-up as tree stakes. Push base of the netting 50mm into the soil. Top of the stake to be 50-100mm below the top of the netting.

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.

749 MAINTENANCE

- Maintain plants and planting areas (including temporary protective fencing) in good condition until the end of the defects liability period.
- The Contractor shall provide the client with a maintenance programme at Practical Completion.

752 WEEDING AND CULTIVATION

- Keep all planted areas completely clear of weeds at all times by hand weeding.
- Use herbicide only where weeds are less than 75mm in height or spread. Remove resulting dead weeds.
- Dig up, rather than hoe off, the tops of perennial weeds. Remove all herbicide treated, dead or discarded vegetation from site.
- Maintain bare ground beneath all areas of matrix planting, and hedge planting.
- Ensure that all weeds among the paving slabs, paviors, pebbles, gravel and along kerbs are removed by hand or suitable herbicides.
- Allow 8No. visits a year for weeds in hard surfaces (one visit per month through the growing season).

760A PLANTING MAINTENANCE - PRUNING

- Prune plants at the appropriate time to remove dead, dying and diseased wood to promote healthy growth and a natural shape. Carry out at the start of the growing season.
- Do not trim around each individual plant. The objective is to allow plants in each species group to mesh together and exclude weed growth. Bare ground should not be visible.
- Prune in accordance with good horticultural practice. Prune larger branches and woody stems in accordance with good arboricultural practice.
- Use clean, sharp secateurs, hand saws or other tools approved by the CA. Trim off ragged edges of bark or wood with a sharp knife.
- Remove branches without damaging or tearing the stem.
- Tear off all suckers on Tilia and Rosa.
- Keep wounds as small as possible and cut cleanly back to sound wood. Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
- Prune larger branches neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
- Notify the CA of any disease or fungus. Do not apply growth retardants, fungicide or sealant unless instructed by the CA.

763A TREES IN GRASS

- Newly planted trees: neatly cut away in a circle around individual trees to a diameter of 1m.
- Existing trees: neatly cut away in a circle around individual trees.
  - Juvenile specimens: 0.5m from the trunk.
  - Semi-mature or mature specimens: 1m from the trunk.

765B PLANTING MAINTENANCE - WATERING

- The Contractor shall allow for irrigation of all trees and planted areas to field capacity to ensure they are kept moist throughout the maintenance and defects liability periods. In drought periods, the planting shall be irrigated at least once a week. This includes trees supplied with a watering system. The Contractor shall be responsible for assessing the requirements for and carrying out watering without any specific instructions from the CA. However, he shall inform the CA of his intention to water 48 hours prior to its taking place Any losses due to lack of water will be replaced by the Landscape Contractor free of charge.
- Failure to carry out watering may result in the CA recommending to the Client that another Contractor is brought in to carry this out - the cost of which would be deducted from the Contract sum.

766A TRIM HEDGES

- Hornbeam hedges are to be allowed to grow to their maximum height prior to cutting the tops. Trim in July.
- The objective is to create a hedge with parallel vertical sides and a horizontal top.

768 TREE STAKES

- Check condition of stakes, canes and ties during each maintenance visit.
- Replace broken or missing items.
- Ensure plants with guards are kept vertical.
- Adjust ties if necessary to prevent strangulation or rubbing of bark.
- Remove stakes if and when they are no longer required.
- If stakes and ties have not been adjusted and trees have been detrimentally affected, the CA reserves the right to instruct replacement of the tree at the Contractor's expense.

769A TREE SHELTERS

- During each maintenance visit, adjust tree shelters and netting guards as necessary to ensure that they remain vertical and attached to the stakes.
- Ensure there is no weed growth within the shelter or guard. Any broken or missing shelters, guards or stakes are to be replaced.
- Remove shelters, guards and stakes at the end of the maintenance period.

773 REFIRMING PLANTS

- Ensure that trees and shrubs remain firmly bedded after strong winds, frost heave and other disturbances.
- Refirm by treading around the base.
- 'Collars' at the base of tree stems created by tree movement to be broken up by fork, avoiding damage to roots, backfilled with topsoil as necessary, and refirmed.

774 HAND SWEEPING

- Hand sweep footpaths and paved surfaces using a stiff brush.
- Remove soil, grass cuttings, mulch etc. from all hard surfaces and leave the works in a clean and tidy condition.
- Remove all surface debris and litter to Contractor's own tip.
- Allow for 8No. visits per year.

775 LEAF RAKING

- Vacuum fallen leaves from planting areas and remove off site to Contractor's own tip.
- Allow for 3No. visits per year.

776 RUBBISH

- The Contractor shall remove all rubbish and litter from all planting areas.
- This shall be carried out during each visit throughout the maintenance period.

777 SETTLEMENT

Where, in the opinion of the CA, excessive subsoil and/or topsoil settlement has occurred and planting has already taken place, the Contractor will be required to take out plants, top up with topsoil/roof garden growing medium or urban soil' and replant and mulch.

778 PESTICIDES

- Apply appropriate chemicals as necessary, and at suitable times of the year, to combat insect or pest attack and disease.
- Shrubs covered in blackfly, such as Viburnum spp, are to be sprayed with washing up liquid, diluted in water, in proportions used when washing dishes.
- It is the Contractor's responsibility to ascertain the cause and to treat any plants which are being attacked by pests and diseases.

781 STONES

Remove stones over 50mm diameter and building materials which come to the surface during the maintenance period.

790A FINAL MULCHING

- Timing: At the end of the defects liability period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
- Planting beds: Remulch as Clause 485.
  - Coverage: 50mm depth.

EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
T: +44 (0)28 90732493

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 9064280

CARDIFF
T: +44 (0)2920 491010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 3356830

EXETER
T: + 44 (0)1392 490152

GLASGOW
T: +44 (0)141 3535037

GUILDFORD
T: +44 (0)1483 889800

LONDON
T: +44 (0)203 6915810

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER
T: +44 (0)161 8727564

NEWCASTLE UPON TYNE
T: +44 (0)191 2611966

NOTTINGHAM
T: +44 (0)115 9647280

SHEFFIELD
T: +44 (0)114 2455153

SHREWSBURY
T: +44 (0)1743 239250

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: + 353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)4 76 70 93 41