

Hampstead Green LL478

Landscape External Works

Specification

30/06/15

Camlins Landscape Architects
New Dolanog House
Severn Road
Welshpool
Powys

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LL454

Specification

30/06/2015 - 08:15

10-35-35/125 Earthworks excavating system

System outline

10-35-35/125 Earthworks excavating system

- **System performance:** 10-35-35/210 Testing, filling, compaction and treatment of formations.
- **Execution:** 10-35-35/616 Removal of excavated topsoil;
10-35-35/618 Storage of excavated topsoil;
10-35-35/621 Storage of excavated subsoil;
10-35-35/622 Removal of excavated subsoil;
10-35-35/630 Tolerances for excavated surfaces;
;
and 10-35-35/602 Site clearance generally.

System performance

10-35-35/210 Testing, filling, compaction and treatment of formations

Shared by: 10-35-35/125 Earthworks excavating system; and 10-35-35/127 Earthworks filling system.

- **Requirements for compaction:** Firmly compact sub-grade.
- **Requirements for earthwork environmental bunds, landscape areas, strengthened embankments:** Refer to drawings
- **Topography:** Refer to drawings

Execution

10-35-35/602 Site clearance generally

- **General:** Clear site of rubbish, debris and vegetation. Do not compact topsoil.
- **Timing:** Before topsoil stripping, if any.
- **Removal of non-organic matter:**
 - **Remove stones with any dimension exceeding:** 75 mm.
 - **Contamination:** Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- **Application of herbicide:**
 - **Type of herbicide:** Submit proposals.
 - **Point of application:** Submit proposals.
- **Arisings:**
 - **Arising materials:** Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings, and other undesirable matter.
 - **Required actions:** Remove from site.

10-35-35/616 Removal of excavated topsoil

- **Required actions:** Submit proposals.

10-35-35/618 Storage of excavated topsoil

- **Standard:** To BS 3882.
- **Temporary storage heaps:**
 - **Location of temporary storage heaps:** Submit proposals. No top soil to be stored within root protection zones of existing trees.
 - **Limitations:**
 - Height (maximum):** 1.5 m.
 - Width (maximum):** Submit proposals.
 - Special requirements:** Tip soils loosely and firm the surface to encourage the shedding of water.
- **Protection:** Do not place any other material on top of storage heaps;
Do not allow construction plant to pass over storage heaps;
and Prevent compaction and contamination.

10-35-35/621 Storage of excavated subsoil

- **Material to be reused:**
 - **Temporary storage heaps:**
 - Required actions:** Contractor's choice.
 - Locations of temporary storage heaps:** Submit proposals. No sub-soil to be stored within root protection zones of existing trees.
 - **Required actions:** Spread and level surplus subsoil on site.
 - **Relocation of surplus subsoil:** Submit proposals.
 - **Protected areas:** Do not raise soil level within root spread of trees that are to be retained.

10-35-35/622 Removal of excavated subsoil

- **Required actions:** Submit proposals.

10-35-35/630 Tolerances for excavated surfaces

- **Permissible deviations from linear dimensions generally.:** Excavation is to be carried out to the depths shown on, or implied in the drawings.
- **Tolerances on inclination of slope surface:** 1:3 maximum grade
- **Permitted localized deviations from slope surface:** ± 20 mm.

Ω End of system

10-35-35/127 Earthworks filling system

System outline

10-35-35/127 Earthworks filling system

- **System performance:** 10-35-35/210 Testing, filling, compaction and treatment of formations.
- **Ground stabilisation products:**
 - **Type of ground stabilisation product:** Submit proposals. Refer to drawings.
 - **Fixings for ground stabilisation products:** Submit proposals.
 - **Fill to ground stabilisation products:** Submit proposals.
- **Samples required:** 10-35-35/305 Product samples.
- **Execution:** 10-35-35/700 Compaction of fill materials;
10-35-35/704 Compacting fill for landscape areas;
10-35-35/714 Compaction of general fill;
10-35-35/718 Backfilling around foundations;
;
and 10-35-35/600 Installation control samples.

System performance

10-35-35/210 Testing, filling, compaction and treatment of formations

Shared by: 10-35-35/125 Earthworks excavating system; and 10-35-35/127 Earthworks filling system.

- **Requirements for compaction:** Firmly compact sub-grade.
- **Requirements for earthwork environmental bunds, landscape areas, strengthened embankments:** Refer to drawings
- **Topography:** Refer to drawings

Products

10-35-35/305 Product samples

- **Manufacturer:** Submit proposals.
- **Supplied by:** Submit proposals.
- **Submittals:** Test certification with samples of subsoil and topsoil
- **Purpose:** For use as reference samples.
- **Labelling:** Clearly label all submitted samples.
- **Topsoil:**
 - **Sample load:**
Volume (minimum): 5 m³.
 - **Reference samples:** Retain for comparison with subsequent loads.
- **Timing:** Prior to installation.

Execution

10-35-35/600 Installation control samples

- **Required samples:**
 - **Type of sample:** Top soil and subsoil sample 1.5 x 1.5m installed
 - **Purpose:** For use as an installation reference sample.
 - **Locations of samples:** Submit proposals.
 - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

10-35-35/700 Compaction of fill materials

- **Fill not specified to be left loose:** Compact as soon as possible after placing so that each layer achieves a well closed surface, showing no movement under compaction plant, and without cracks, holes, ridges or loose material.
- **Defective areas:** Remove and re-compact to original requirements with new material, or Submit proposals.

10-35-35/704 Compacting fill for landscape areas

- **Extent of fill for landscape areas:** Refer to drawings
- **Layers:**
 - **Thickness (maximum):** 200 mm.
 - **Compaction:** Lightly compact each layer to produce a stable soil structure.

10-35-35/714 Compaction of general fill

- **Filling:** Spread and level material in layers. As soon as possible, thoroughly compact each layer.
- **Compaction requirement:** To suit uses of fill as shown on drawings.
- **Materials and methods:**
 - **Requirement:** To suit uses of fill as shown on drawing

10-35-35/718 Backfilling around foundations

- **Backfilling under grassed or soil covered areas.:** Lay and compact in 300 mm maximum layers.
- **Backfilling under oversite concrete and paving.:** Refer to drawings.

Ω End of system

10-35-35/185 Topsoil filling system

System outline

10-35-35/185 Topsoil filling system

- **System performance:** Testing, filling, compaction and treatment of formations.
- **Fill materials:** 45-40-85/325 type A Imported topsoil to BS 3882 type A
- **Reinforcement:** Where required refer to drawings
- **Samples required:** Topsoil analysis
- **Execution:** 10-35-35/606 Topsoil analysis;
10-35-35/724 Spreading topsoil generally;
and .

Products

45-40-85/325 Imported topsoil to BS 3882 type A

- **Supplier:** Submit proposals.
- **Source:** Submit proposals.
- **Standard:** To BS 3882.
- **Classification:** To BS 3882, multipurpose.
- **Particle grade:** Within the parameters of 'sandy loam' textural class.

45-40-85/325 Imported topsoil to BS 3882 type B

- **Supplier:**
- **Source:**
- **Standard:** To BS 3882.
- **Classification:**
- **Particle grade:**

Execution

10-35-35/606 Topsoil analysis

- **Soil to be analysed:** 45-40-85/325 type B Imported topsoil to BS 3882 type B.
- **Soil analyst:** Submit proposals.
- **Samples:** Submit proposals.
- **Tests:** Chemical analysis;
Contaminants;
Nutrient content;
pH value;
Textural classification;
and Phytotoxic and CLEA elements.
- **Submit:** Report detailing results and analyst's recommendations.

10-35-35/724 Spreading topsoil generally

- **Method:** Fine grading shall be carried out using small sized earth moving equipment or by hand and shall involve final modelling of the earth.
- **Locations for spreading topsoil:** Any areas where topsoil is required for new planting.
- **Preparatory works:**
 - **Levelling and grading:** Excavate and/ or place fill to required profiles and levels. Grade to smooth flowing contours to achieve specified finished levels of topsoil. Avoid overcompaction.
 - **Loosening:**
 - Light and non-cohesive subsoils:** When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
 - Stiff clay and cohesive subsoils:** When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
 - Rock and chalk subgrades:** Lightly scarify to promote free drainage.
 - **Removing stones:**
 - Timing:** Immediately before spreading topsoil.
 - Size in any dimension (maximum):** 75 mm for all areas of shrub and tree planting.
 - **Arisings, contaminants and debris:** Remove from site.
 - **Inspecting formations:** Notify.
- **Temporary roads and surfacing:** Remove before spreading topsoil.
- **Layers:**
 - **Depth (maximum):** Refer to drawings for required soil depths.
 - **Firming:** Gently firm each layer before spreading the next.
- **Depths after firming and settlement (minimum):** Refer to drawings.
- **Crumb structure:** Do not compact topsoil. Preserve a friable texture of separate visible crumbs.
- **Protected areas:** Do not raise soil level within root spread of trees that are to be retained. Refer to drawings.
- **Notice before spreading topsoil:**
 - **Period of notice (minimum):** Seven days.

Ω End of system

20-15-05/135 Hot rolled asphalt paving system

System outline

20-15-05/135 Hot rolled asphalt paving system

- **System performance:** 20-15-05/211 Functional performance of asphaltic pavements; 20-15-05/231 Performance of subgrades for permeable asphalt pavements; 20-15-05/252 Slip and skid resistance of asphalt pavements; and 20-15-05/209 Information for asphalt pavement design.
- **System manufacturer:** Refer to drawing
- **Standard:** To BS EN 13108-4 and PD 6691.
- **Preparation products:** Submit proposals.
- **Subgrade improvement layer:** Refer to Engineer's specification
- **Granular sub-base:** Refer to drawing and Engineer's specification
- **Base course:** Refer to drawing and Engineer's specification
- **Binder course:** Submit proposal
- **Surface course:** Refer to drawing and Engineer's specification
- **Surface finish:** Refer to drawing and Engineer's specification
- **Edge restraints:** refer to drawing
- **Samples required:** 20-15-05/305 Product samples.
- **Execution:** 20-15-05/601 Installation control samples; 20-15-05/611 Disposal of arisings; 20-15-05/635 Preparation for final surfacing of asphalt road bases which have been used for construction traffic; 20-15-05/643 Laying geotextiles for asphalt roads and pavings; 20-15-05/649 Thickness of hot rolled asphalt courses; 20-15-05/651 Thickness of courses for vehicular pavements; 20-15-05/657 Laying surface dressing on asphalt pavements; and 20-15-05/661 Abutments in asphalt pavements.
- **System completion:** 20-15-05/805 Identification of materials and 20-15-05/801 Protection of completed asphalt pavements from traffic and plant.

System performance

20-15-05/205 Design submittals

- **Detailed design:**
 - **Requirement:** Complete the design of the system to BS EN 13108-1
 - **Purpose:** To demonstrate compliance with performance requirements.
 - **Submittals:** Typical plan, elevation and section drawings at suitable scales.
 - **Timing:** Submit proposals.
 - **Format:** Submit proposals.

20-15-05/209 Information for asphalt pavement design

- **General requirements:** 20-15-05/205 Design submittals.
- **Design load:** Refer to Engineer's specification

- **Existing ground conditions:**
 - **California Bearing Ratio (CBR):** Refer to Engineer's specification
- **Vehicular loading to trafficked asphalt paving:**
 - **Standard:** Refer to Engineer's specification

20-15-05/211 Functional performance of asphaltic pavements

- **Standard:**
 - **Generally:** To Highways Agency (HA) MCHW Volume 1.
 - **Asphalt concrete:** To BS EN 13108-1.
 - **Permeable asphalt concrete:** To BS EN 13108-7.
 - **Hot rolled asphalt:** To BS EN 13108-4.
 - **Mastic asphalt:** To BS EN 13108-6.

20-15-05/231 Performance of subgrades for permeable asphalt pavements

- **Standard:** Refer to drawing and Engineer's specification.
- **Requirement:** Refer to drawing and Engineer's specification
- **Thermal actions on bound aggregate pavements:** To BS EN 13043, clause 4.2.9.2.

20-15-05/252 Slip and skid resistance of asphalt pavements

- **Slip resistance value – water wet (minimum):**
 - **Inclined surfaces, up to 1:20 pitch:** To BS EN 13036-4, PTV of 40.
- **Demonstrating performance:**
 - **Submittals:** Laboratory test results.

Products

20-15-05/305 Product samples

- **Supplied by:** Refer to drawing
- **Submittals:** Manufacturer's standard.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples. State full details of composition of mix.
- **Timing:** Prior to installation

Execution

20-15-05/601 Installation control samples

- **Required samples:**
 - **Paving types:** Tarmac or equivalent
 - **Purpose:** For use as an installation reference sample.
 - **Size (minimum):** 1.5 x 1.5 m.
 - **Location:** Contractor's choice.
 - **Features to be included:** Kerb edges.
 - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

20-15-05/611 Disposal of arisings

- **Biodegradable arisings:** Compost on site.
- **Tree roots and stumps:** Remove from site.
- **Litter and nonbiodegradable arisings:** Remove from site.

20-15-05/635 Preparation for final surfacing of asphalt road bases which have been used for construction traffic

- **Preparation for final surfacing:**
 - **Timing:** Defer laying until as late as practicable.
 - **Immediately before laying final surfacing:** Clean and make good the base/ binder course. Allow to dry.
- **Application of tack coats:**
 - **Type:** Submit proposals.
 - **Application rate:** Submit proposals.
 - **Accuracy:** Uniform, without puddles.
- **Finishing:** Allow emulsion to break completely before applying surface.

20-15-05/641 Laying asphalt pavements generally

Shared by: 20-15-05/651 Thickness of courses for vehicular pavements; and 20-15-05/657 Laying surface dressing on asphalt pavements.

- **Standard:** To BS 594987.
- **Adverse weather during laying of asphalt pavements:**
 - **Frozen materials:** Do not use.
 - **Laying not permitted:**
 - Generally:** 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 or if there is standing water on the base.
- **Placing and compaction:** In accordance with BS 594987 and Highways Agency (HA) 'MCHW Specification 900 series'.
- **Preparation:** Remove loose material, rubbish and standing water.
- **Setting out:** Start from an edge restraint.
- **Adjacent work:** Form neat junctions. Do not damage.
- **Mortar bedded features:** Channels, kerbs, inspection covers: keep clean.
- **New pavements:** Keep traffic free until it has cooled to prevailing atmospheric temperature. Do not allow rollers to stand at any time. Prevent damage.
- **Condition on completion:** Clean and remove excess material.

20-15-05/643 Laying geotextiles for asphalt roads and pavings

- **Position:** Submit proposals.
- **Jointing lap (minimum):** Submit proposals.

20-15-05/649 Thickness of hot rolled asphalt courses

- **General requirements:** Refer to drawing
- **Compacted thickness (nominal):**
 - **Base course:** Refer to drawing

- **Binder course:** Refer to drawing
- **Surface course:** Refer to drawing

20-15-05/651 Thickness of courses for vehicular pavements

- **General requirements:** 20-15-05/641 Laying asphalt pavements generally.
- **Compacted thickness (nominal):**
 - **Surface course:** Refer to drawing

20-15-05/657 Laying surface dressing on asphalt pavements

- **General requirements:** 20-15-05/641 Laying asphalt pavements generally .
- **Standard:** To BS EN 13108-4.
- **Application:**
 - **Type:** Submit proposals.
 - **Cut-back bitumen:** Do not use at temperatures below 15°C.
 - **Binder application rate:** In accordance with TRL Road Note 39. Adjust rate for modified binders.
 - **Coverage:** 100–105% shoulder to shoulder to BS 598-1.
 - **Compaction of chippings:** Submit proposals.

20-15-05/661 Abutments in asphalt pavements

- **Vertical edges of manholes, gullies, kerbs and other abutments:** Clean.
- **Finishing:** Tamp surface around projections.
- **Level:** Flush or not more than 3 mm above projections.

System completion

20-15-05/801 Protection of completed asphalt pavements from traffic and plant

- **Protection:** Keep free from traffic after laying for specified duration.
- **Mortar bedded features:**
 - **Pedestrian traffic (minimum):** 3 days.
 - **Vehicular traffic (minimum):** 28 days.

20-15-05/805 Identification of materials

- **Evidence of compliance:**
 - **Test certificates:** Submit.
 - **Timing:** At the time of delivery for each manufacturing batch.
 - **Content:** Confirm compliance with the relevant standard. State full details of manufacturer and mixing plant; mix identification code, designation of the mixture, details of any additives.

Ω End of system

20-15-90/125 Flag and slab paving overlay system

System outline

20-15-90/125 Flag and slab paving overlay system

- **System performance:** 20-15-90/251 Accessibility of unit pavements;
20-15-90/255 Slip and skid resistance of unit pavements;
and .
- **System manufacturer:** Refer to drawing
- **Standard:** To BS 7533-8.
- **Preparation products:** Submit proposals.
- **Geotextile below granular sub-base:** Refer to drawing
- **Granular sub-base:** Refer to drawing
- **Laying course:** 45-55-50/335 Paving laying course mortar to drawing
- **Paving course:**
 - **Paving units:** Refer to drawing
 - **Jointing:** Refer to drawing
 - **Movement joints:** Submit proposals.
- **Samples required:** 20-15-90/305 Product samples.
- **Execution:** 20-15-90/601 type D Installation control samples type D;
20-15-90/603 type D Protection of paving during works type D;
20-15-90/605 type D Adverse weather and unit paving construction type D;
20-15-90/609 type D Cutting paving units type D;
20-15-90/611 type D Permissible deviations from design levels for unit paving type D;
20-15-90/617 Avoidance of colour banding in unit paving;
20-15-90/619 type D Disposal of arisings type D;
;

and 20-15-90/651 Laying bound flag and slab pavements.
- **System completion:** 20-15-90/801 Protection of completed pavements and 20-15-90/802 Completion of unit pavements.

System performance

20-15-90/251 Accessibility of unit pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Inclusive design:** Complete detailed design in accordance with Building Regulations (E&W) Approved Document M.
- **Finished surfaces on accessible areas:** Free of irregularities capable of inflicting personal injury.

20-15-90/255 Slip and skid resistance of unit pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Slip resistance value – water wet (minimum):**

- **Level surfaces:** To BS 7976-2, PTV of 36.
- **Inclined surfaces, up to 1:20 pitch:** To BS 7976-2, PTV of 40.
- **Skid resistance:** Submit proposals.
- **Demonstrating performance:**
 - **Submittals:** Laboratory test results.

Products

20-15-90/305 Product samples

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Manufacturer:** Refer to drawing
- **Submittals:** Manufacturer's standard.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to installation

45-55-50/335 Paving laying course mortar

- **Manufacturer:** Submit proposals.
- **Standard:** To BS 7533-7 paragraph 5.1.2.
- **Delivery condition:** Contractor's choice.
- **Mortar designation:** Contractor's choice.
- **Characteristics:** As BS 7533-7 Table C.4.
- **Moisture content:** Moist mix.

Execution

20-15-90/601 Installation control samples type D

- **Required samples:**
 - **Paving types:** Natural Stone
 - **Purpose:** For use as an installation reference sample.
 - **Size (minimum):** 1.5 x 1.5 m.
 - **Location:** 1. Mews Block B
2. Mews Block C
3. Main Building private terrace
4. Internal courtyard
 - **Features to be included:** To include edging details where applicable.
- **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

20-15-90/603 Protection of paving during works type D

- **Cleanliness:** Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
- **Materials storage:** Do not overload pavings with stacks of materials.
- **Handling:** Do not damage paving unit corners, arrises, or previously laid paving.

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

20-15-90/605 Adverse weather and unit paving construction type D

- **Standard:** In accordance with BS 7533-3.
- **General:**
 - **Temperature:** Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
 - **Frozen materials:** Do not use. Do not lay bedding on frozen or frost covered bases.
- **Kerbs edgings, and channels:** Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.
- **Paving with mortar joints or bedding:** Protect from frost damage, rapid drying out and saturation until mortar has hardened.
- **Paving laid and jointed in sand:**
 - **Stockpiled bedding sand:** Protect from saturation.
 - **Exposed areas of sand bedding and uncompacted areas of sand bedded paving:** Protect from heavy rainfall.
 - **Saturated sand bedding:** Remove and replace, or allow to dry before proceeding.
 - **Laying dry-sand jointed paving in damp conditions:** Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

20-15-90/607 Laying unit pavings generally

Shared by: 20-15-90/651 Laying bound flag and slab pavements; and 20-15-90/673 Laying permeable unit pavements.

- **Standard:** In accordance with Highways Agency MCHW Volume 1: Series 1100.
- **Setting out:** Start from an edge restraint.
- **Paving units:** Free of mortar and sand stains. Interlocking units to be adequately connected
- **Appearance:** Smooth and even with regular joints. Accurate to line, level and profile.
- **Cut edges:** Turn inwards where possible. Do not position against edge restraints or other features. Stone sizes smaller than 75mm not permitted.
- **Laying course:** Grade consistently and accurately. Spread and compact to produce uniform thickness and support for paving units.
- **Bedding of paving units:** Firm so that rocking or subsidence does not occur or develop.
- **Falls:** Prevent ponding. Refer to drawing for proposed falls.
- **Laying on slopes:** Lay paving units upwards from the bottom of slopes.

20-15-90/609 Cutting paving units type D

- **Generally:** Cut units cleanly, accurately and vertically, without spalling, to give neat junctions with edgings and adjoining finishes. Do not mark or damage visible surfaces.
- **Natural stone:** In accordance with BS 7533-3. Cut setts with a disc cutter or masonry saw.

20-15-90/611 Permissible deviations from design levels for unit paving type D

- **Standard:** To BS 7533-3.
- **Permissible deviation from specified levels (mm):**
 - **Permeable pavements:**
 - Sub-base:** -20 to +20 mm.
 - Surface course:** Refer to drawing.
 - Kerbs and channels:** 3mm.

- **Conventional pavements:**
 - Sub-base:** -10 to +5 mm.
 - Surface course:** Refer to drawing.
- **Height of finished paving above features:**
 - **At gullies:** +5 to mm.
 - **At drainage channels and kerbs:** +5 to mm.

20-15-90/617 Avoidance of colour banding in unit paving

- **General:** Unless premixed by manufacturer, select from separate packs in rotation to avoid colour banding.

20-15-90/619 Disposal of arisings type D

- **Biodegradable arisings:** Compost on site.
- **Tree roots and stumps:** Remove from site.
- **Litter and nonbiodegradable arisings:** Remove from site.

20-15-90/651 Laying bound flag and slab pavements

- **General requirements:** 20-15-90/607 Laying unit pavings generally .
- **Primer required on underside of units:** Refer to drawing
- **Standard:** In accordance with BS 7533-4.
- **Laying course thickness (nominal):** Refer to drawing
- **Bond:**
 - **Natural stone slabs:** Refer to drawings
- **Laying and jointing:** Refer to drawings
- **Joint width (nominal):** Refer to drawings

System completion

20-15-90/801 Protection of completed pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Keep free from traffic after laying for specified duration:**
 - **Mortar bedded pavings:**
 - Pedestrian traffic (minimum):** 3 days.
 - Vehicular traffic (minimum):** 28 days.

20-15-90/802 Completion of unit pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Final compaction of the surface course:** In accordance with BS 7533-3.

Ω End of system

20-15-90/170 Permeable small unit paving system

System outline

20-15-90/170 Permeable small unit paving system

- **System performance:** 20-15-90/251 Accessibility of unit pavements; 20-15-90/255 Slip and skid resistance of unit pavements; and 20-15-90/261 Hydraulic performance of unit pavements.
- **System manufacturer:** Refer to drawing
- **Standard:** To BS 7533-13.
- **Subgrade improvement layer:** Refer to Engineer's specification
- **Preparation products:** Submit proposals
- **Impermeable membrane:** Refer to drawing
- **Granular sub-base:** Refer to drawing
- **Base course:** Refer to drawing
- **Geotextile below laying course:** Refer to drawing
- **Laying course:** Refer to drawing
- **Paving course:**
 - **Paving units:** 45-20-64/340 Clay pavers.
 - **Jointing:** 45-55-06/328 Aggregates for permeable laying courses to drawing
- **Applied surface features:** 45-20-62/325 Demarcation inserts. Refer to drawing
- **Samples required:** 20-15-90/305 Product samples.
- **Execution:** 20-15-90/601 type B Installation control samples type B; 20-15-90/603 type B Protection of paving during works type B; 20-15-90/605 type B Adverse weather and unit paving construction type B; 20-15-90/609 type B Cutting paving units type B; 20-15-90/611 type B Permissible deviations from design levels for unit paving type B; 20-15-90/613 Regularity of finished paving surface to BS 7533; 20-15-90/614 Regularity of finished paving surface to BS 8300; 20-15-90/619 type B Disposal of arisings type B; 20-15-90/633 Condition of sub-bases and bases before spreading laying course; and 20-15-90/673 Laying permeable unit pavements.
- **System completion:** 20-15-90/801 Protection of completed pavements and 20-15-90/802 Completion of unit pavements.

System performance

20-15-90/251 Accessibility of unit pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Inclusive design:** Complete detailed design in accordance with Building Regulations (E&W) Approved Document M.
- **Finished surfaces on accessible areas:** Free of irregularities capable of inflicting personal injury.

20-15-90/255 Slip and skid resistance of unit pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Slip resistance value – water wet (minimum):**
 - **Level surfaces:** To BS 7976-2, PTV of 36.
 - **Inclined surfaces, up to 1:20 pitch:** To BS 7976-2, PTV of 40.
- **Skid resistance:** Submit proposals.
- **Demonstrating performance:**
 - **Submittals:** Laboratory test results.

20-15-90/261 Hydraulic performance of unit pavements

- **Standard:** To BS 7533-13.
- **Load category:** To Engineer's
- **Requirement:**
 - **Permeability (minimum):** Refer to Engineer's specification
 - **Inflow rates:** Refer to Engineer's specification
 - **Outflow rates:** Refer to Engineer's specification

Products

20-15-90/305 Product samples

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Manufacturer:** Refer to drawing
- **Submittals:** Manufacturer's standard.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Prior to installation

45-20-64/340 Clay pavers

- **Manufacturer:** Refer to drawing
- **Standard:** To BS EN 1344.
- **Physical properties:**
 - **Colour:** Refer to drawing
 - **Finish:** Refer to drawing
 - **Profile:**
 - **Paver type:** Clay paver Neland or equivalent
 - **Interlocking features:** Refer to drawing
 - **Dimensions and associated tolerances:**
 - **Nominal sizes:** Refer to drawing
 - **Tolerances on dimension (nominal):** Manufacturer's standard.
 - **Freeze thaw resistance:** Manufacturer's standard.
 - **Mean transverse breaking load:** Manufacturer's standard.
 - **Abrasion resistance:** Manufacturer's standard.

45-55-06/328 Aggregates for permeable laying courses

- **Source:** Refer to Engineer's specification if applicable
- **Standards:** To BS EN 12620.
- **Material:** Refer to drawing and Engineer's specification
- **Aggregate size and grading category:** Graded 2/6 G_c80/20.
- **Particle shape:** Angular.
- **Fines content:** Category f₂.

Execution

20-15-90/601 Installation control samples type B

- **Required samples:**
 - **Paving types:** Clay pavers
 - **Purpose:** For use as an installation reference sample.
 - **Size (minimum):** 1.5 x 1.5 m.
 - **Location:** Submit proposals.
 - **Features to be included:** Kerb edges and demarcation markers
- **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

20-15-90/603 Protection of paving during works type B

- **Cleanliness:** Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
- **Materials storage:** Do not overload pavings with stacks of materials.
- **Handling:** Do not damage paving unit corners, arrises, or previously laid paving.
- **Access:** Restrict access to paved areas to prevent damage from site traffic and plant.

20-15-90/605 Adverse weather and unit paving construction type B

- **Standard:** In accordance with BS 7533-3.
- **General:**
 - **Temperature:** Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
 - **Frozen materials:** Do not use. Do not lay bedding on frozen or frost covered bases.
- **Kerbs edgings, and channels:** Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.
- **Paving with mortar joints or bedding:** Protect from frost damage, rapid drying out and saturation until mortar has hardened.
- **Paving laid and jointed in sand:**
 - **Stockpiled bedding sand:** Protect from saturation.
 - **Exposed areas of sand bedding and uncompacted areas of sand bedded paving:** Protect from heavy rainfall.
 - **Saturated sand bedding:** Remove and replace, or allow to dry before proceeding.
 - **Laying dry-sand jointed paving in damp conditions:** Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

20-15-90/607 Laying unit pavings generally

Shared by: 20-15-90/651 Laying bound flag and slab pavements; and 20-15-90/673 Laying permeable unit pavements.

- **Standard:** In accordance with Highways Agency MCHW Volume 1: Series 1100.
- **Setting out:** Start from an edge restraint.
- **Paving units:** Free of mortar and sand stains. Interlocking units to be adequately connected
- **Appearance:** Smooth and even with regular joints. Accurate to line, level and profile.
- **Cut edges:** Turn inwards where possible. Do not position against edge restraints or other features. Stone sizes smaller than 75mm not permitted.
- **Laying course:** Grade consistently and accurately. Spread and compact to produce uniform thickness and support for paving units.
- **Bedding of paving units:** Firm so that rocking or subsidence does not occur or develop.
- **Falls:** Prevent ponding. Refer to drawing for proposed falls.
- **Laying on slopes:** Lay paving units upwards from the bottom of slopes.

20-15-90/609 Cutting paving units type B

- **Generally:** Cut units cleanly, accurately and vertically, without spalling, to give neat junctions with edgings and adjoining finishes. Do not mark or damage visible surfaces.
- **Natural stone:** In accordance with BS 7533-3. Cut setts with a disc cutter or masonry saw.
- **Concrete flags:** To Interpave 'Cutting paving. Cutting precast concrete blocks flags and kerbs - efficient design and managing the risk'.

20-15-90/611 Permissible deviations from design levels for unit paving type B

- **Standard:** To BS 7533-3 and To BS 7533-4.
- **Permissible deviation from specified levels (mm):**
 - **Permeable pavements:**
 - Sub-base:** -20 to +20 mm.
 - Surface course:** ± 3 mm.
 - Kerbs and channels:** ± 3 mm.
- **Height of finished paving above features:**
 - **At gullies:** ± 5 mm.
 - **At drainage channels and kerbs:** ± 5 mm.

20-15-90/613 Regularity of finished paving surface to BS 7533

- **Standard:** In accordance with BS 7533-3 and BS 7533-4.
- **Method of measurement:** Under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
- **Maximum undulations in the pavement surface:**
 - **Precast concrete paving blocks and clay pavers for flexible pavements:** 10 mm.
 - **Precast concrete flags or natural stone slabs:** 3 mm.
- **Sudden irregularities:** Not permitted.
- **Difference in level between adjacent paving units (maximum):** 2 mm.

20-15-90/614 Regularity of finished paving surface to BS 8300

- **Standard:** In accordance with BS 8300.

- **Method of measurement:** Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
- **Maximum undulations in the pavement surface:** 3 mm.
- **Joints between paving units or utility access covers:**
 - **Joints flush with the surface:** Difference in level between adjacent units to be no more than twice the joint width (with a 5 mm max difference in level).
 - **Recessed, filled joints:** Difference in level between adjacent units to be no greater than 2 mm; the recess to be no deeper than 5 mm.
 - **Unfilled joints:** Difference in level between adjacent units to be no greater than 2 mm.
- **Sudden irregularities:** Not permitted.

20-15-90/619 Disposal of arisings type B

- **Biodegradable arisings:** Compost on site.
- **Tree roots and stumps:** Remove from site.
- **Litter and nonbiodegradable arisings:** Remove from site.

20-15-90/633 Condition of sub-bases and bases before spreading laying course

- **Trenches and excavation of soft or loose spots in subgrade:** Fill. Compact thoroughly.
- **Granular surfaces:** Sound, clean, smooth and close-textured enough to prevent migration of laying course materials into the sub-base during compaction and use; Free from movement under compaction plant; and Free from compaction ridges, cracks and loose material.
- **Prepared existing and new bound bases (roadbases):** Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
- **Subgrade, sub-base and roadbase presentation:** In accordance with BS 7533-3 Annex B.1 and In accordance with BS 7533-7, Annex A.
- **Levels and falls:** Accurate and within the specified tolerances.
- **Drainage outlets:** Within 0–10 mm of the required finished level.
- **Features in sand bedded paving (including mortar bedded restraints and drainage ironwork):** Complete to required levels. Bed adequately. Haunch in mortar.
- **Sub-bases containing cement or hydraulic binder:** Cure for minimum times specified in BS 7533-4. Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

20-15-90/673 Laying permeable unit pavements

- **General requirements:** 20-15-90/607 Laying unit pavings generally.
- **Standard:** In accordance with BS 7533-3.
- **Compaction:** In accordance with BS 7533-3. Determine by trial the depth of loose bedding material needed to ensure specified bedding course thickness after final compaction of paving.
- **Thickness after compaction (nominal):** Refer to drawing
- **Joint width:** Refer to drawing.

System completion

20-15-90/801 Protection of completed pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Keep free from traffic after laying for specified duration:**

- **Mortar bedded pavings:**
 - Pedestrian traffic (minimum):** 3 days.
 - Vehicular traffic (minimum):** 28 days.

20-15-90/802 Completion of unit pavements

Shared by: 20-15-90/125 Flag and slab paving overlay system; and 20-15-90/170 Permeable small unit paving system.

- **Final compaction of the surface course:** In accordance with BS 7533-3.

Ω End of system

20-85-45/145 Light duty kerb system

System outline

20-85-45/145 Light duty kerb system

- **System performance:**
 - 20-85-45/251 Accessibility of kerbs and channels;
and 20-85-45/255 Slip and skid resistance of kerbs and channels.
- **System manufacturer:** Refer to drawing
- **Foundations:** Refer to drawing
- **Mortar bedding:** Refer to drawing
- **Units:** 45-20-64/315 Natural stone kerb units.
- **Haunching:** Submit proposals.
- **Jointing:** Refer to drawing
- **Movement joints:** Submit proposals.
- **Samples required:** 20-85-45/305 Product samples.
- **Execution:** 20-85-45/607 Cutting kerb and channel units;
20-85-45/603 Protection of kerb and channel units during works;
20-85-45/605 Adverse weather;
20-85-45/611 Installation control samples;
20-85-45/613 Setting out kerbs and channels;
20-85-45/617 Permissible deviation from design levels for kerbs, channels and pavement level features;
20-85-45/621 Regularity of finished surfaces to BS 8300;
20-85-45/641 Laying kerb and channel units generally;
20-85-45/634 Laying units onto surface layer;

and 20-85-45/715 Installing movement joints for kerb, edging and channel units.

System performance

20-85-45/251 Accessibility of kerbs and channels

- **Inclusive design:** Complete detailed design in accordance with Building Regulations Approved Document M
- **Finished surfaces on accessible areas:** Free of irregularities capable of inflicting personal injury.

20-85-45/255 Slip and skid resistance of kerbs and channels

- **Slip resistance value – water wet (minimum):**
 - **Level surfaces:** To BS 7976-2, PTV of 40.
 - **Inclined surfaces, up to 1:20 pitch:** To BS 7976-2, PTV of 40.
- **Skid resistance:** to BS 8300
- **Demonstrating performance:**
 - **Submittals:** Laboratory test results.

- **Testing company:** UKAS accredited (or European equivalent).

Products

20-85-45/305 Product samples

- **Manufacturer:** Refer to drawing
- **Submittals:** Manufacturer's standard.
- **Purpose:** For use as a reference sample.
- **Labelling:** Clearly label all submitted samples.
- **Timing:** Before manufacturer.

45-20-64/315 Natural stone kerb units

- **Supplied by:** Refer to drawing
- **Standard:** To BS EN 1343.
- **Denomination:**
 - **Petrological family:** Granite.
 - **Colour:** Submitted for approval
 - **Name (traditional):** Magma
 - **Origin:** Submit proposals.
- **Physical properties:**
 - **Profile:**
 - Kerb types:** Rectangular. Refer to drawing
 - Special shapes:** Transition kerbs.
 - Arrises:** Chamfer.
 - Undercut:**
 - **Dimensions and associated tolerances:**
 - Nominal sizes:** Refer to drawing
 - Tolerances on overall width and height (nominal):** Class 1.
 - Tolerances on batter:**
 - **Finish:** Refer to drawing
- **Breaking load:** Class 4.

Execution

20-85-45/603 Protection of kerb and channel units during works

- **Cleanliness:** Keep units clean and free from mortar droppings, oil and other materials likely to cause staining.
- **Materials storage:** Do not overload units with stacks of materials.
- **Handling:** Do not damage unit corners, arrises, or previously laid paving.
- **Access:** Prevent damage from site traffic and plant.

20-85-45/605 Adverse weather

- **Standard:** In accordance with BS 7533-6.
- **General:**

- **Temperature:** Do not lay or joint kerb or channel units if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
- **Frozen materials:** Do not use. Do not lay bedding on frozen or frost covered bases.
- **Kerbs edgings, and channels:** Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

20-85-45/607 Cutting kerb and channel units

- **Generally:** Cut units cleanly, accurately and vertically, without spalling, to give neat junctions with edgings and adjoining finishes. Do not mark or damage visible surfaces. Sizes below 300mm in length permitted.
- **Natural stone:** In accordance with BS 7533-6. Cut units with a disc cutter or masonry saw.
- **Cutting of mitres:** Not permitted.

20-85-45/611 Installation control samples

- **Required samples:**
 - **Types:** Edging to paving and drain channels/slot drains.
 - **Purpose:** For use as an installation reference sample.
 - **Size (minimum):** 2m length
 - **Location:** Submit proposals for each different adjacent finish.
 - **Features to be included:** Adjacent finishes.
 - **Timing:** Construct during preliminary installation. Obtain approval of appearance before proceeding.

20-85-45/613 Setting out kerbs and channels

- **Alignment:** Straight lines or smoothly flowing curves, following profile of the ground.
- **Layout:**
 - **Kerbs and channels:** Radii of 12 m or less.
 - **Angle kerbs:** Internal and external 90° changes of direction.

20-85-45/617 Permissible deviation from design levels for kerbs, channels and pavement level features

- **Standard:** In accordance with BS 7533-6.
- **Permissible deviation from specified levels (mm):**
 - **Level:** ±3 mm.
 - **Horizontal and vertical alignment:** 3 mm in 3 m.
- **Height of finished paving above features:**
 - **At gullies:** 3 mm.
 - **At drainage channels and kerbs:** 3 mm.

20-85-45/621 Regularity of finished surfaces to BS 8300

- **Standard:** In accordance with BS 8300.
 - **Method of measurement:** Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
 - **Maximum undulations in the pavement surface:** 3 mm.
- **Joints between units:**
 - **Joints flush with the surface:** Difference in level between adjacent units to be no more than twice the joint width (with a 5 mm max difference in level).

- **Recessed, filled joints:** Difference in level between adjacent units to be no greater than 2 mm; the recess to be no deeper than 5 mm.
- **Unfilled joints:** Difference in level between adjacent units to be no greater than 2 mm.
- **Sudden irregularities:** Not permitted.

20-85-45/634 Laying units onto surface layer

- **Standard:** In accordance with BS 7533-6.
- **Bedding of units:** Position units true to line and level along top and front faces. Bond to surface layer with suitable resin compound or strengthened mortar in accordance with manufacturer's recommendations for this application.
- **Movement joints:** Ensure joints continue through base and units.

20-85-45/641 Laying kerb and channel units generally

- **Standard:** In accordance with BS 7533-6.
- **Appearance:** Smooth and even with regular joints. Accurate to line, level and profile.

20-85-45/715 Installing movement joints for kerb, edging and channel units

- **Standard:** In accordance with BS 7533-6.
- **Extent of joints:** Submit proposals.
- **Spacing:** Submit proposals.
- **Joint width:** Submit proposals.
- **Filler installation:** Build in as work proceeds, extending through haunching and foundation. Position filler accurately to fully support sealant at the recommended depth below exposed faces of units..
- **Depth below exposed faces:** Submit proposals.
- **Barrier (joint breaker):** Position filler and barrier accurately to fully support sealant at recommended distance from exposed faces of units.
- **Sealant application:** Required.

Ω End of system

40-35-00/110 Bed-planted annual, perennial and bulb system

System outline

40-35-00/110 Bed-planted annual, perennial and bulb system

- **Preparatory work:**
 - **Herbicide:** Submit proposals.
 - **Weed suppression:** Mulch refer to plant schedule and drawings
 - **Fertilizer:** Submit proposals.
- **Plants:** 45-40-10/311 Bulbs, corms and tubers;
45-40-10/313 Perennials supplied as roots only;
45-40-35/311 Container grown perennials;
45-40-35/313 Perennials supplied as plugs;
and 45-40-35/315 Perennials supplied in clumps.
- **Mulch:** Refer to drawings.
- **Supports:** Refer to drawings.
- **Protection:** Refer to drawings
- **Labels:** 45-35-45/320 Delivery labels for plants.
- **Execution:** 40-35-00/601 type A Amenity planting generally type A;
40-35-00/605 type A Climatic conditions for amenity planting type A;
40-35-00/609 Protection of existing grass during amenity planting;
40-35-00/610 type A Water restrictions type A;
40-35-00/612 type A Cultivation of topsoil type A;
40-35-00/613 type A Preparation of undisturbed topsoil type A;
40-35-00/617 Applying fertilizer as a base dressing before cultivation;
40-35-00/631 type A Setting out of wildflower turf areas type A;
40-35-00/661 type A Planting wild flower plugs type A;
40-35-00/662 Planting bulbs and tubers in holes;
;
and 40-35-00/691 Applying loose mulch to planting beds.
- **System completion:** 40-35-00/801 Operations immediately after planting;
40-35-00/802 Establishment of new planting;
40-35-00/803 Weeding new planting;
40-35-00/804 Fertilizing new planting;
40-35-00/806 Watering new planting;
40-35-00/807 Final mulching of planting beds and trees;
40-35-00/809 Plants that have failed to thrive;
and 40-35-00/810 Instructions for future maintenance.

Products

45-35-45/320 Delivery labels for plants

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Standard:** To BS 3936-1 and To National Plant Specification standards.

- **Labels:** Provide for each plant.
- **Information required:** The full botanical name.

45-40-10/301 Nursery stock generally

Shared by: 45-40-10/311 Bulbs, corms and tubers; and 45-40-10/313 Perennials supplied as roots only.

- **Condition:** Materially undamaged, sturdy, healthy and vigorous.
- **Appearance:** Of good shape and without elongated shoots, appropriate to species and variety.
- **Hardiness:** Grown in a suitable environment and hardened off.
- **Health:** Free from pests, diseases, discoloration, weeds and physiological disorders.
- **Species:** True to name.

45-40-10/311 Bulbs, corms and tubers

- **General requirements:** 45-40-10/301 Nursery stock generally.
- **Supplier:** Submit proposals.
- **Standards:** In accordance with the National plant specification.
- **Botanical name:** Refer to plant schedule
- **Grade:** Refer to plant schedule
- **Condition:** Firm and visibly free of pests and diseases.
- **Execution:** 45-40-10/607 type A Planting bulbs, corms, tubers and roots type A and 45-40-10/609 Naturalized planting in existing grassed areas.

45-40-10/313 Perennials supplied as roots only

- **General requirements:** 45-40-10/301 Nursery stock generally.
- **Supplier:** Submit proposals.
- **Standards:** In accordance with the National plant specification.
- **Botanical name:** Refer to plant schedule
- **Root condition:** Free from physiological damage and fungal infections. Roots to be wrapped in breathable material.
- **Origin and provenance:** British grown.
- **Execution:** 45-40-10/603 Handling bulbs, corms, tubers and roots and 45-40-10/607 type B Planting bulbs, corms, tubers and roots type B.

45-40-35/301 Nursery stock

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Condition:** Materially undamaged, sturdy, healthy and vigorous.
- **Appearance:** Of good shape and without elongated shoots, appropriate to species and variety.
- **Hardiness:** Grown in a suitable environment and hardened off.
- **Health:** Free from pests, diseases, discoloration, weeds and physiological disorders.
- **Species:** True to name.

45-40-35/303 Temporary labelling and information

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Labels to provide the following information:** 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.

45-40-35/307 Plants reserved at supplier's premises

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Pre-delivery inspection:** Give notice.
- **Labelling:** Identify inspected plants as reserved for use on this project.

45-40-35/311 Container grown perennials

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/165 Pit-planted perennial system.

- **General requirements:** 45-40-35/307 Plants reserved at supplier's premises; 45-40-35/301 Nursery stock; and 45-40-35/303 Temporary labelling and information.
- **Supplied by:** Submit proposals.
- **Standards:** In accordance with the National plant specification.
- **Botanical name:** Refer to plant schedule.
- **Root condition:** Container grown. Plants to be centred in the container, well rooted, firm and moist on delivery. Surface of the growing medium to be free of all weeds. The root system must never be allowed to dry out. Container to have adequate holes for drainage when placed on any substrate.
- **Size of container:** Refer to plant schedule
- **Spread:** Refer to plant schedule
- **Origin and provenance:** British grown.
- **Execution:** 45-40-35/603 Plant handling, storage and transport.

45-40-35/313 Perennials supplied as plugs

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/165 Pit-planted perennial system.

- **General requirements:** 45-40-35/307 Plants reserved at supplier's premises; 45-40-35/301 Nursery stock; and 45-40-35/303 Temporary labelling and information.
- **Supplied by:** Submit proposals.
- **Standards:** In accordance with the National plant specification.
- **Botanical name:** Refer to plant schedule
- **Root condition:** Plants centred in the container, firm and moist on delivery. Root system to be well developed appropriate to the natural characteristics of the species/cultivar taking into account its age and growth rate. Surface of the growing medium free of all weeds.
- **Size of plug:** Submit proposals.
- **Origin and provenance:** British grown.
- **Execution:** 45-40-35/603 Plant handling, storage and transport.

45-40-35/315 Perennials supplied in clumps

- **General requirements:** 45-40-35/307 Plants reserved at supplier's premises; 45-40-35/301 Nursery stock; and 45-40-35/303 Temporary labelling and information.
- **Supplied by:** Submit proposals.
- **Standards:** In accordance with the National plant specification.

- **Botanical name:** Refer to plant schedule
- **Root condition:** Buds and roots vigorous and free from physiological damage. Clump free of all weeds and fungal infections. Roots to be wrapped.
- **Spread:** Refer to plant schedule
- **Origin and provenance:** British grown.
- **Execution:** 45-40-35/603 Plant handling, storage and transport.

Execution

40-35-00/601 Amenity planting generally type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **Standard:** To HTA 'Handling and establishing landscape plants'.

40-35-00/605 Climatic conditions for amenity planting type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **General:** Carry out the work while soil and weather conditions are suitable. Do not plant in strong winds or in waterlogged soils.

40-35-00/609 Protection of existing grass during amenity planting

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

40-35-00/610 Water restrictions type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **Planting:** If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed.
- **After planting:** If planting has been carried out, obtain instructions on watering.

40-35-00/611 Disposal of arisings

Shared by: 40-35-00/612 Cultivation of topsoil type A; type B and type C; and 40-35-00/613 Preparation of undisturbed topsoil type A and type B.

- **Scope:** Remove from hard surfaces and grassed areas and Maintain clean surfaces as shown on drawings.
- **Timing:** Before topsoil stripping, if any.
- **General:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Shrub and tree prunings:** Compost on site.
 - **Litter and nonbiodegradable arisings:** Remove from site.
 - **Diseased plant material:** Remove from site.
 - **Stones with any dimension exceeding:** Submit proposals.

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

40-35-00/612 Cultivation of topsoil type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **General requirements:** 40-35-00/611 Disposal of arisings.
- **Grading and cultivation:**
 - **Standard:** In accordance with BS 4428.
- **Working conditions:**
 - **Soil condition:** Reasonably dry and workable.
 - **Timing:** Within a few days before planting.
 - **Weather and ground conditions:** Suitably dry.
- **Compacted topsoil:** Break up to full depth.
- **Soil with root spread of trees and shrubs to be retained:** Submit proposals.
- **Tilth:**
 - **Generally:** Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
 - **Depth:** Refer to drawings.
 - **Particle size (maximum):** 10 mm.
- **Surface:**
 - **Contours:** Smooth and flowing, with falls for adequate drainage.
 - **Hollows and ridges:** Not permitted.
- **Remove visible weeds, roots and large stones with any dimensions exceeding:** 75 mm.
- **Give notice:** If required levels cannot be achieved by movement of existing soil.
- **Disposal of arisings:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Litter and nonbiodegradable arisings:** Remove from site.

40-35-00/613 Preparation of undisturbed topsoil type A

- **General requirements:** 40-35-00/611 Disposal of arisings.
- **Hard ground:** Submit proposals.
- **Remove visible roots and large stones with a diameter greater than:** 75 mm.
- **Areas covered with turf or thick sward:** Submit proposals.
- **Weed control:**
 - **Timing:** Submit proposals.
 - **Treatment:** Remove by hand as required.

40-35-00/617 Applying fertilizer as a base dressing before cultivation

- **Locations for application:** All planting areas. Except for existing and proposed lawns and wildflower areas.
- **Application:**
 - **Spreading:** Evenly, in transverse directions.
 - **Timing:** Immediately before cultivation.
 - **Application rate:** Submit proposals.

40-35-00/631 Setting out of wildflower turf areas type A

- **Layout:** Refer to drawings
- **Planting density:** Refer to Softworks Schedule

40-35-00/661 Planting wild flower plugs type A

- **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:** Refer to drawings
- **Planting:** Place in a hole to suit plug size and shape. Create a cleft at bottom of hole to improve rooting. Gently firm plant into hole.

40-35-00/662 Planting bulbs and tubers in holes

- **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.

40-35-00/691 Applying loose mulch to planting beds

- **Preparation:** Clear weeds. Water soil thoroughly.
- **Coverage:** Refer to drawings
- **Finished level of mulch:** 50 mm below adjacent grassed or paved areas.

45-40-10/603 Handling bulbs, corms, tubers and roots

- **Standard:** In accordance with HTA 'Handling and establishing landscape plants'.
- **Handling:** Remove from packaging immediately.
- **Storage on site:**
 - **Location:** Well ventilated, dark, covered, rodent proof container. Locate away from exhausts and fruit.
 - **Duration:** Minimum period. Permitted only when necessary.

45-40-10/607 Planting bulbs, corms, tubers and roots type A

- **Depth of top of bulb, corm and tuber:** Approximately twice its height. Place base in contact with bottom of hole.
- **Backfilling:** Finely broken soil. Lightly firm to existing ground level.

45-40-10/607 Planting bulbs, corms, tubers and roots type B

- **Depth of top of bulb, corm and tuber:** Approximately twice its height. Place base in contact with bottom of hole.
- **Backfilling:** Finely broken soil. Lightly firm to existing ground level.

45-40-10/609 Naturalized planting in existing grassed areas

- **Scattering:** Random. Plant bulbs, corms and tubers where they fall.
- **Planting:** Neatly remove a plug of turf and replace after planting.

45-40-35/603 Plant handling, storage and transport

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Standard:** In accordance with HTA 'Handling and establishing landscape plants'.
- **Frost:** Protect plants from frost.
- **Handling:** Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- **Planting:** Upright or well balanced with best side to front.

System completion

40-35-00/801 Operations immediately after planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Watering:** Immediately after planting, water thoroughly. Do not damage or displace plants or soil.
- **Top dressing depth (minimum):** Not required.

40-35-00/802 Establishment of new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Duration:** Until established and confirmed by Landscape Architect.
- **Soil condition:** Ensure soil remains well watered during plant establishment.

40-35-00/803 Weeding new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Weed control:**
 - **General:** Remove invasive weeds by hand.
 - **Area:** Maintain a weed free area.

40-35-00/804 Fertilizing new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; and 40-35-00/165 Pit-planted perennial system.

- **Time of year:** March or April.
- **Application:**
 - **Method:** Spread evenly. Carefully lift and replace mulch materials.
 - **Application rate (minimum):** Submit proposals.

40-35-00/806 Watering new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Frequency:** As necessary to ensure establishment and continued thriving of planting.
- **Interval (nominal):** As necessary
- **Timing:** Evening.

40-35-00/807 Final mulching of planting beds and trees

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/165 Pit-planted perennial system; and 40-35-00/170 Pit-planted semi-mature tree system.

- **Timing:** At end of the maintenance period.
- **Watering:** Thoroughly moisten soil before remulching. Water where necessary.
- **Depth of mulch (minimum):** 50mm

40-35-00/809 Plants that have failed to thrive

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Defects due to materials or workmanship not in accordance with the Contract:**
 - **Exclusions:** Theft or malicious damage after completion.
 - **Rectification:** Replace with equivalent plants.
- **Replacements:** To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- **Timing of making good:** In accordance with an agreed defects rectification programme.

40-35-00/810 Instructions for future maintenance

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Recommended procedures for maintenance of planting work for one year:**
 - **Format:** Printed.
 - **Timing:** Submit proposals.
 - **Content:** Schedule of ongoing maintenance problems experienced during the rectification period and Details of special procedures to be carried out.
 - **Fertiliser:** Generally no fertiliser is required.
 - **Cutting regime:** Once established cutting should be undertaken once per year in the Autumn. This should be done by strimming and raking cutting back to a length between 25-50mm. in height.
 - **Clear arisings:** The cut and remove should be carried out from late summer, after the plants have set and shed their seed.

Ω End of system

40-35-00/160 Pit-planted climber system

System outline

40-35-00/160 Pit-planted climber system

- **Preparatory work to soil:**
 - **Herbicide:** Submit proposals.
 - **Weed suppression:** Mulch refer to plant schedule and drawing
- **Plant pit backfill material:** Approved top soil
- **Mulch:** Refer to drawings
- **Supports:** Submit proposals.
- **Labels:** 45-35-45/320 Delivery labels for plants.
- **Execution:** 40-35-00/601 type A Amenity planting generally type A;
40-35-00/605 type A Climatic conditions for amenity planting type A;
40-35-00/610 type A Water restrictions type A;
40-35-00/612 type A Cultivation of topsoil type A;
40-35-00/706 Attaching supports for climbing plants;
and 40-35-00/644 Planting climbing plants.
- **System completion:** 40-35-00/801 Operations immediately after planting;
40-35-00/802 Establishment of new planting;
40-35-00/803 Weeding new planting;
40-35-00/804 Fertilizing new planting;
40-35-00/806 Watering new planting;
40-35-00/809 Plants that have failed to thrive;
Training
and 40-35-00/810 Instructions for future maintenance.

Products

45-35-45/320 Delivery labels for plants

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Standard:** To BS 3936-1 and To National Plant Specification standards.
- **Labels:** Provide for each plant.
- **Information required:** The full botanical name.

Execution

40-35-00/601 Amenity planting generally type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **Standard:** To HTA 'Handling and establishing landscape plants'.

40-35-00/605 Climatic conditions for amenity planting type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **General:** Carry out the work while soil and weather conditions are suitable. Do not plant in strong winds or in waterlogged soils.

40-35-00/610 Water restrictions type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **Planting:** If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed.
- **After planting:** If planting has been carried out, obtain instructions on watering.

40-35-00/611 Disposal of arisings

Shared by: 40-35-00/612 Cultivation of topsoil type A, type B and type C; and 40-35-00/613 Preparation of undisturbed topsoil type A and type B.

- **Scope:** Remove from hard surfaces and grassed areas and Maintain clean surfaces as shown on drawings.
- **Timing:** Before topsoil stripping, if any.
- **General:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Shrub and tree prunings:** Compost on site.
 - **Litter and nonbiodegradable arisings:** Remove from site.
 - **Diseased plant material:** Remove from site.
 - **Stones with any dimension exceeding:** Submit proposals.
 - **Contamination:** Remove from site material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

40-35-00/612 Cultivation of topsoil type A

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/160 Pit-planted climber system.

- **General requirements:** 40-35-00/611 Disposal of arisings.
- **Grading and cultivation:**
 - **Standard:** In accordance with BS 4428.
- **Working conditions:**
 - **Soil condition:** Reasonably dry and workable.
 - **Timing:** Within a few days before planting.
 - **Weather and ground conditions:** Suitably dry.
- **Compacted topsoil:** Break up to full depth.
- **Soil with root spread of trees and shrubs to be retained:** Submit proposals.
- **Tilth:**
 - **Generally:** Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
 - **Depth:** Refer to drawings.
 - **Particle size (maximum):** 10 mm.
- **Surface:**
 - **Contours:** Smooth and flowing, with falls for adequate drainage.

- **Hollows and ridges:** Not permitted.
- **Remove visible weeds, roots and large stones with any dimensions exceeding:** 75 mm.
- **Give notice:** If required levels cannot be achieved by movement of existing soil.
- **Disposal of arisings:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Litter and nonbiodegradable arisings:** Remove from site.

40-35-00/644 Planting climbing plants

- **Dimensions:**
 - **Plan size (minimum):** As Plant schedule.
 - **Depth (minimum):** As Plant schedule.
- **Sloping ground:** Maintain minimum depth throughout.
- **Pit bottoms:**
 - **Generally:** Break up. Slightly raise centre.
 - **Break up depth (nominal):** 200 mm.
- **Pit sides:** Vertical. Scarify.
- **Position:** 150 mm clear of supporting structure (e.g. wall/ fence) with roots spread outward.
- **Branches:** Lightly secure to supports.

40-35-00/706 Attaching supports for climbing plants

- **Climber supports:**
 - **Base height (minimum):** Submit proposals.
 - **Extent:** Submit proposals.
 - **Centres (maximum):** Positions to be confirmed by Landscape Architect
 - **Distance from wall (minimum):** 75 mm.
- **Fixings centres (maximum):** Submit proposals.

System completion

40-35-00/801 Operations immediately after planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Watering:** Immediately after planting, water thoroughly. Do not damage or displace plants or soil.
- **Top dressing depth (minimum):** Not required.

40-35-00/802 Establishment of new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Duration:** Untill established and confirmed by Landscape Architect.
- **Soil condition:** Ensure soil remains well watered during plant establishment.

40-35-00/803 Weeding new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Weed control:**
 - **General:** Remove invasive weeds by hand.
 - **Area:** Maintain a weed free area.

40-35-00/804 Fertilizing new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; and 40-35-00/165 Pit-planted perennial system.

- **Time of year:** March or April.
- **Application:**
 - **Method:** Spread evenly. Carefully lift and replace mulch materials.
 - **Application rate (minimum):** Submit proposals.

40-35-00/806 Watering new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Frequency:** As necessary to ensure establishment and continued thriving of planting.
- **Interval (nominal):** As necessary
- **Timing:** Evening.

40-35-00/809 Plants that have failed to thrive

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Defects due to materials or workmanship not in accordance with the Contract:**
 - **Exclusions:** Theft or malicious damage after completion.
 - **Rectification:** Replace with equivalent plants.
- **Replacements:** To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- **Timing of making good:** In accordance with an agreed defects rectification programme.

40-35-00/810 Instructions for future maintenance

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Recommended procedures for maintenance of planting work for one year:**
 - **Format:** Printed.
 - **Timing:** Submit proposals.
 - **Content:** Schedule of ongoing maintenance problems experienced during the rectification period and Details of special procedures to be carried out.
 - **Fertiliser:** Generally no fertiliser is required.
 - **Cutting regime:** Once established cutting should be undertaken once per year in the Autumn. This should be done by strimming and raking cutting back to a length between 25-50mm. in height.

- **Clear arisings:** The cut and remove should be carried out from late summer, after the plants have set and shed their seed.

Ω End of system

40-35-00/165 Pit-planted perennial system

System outline

40-35-00/165 Pit-planted perennial system

- **System performance:** 40-35-00/220 Aesthetic performance of amenity planting systems and .
- **Preparatory work to soil:**
 - **Herbicide:** Submit proposals.
 - **Weed suppression:** Mulch refer to plant schedule and drawing.
- **Plants:** 45-40-35/311 Container grown perennials and 45-40-35/313 Perennials supplied as plugs.
- **Mulch:** Refer to drawing and plant schedule
- **Labels:** 45-35-45/320 Delivery labels for plants.
- **Execution:** 40-35-00/601 type C Amenity planting generally type C;
40-35-00/603 type B Times of year for amenity planting type B;
40-35-00/605 type C Climatic conditions for amenity planting type C;
40-35-00/610 type C Water restrictions type C;
40-35-00/612 type C Cultivation of topsoil type C;
40-35-00/631 type B Random setting out of amenity planting type B;
and 40-35-00/661 type B Planting wild flower plugs type B.
- **System completion:** 40-35-00/801 Operations immediately after planting;
40-35-00/802 Establishment of new planting;
40-35-00/803 Weeding new planting;
40-35-00/804 Fertilizing new planting;
40-35-00/806 Watering new planting;
40-35-00/807 Final mulching of planting beds and trees;
40-35-00/809 Plants that have failed to thrive;
and 40-35-00/810 Instructions for future maintenance.

System performance

40-35-00/220 Aesthetic performance of amenity planting systems

Shared by: 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Design criteria:**
 - **Size:** Instant impact refer to drawings and plant schedule

Products

45-35-45/320 Delivery labels for plants

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Standard:** To BS 3936-1 and To National Plant Specification standards.
- **Labels:** Provide for each plant.

- **Information required:** The full botanical name.

45-40-35/301 Nursery stock

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Condition:** Materially undamaged, sturdy, healthy and vigorous.
- **Appearance:** Of good shape and without elongated shoots, appropriate to species and variety.
- **Hardiness:** Grown in a suitable environment and hardened off.
- **Health:** Free from pests, diseases, discoloration, weeds and physiological disorders.
- **Species:** True to name.

45-40-35/303 Temporary labelling and information

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Labels to provide the following information:** 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.

45-40-35/307 Plants reserved at supplier's premises

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Pre-delivery inspection:** Give notice.
- **Labelling:** Identify inspected plants as reserved for use on this project.

45-40-35/311 Container grown perennials

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/165 Pit-planted perennial system.

- **General requirements:** 45-40-35/307 Plants reserved at supplier's premises; 45-40-35/301 Nursery stock; and 45-40-35/303 Temporary labelling and information.
- **Supplied by:** Submit proposals.
- **Standards:** In accordance with the National plant specification.
- **Botanical name:** Refer to plant schedule.
- **Root condition:** Container grown. Plants to be centred in the container, well rooted, firm and moist on delivery. Surface of the growing medium to be free of all weeds. The root system must never be allowed to dry out. Container to have adequate holes for drainage when placed on any substrate.
- **Size of container:** Refer to plant schedule
- **Spread:** Refer to plant schedule
- **Origin and provenance:** British grown.
- **Execution:** 45-40-35/603 Plant handling, storage and transport.

45-40-35/313 Perennials supplied as plugs

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; and 40-35-00/165 Pit-planted perennial system.

- **General requirements:** 45-40-35/307 Plants reserved at supplier's premises; 45-40-35/301 Nursery stock; and 45-40-35/303 Temporary labelling and information.
- **Supplied by:** Submit proposals.

- **Standards:** In accordance with the National plant specification.
- **Botanical name:** Refer to plant schedule
- **Root condition:** Plants centred in the container, firm and moist on delivery. Root system to be well developed appropriate to the natural characteristics of the species/cultivar taking into account its age and growth rate. Surface of the growing medium free of all weeds.
- **Size of plug:** Submit proposals.
- **Origin and provenance:** British grown.
- **Execution:** 45-40-35/603 Plant handling, storage and transport.

Execution

40-35-00/601 Amenity planting generally type C

- **Standard:** To HTA 'Handling and establishing landscape plants'.
- **Planting:** Upright or well balanced with best side to front.

40-35-00/603 Times of year for amenity planting type B

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

40-35-00/605 Climatic conditions for amenity planting type C

- **General:** Carry out the work while soil and weather conditions are suitable. Do not plant in strong winds.

40-35-00/610 Water restrictions type C

- **Planting:** If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed.
- **After planting:** If planting has been carried out, obtain instructions on watering.

40-35-00/611 Disposal of arisings

Shared by: 40-35-00/612 Cultivation of topsoil type A; type B and type C; and 40-35-00/613 Preparation of undisturbed topsoil type A and type B.

- **Scope:** Remove from hard surfaces and grassed areas and Maintain clean surfaces as shown on drawings.
- **Timing:** Before topsoil stripping, if any.
- **General:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Shrub and tree prunings:** Compost on site.
 - **Litter and nonbiodegradable arisings:** Remove from site.
 - **Diseased plant material:** Remove from site.
 - **Stones with any dimension exceeding:** Submit proposals.
 - **Contamination:** Remove from site material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

40-35-00/612 Cultivation of topsoil type C

- **General requirements:** 40-35-00/611 Disposal of arisings.
- **Grading and cultivation:**
 - **Standard:** In accordance with BS 4428.
- **Working conditions:**
 - **Soil condition:** Reasonably dry and workable.
 - **Timing:** Within a few days before planting.
 - **Weather and ground conditions:** Suitably dry.
- **Compacted topsoil:** Break up to full depth.
- **Tilth:**
 - **Generally:** Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
 - **Depth:** Refer to drawing.
 - **Particle size (maximum):** Refer to drawing.
- **Surface:**
 - **Contours:** Smooth and flowing, with falls for adequate drainage.
 - **Hollows and ridges:** Not permitted.
- **Remove visible weeds, roots and large stones with any dimensions exceeding:** 100 mm.
- **Give notice:** If required levels cannot be achieved by movement of existing soil.
- **Disposal of arisings:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Litter and nonbiodegradable arisings:** Remove from site.

40-35-00/631 Random setting out of amenity planting type B

- **Layout:** Landscape Architect to provide setting out, contractor to request for site inspection.
- **Planting density:** As Plant schedule.

40-35-00/661 Planting wild flower plugs type B

- **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:** Refer to drawings
- **Planting:** Place in a hole to suit plug size and shape. Create a cleft at bottom of hole to improve rooting. Gently firm plant into hole.

45-40-35/603 Plant handling, storage and transport

Shared by: 45-40-35/311 Container grown perennials; 45-40-35/313 Perennials supplied as plugs; and 45-40-35/315 Perennials supplied in clumps.

- **Standard:** In accordance with HTA 'Handling and establishing landscape plants'.
- **Frost:** Protect plants from frost.
- **Handling:** Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- **Planting:** Upright or well balanced with best side to front.

System completion

40-35-00/801 Operations immediately after planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Watering:** Immediately after planting, water thoroughly. Do not damage or displace plants or soil.
- **Top dressing depth (minimum):** Not required.

40-35-00/802 Establishment of new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Duration:** Until established and confirmed by Landscape Architect.
- **Soil condition:** Ensure soil remains well watered during plant establishment.

40-35-00/803 Weeding new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Weed control:**
 - **General:** Remove invasive weeds by hand.
 - **Area:** Maintain a weed free area.

40-35-00/804 Fertilizing new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; and 40-35-00/165 Pit-planted perennial system.

- **Time of year:** March or April.
- **Application:**
 - **Method:** Spread evenly. Carefully lift and replace mulch materials.
 - **Application rate (minimum):** Submit proposals.

40-35-00/806 Watering new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Frequency:** As necessary to ensure establishment and continued thriving of planting.
- **Interval (nominal):** As necessary
- **Timing:** Evening.

40-35-00/807 Final mulching of planting beds and trees

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/165 Pit-planted perennial system; and 40-35-00/170 Pit-planted semi-mature tree system.

- **Timing:** At end of the maintenance period.
- **Watering:** Thoroughly moisten soil before remulching. Water where necessary.
- **Depth of mulch (minimum):** 50mm

40-35-00/809 Plants that have failed to thrive

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Defects due to materials or workmanship not in accordance with the Contract:**
 - **Exclusions:** Theft or malicious damage after completion.
 - **Rectification:** Replace with equivalent plants.
- **Replacements:** To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- **Timing of making good:** In accordance with an agreed defects rectification programme.

40-35-00/810 Instructions for future maintenance

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Recommended procedures for maintenance of planting work for one year:**
 - **Format:** Printed.
 - **Timing:** Submit proposals.
 - **Content:** Schedule of ongoing maintenance problems experienced during the rectification period and Details of special procedures to be carried out.
 - **Fertiliser:** Generally no fertiliser is required.
 - **Cutting regime:** Once established cutting should be undertaken once per year in the Autumn. This should be done by strimming and raking cutting back to a length between 25-50mm. in height.
 - **Clear arisings:** The cut and remove should be carried out from late summer, after the plants have set and shed their seed.

Ω End of system

40-35-00/170 Pit-planted semi-mature tree system

System outline

40-35-00/170 Pit-planted semi-mature tree system

- **System performance:** [40-35-00/220 Aesthetic performance of amenity planting systems](#) and .
- **Preparatory work to soil:**
 - **Herbicide:** Submit proposals.
 - **Weed suppression:** Mulch
- **Trees:** [45-40-90/355 Rootballed trees](#).
- **Tree pit:**
 - **Tree pit accessories:** Refer to drawing
 - **Tree pit backfill:** [40-35-00/509 Refer](#) to drawing
 - **Rootball support:** Refer to drawing
- **Mulch:** Refer to drawing and plant schedule
- **Supports:** Refer to drawing
- **Protection:** [45-40-65/410 Tree protectors](#).
- **Labels:** [45-35-45/320 Delivery labels for plants](#).
- **Execution:** [40-35-00/601 type B Amenity planting generally type B](#); [40-35-00/603 type A Times of year for amenity planting type A](#); [40-35-00/605 type B Climatic conditions for amenity planting type B](#); [40-35-00/607 Notice for tree and shrub planting operations](#); [40-35-00/610 type B Water restrictions type B](#); [40-35-00/612 type B Cultivation of topsoil type B](#); [40-35-00/613 type B Preparation of undisturbed topsoil type B](#); [40-35-00/641 Planting semi-mature trees to BS 4043](#); [40-35-00/642 type B Planting amenity trees in pits type B](#); [40-35-00/650 Guying and underground guying for semi-mature trees](#); [40-35-00/651 Installing tree pit irrigation, drainage and ventilation pipes](#); and [40-35-00/692 Applying loose mulch around trees](#).
- **System completion:** [40-35-00/801 Operations immediately after planting](#); [40-35-00/802 Establishment of new planting](#); [40-35-00/803 Weeding new planting](#); [40-35-00/806 Watering new planting](#); [40-35-00/807 Final mulching of planting beds and trees](#); [40-35-00/809 Plants that have failed to thrive](#); and [40-35-00/810 Instructions for future maintenance](#).

System performance

40-35-00/220 Aesthetic performance of amenity planting systems

Shared by: [40-35-00/165 Pit-planted perennial system](#); [40-35-00/170 Pit-planted semi-mature tree system](#); and [40-35-00/175 Pit-planted small tree or shrub system](#).

- **Design criteria:**
 - **Size:** Instant impact refer to drawings and plant schedule

Products

45-35-45/320 Delivery labels for plants

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Standard:** To BS 3936-1 and To National Plant Specification standards.
- **Labels:** Provide for each plant.
- **Information required:** The full botanical name.

45-40-65/410 Tree protectors

- **Manufacturer:** Submit proposals.
- **Shape:** Spiral.
- **Material:** Submit proposals.
- **Size:** Submit proposals.
- **Colour:** Manufacturer's standard.

45-40-90/305 Nursery stock generally

Shared by: 45-40-90/320 Bare root trees; 45-40-90/355 Rootballed trees; 45-40-90/395 Container grown shrubs; and 45-40-90/415 Container grown climbers.

- **Condition:** Materially undamaged, sturdy, healthy and vigorous.
- **Appearance:** Of good shape and without elongated shoots, appropriate to species and variety.
- **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. Visible suckers to be removed flush with rootstock. Trees to be budded or grafted on fully compatible rootstock appropriate to the type. Union to be well-called.
- **Root system and condition:** Balanced with branch system.
- **Species:** True to name.

45-40-90/355 Rootballed trees

- **General requirements:** 45-40-90/305 Nursery stock generally.
- **Supplied by:** Submit proposals.
- **Standards:** Trees and shrubs to BS 3936-1 and In accordance with the National plant specification.
- **Botanical name:** Refer to drawing and plant schedule
- **Form:** Refer to drawing and plant schedule
- **Girth:** Refer to drawing and plant schedule
- **Clear stem height:** 200 cm.
- **Root condition and protection:** Rootballs to be firm and solid, free of perennial weeds and enclosed in hessian which must decompose within eighteen months of planting and not constrict continuing growth of the plant. Roots to penetrate the whole ball.
- **Number of breaks or stems (minimum):** Three.
- **Origin and provenance:** British grown.
- **Shape:** Natural.

- **Execution:** 45-40-90/614 Plant handling, storage and transport;
;
and 45-40-90/618 Times of year for planting.

Custom made products

40-35-00/509 Tree and shrub pit backfilling material

- **Composition:** Refer to drawing.

Execution

40-35-00/601 Amenity planting generally type B

- **Standard:** To HTA 'Handling and establishing landscape plants'.
- **Planting:** Upright or well balanced with best side to front.

40-35-00/603 Times of year for amenity planting type A

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

40-35-00/605 Climatic conditions for amenity planting type B

- **General:** Carry out the work while soil and weather conditions are suitable. Do not plant in strong winds.

40-35-00/607 Notice for tree and shrub planting operations

- **Give notice before:** Applying herbicide;
Setting out;
and Delivery of plants.
- **Period of notice:** 2 weeks.

40-35-00/610 Water restrictions type B

- **Planting:** If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed.
- **After planting:** If planting has been carried out, obtain instructions on watering.

40-35-00/611 Disposal of arisings

Shared by: 40-35-00/612 Cultivation of topsoil type A; type B and type C; and 40-35-00/613 Preparation of undisturbed topsoil type A and type B.

- **Scope:** Remove from hard surfaces and grassed areas and Maintain clean surfaces as shown on drawings.
- **Timing:** Before topsoil stripping, if any.
- **General:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Shrub and tree prunings:** Compost on site.

- **Litter and nonbiodegradable arisings:** Remove from site.
- **Diseased plant material:** Remove from site.
- **Stones with any dimension exceeding:** Submit proposals.
- **Contamination:** Remove from site material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

40-35-00/612 Cultivation of topsoil type B

- **General requirements:** 40-35-00/611 Disposal of arisings.
- **Grading and cultivation:**
 - **Standard:** In accordance with BS 4428.
- **Working conditions:**
 - **Soil condition:** Reasonably dry and workable.
 - **Timing:** Within a few days before planting.
 - **Weather and ground conditions:** Suitably dry.
- **Compacted topsoil:** Break up to full depth.
- **Tilth:**
 - **Generally:** Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
 - **Depth:** Refer to drawing
 - **Particle size (maximum):** 10 mm.
- **Surface:**
 - **Contours:** Smooth and flowing, with falls for adequate drainage.
 - **Hollows and ridges:** Not permitted.
- **Remove visible weeds, roots and large stones with any dimensions exceeding:** 75 mm.
- **Give notice:** If required levels cannot be achieved by movement of existing soil.
- **Disposal of arisings:**
 - **Biodegradable arisings:** Compost on site.
 - **Tree roots and stumps:** Remove from site.
 - **Litter and nonbiodegradable arisings:** Remove from site.

40-35-00/613 Preparation of undisturbed topsoil type B

- **General requirements:** 40-35-00/611 Disposal of arisings.
- **Hard ground:** Break up thoroughly.
- **Remove visible roots and large stones with a diameter greater than:** 100 mm.
- **Areas covered with turf or thick sward:** Plough or dig over to full depth of topsoil.
- **Weed control:**
 - **Timing:** Submit proposals.
 - **Treatment:** Submit proposals.

40-35-00/641 Planting semi-mature trees to BS 4043

- **Standard:** Prepare roots and transplant to BS 4043. Backfill.

40-35-00/642 Planting amenity trees in pits type B

- **Dimensions:**
 - **Plan size (minimum):** Refer to drawing
 - **Depth (minimum):** Refer to drawing
- **Sloping ground:** Maintain minimum depth throughout.

- **Pit bottoms:**
 - **Generally:** Refer to drawing
 - **Break up depth (nominal):** Refer to drawing
 - **Treatment:** Refer to drawing
- **Pit sides:** Vertical. Scarify.

40-35-00/650 Guying and underground guying for semi-mature trees

- **Standard:** To BS 4043.

40-35-00/651 Installing tree pit irrigation, drainage and ventilation pipes

- **Siting:** Refer to drawing.
- **Depth of excavation:** Refer to drawing.
- **Ventilation pipes:** Refer to drawing.
- **Irrigation pipes:** Refer to drawing
- **Geotextile filter position:** Refer to drawing
- **Completed pits:** Test for free drainage before planting.

40-35-00/692 Applying loose mulch around trees

- **Preparation:** Clear weeds. Water soil thoroughly.
- **Coverage:** In a circular area of 500 mm radius measured from tree stem.
- **Finished level of mulch:** 50 mm below adjacent grassed or paved areas.

45-40-90/614 Plant handling, storage and transport

Shared by: 45-40-90/320 Bare root trees; 45-40-90/355 Rootballed trees; 45-40-90/395 Container grown shrubs; and 45-40-90/415 Container grown climbers.

- **Standard:** In accordance with HTA 'Handling and establishing landscape plants'.
- **Extreme cold:** Protect plants from frost.
- **Handling:** Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.

45-40-90/618 Times of year for planting

- **Container grown nursery stock:** Submit proposals.

System completion

40-35-00/801 Operations immediately after planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Watering:** Immediately after planting, water thoroughly. Do not damage or displace plants or soil.
- **Top dressing depth (minimum):** Not required.

40-35-00/802 Establishment of new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Duration:** Untill established and confirmed by Landscape Architect.

- **Soil condition:** Ensure soil remains well watered during plant establishment.

40-35-00/803 Weeding new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Weed control:**
 - **General:** Remove invasive weeds by hand.
 - **Area:** Maintain a weed free area.

40-35-00/806 Watering new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Frequency:** As necessary to ensure establishment and continued thriving of planting.
- **Interval (nominal):** As necessary
- **Timing:** Evening.

40-35-00/807 Final mulching of planting beds and trees

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/165 Pit-planted perennial system; and 40-35-00/170 Pit-planted semi-mature tree system.

- **Timing:** At end of the maintenance period.
- **Watering:** Thoroughly moisten soil before remulching. Water where necessary.
- **Depth of mulch (minimum):** 50mm

40-35-00/809 Plants that have failed to thrive

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Defects due to materials or workmanship not in accordance with the Contract:**
 - **Exclusions:** Theft or malicious damage after completion.
 - **Rectification:** Replace with equivalent plants.
- **Replacements:** To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- **Timing of making good:** In accordance with an agreed defects rectification programme.

40-35-00/810 Instructions for future maintenance

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Recommended procedures for maintenance of planting work for one year:**
 - **Format:** Printed.
 - **Timing:** Submit proposals.
 - **Content:** Schedule of ongoing maintenance problems experienced during the rectification period and Details of special procedures to be carried out.
 - **Fertiliser:** Generally no fertiliser is required.
 - **Cutting regime:** Once established cutting should be undertaken once per year in the Autumn. This should be done by strimming and raking cutting back to a length between 25-50mm. in height.

- **Clear arisings:** The cut and remove should be carried out from late summer, after the plants have set and shed their seed.

Ω End of system

40-35-00/175 Pit-planted small tree or shrub system

System outline

40-35-00/175 Pit-planted small tree or shrub system

- **System performance:** [40-35-00/220 Aesthetic performance of amenity planting systems.](#)
- **Preparatory work to soil:**
 - **Herbicide:** Submit proposals.
 - **Weed suppression:** Mulch refer to plant schedule and drawing
- **Trees:** [45-40-90/320 Bare root trees;](#)
[45-40-90/395 Container grown shrubs;](#)
and [45-40-90/415 Container grown climbers.](#)
- **Tree pit backfill:** Excavated material.
- **Mulch:** not required
- **Supports:** Submit proposals.
- **Protection:**
.
- **Labels:** [45-35-45/320 Delivery labels for plants.](#)
- **Execution:** [40-35-00/642 type A Planting amenity trees in pits type A](#)
- **System completion:** [40-35-00/801 Operations immediately after planting;](#)
[40-35-00/802 Establishment of new planting;](#)
[40-35-00/803 Weeding new planting;](#)
[40-35-00/806 Watering new planting;](#)
[40-35-00/809 Plants that have failed to thrive;](#)
and [40-35-00/810 Instructions for future maintenance.](#)

System performance

40-35-00/220 Aesthetic performance of amenity planting systems

Shared by: [40-35-00/165 Pit-planted perennial system;](#) [40-35-00/170 Pit-planted semi-mature tree system;](#) and [40-35-00/175 Pit-planted small tree or shrub system.](#)

- **Design criteria:**
 - **Size:** Instant impact refer to drawings and plant schedule

Products

45-35-45/320 Delivery labels for plants

Shared by: [40-35-00/110 Bed-planted annual, perennial and bulb system;](#) [40-35-00/160 Pit-planted climber system;](#) [40-35-00/165 Pit-planted perennial system;](#) [40-35-00/170 Pit-planted semi-mature tree system;](#) and [40-35-00/175 Pit-planted small tree or shrub system.](#)

- **Standard:** To BS 3936-1 and To National Plant Specification standards.
- **Labels:** Provide for each plant.
- **Information required:** The full botanical name.

45-40-90/305 Nursery stock generally

Shared by: 45-40-90/320 Bare root trees; 45-40-90/355 Rootballed trees; 45-40-90/395 Container grown shrubs; and 45-40-90/415 Container grown climbers.

- **Condition:** Materially undamaged, sturdy, healthy and vigorous.
- **Appearance:** Of good shape and without elongated shoots, appropriate to species and variety.
- **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. Visible suckers to be removed flush with rootstock. Trees to be budded or grafted on fully compatible rootstock appropriate to the type. Union to be well-callused.
- **Root system and condition:** Balanced with branch system.
- **Species:** True to name.

45-40-90/320 Bare root trees

- **General requirements:** 45-40-90/305 Nursery stock generally.
- **Supplied by:** Submit proposals.
- **Standards:** Trees and shrubs to BS 3936-1 and In accordance with the National plant specification.
- **Form:** Refer to plant schedule
- **Stem size:**
 - **Girth:** Refer to plant schedule
- **Root condition and protection:** Bare root (bagged - co-extruded polythene, black inside white outside), containing and enclosing the whole root system.
- **Origin and provenance:** British grown.
- **Shape:** Natural.
- **Execution:** 45-40-90/614 Plant handling, storage and transport;
;
and 45-40-90/630 Installing shrub protection.

45-40-90/395 Container grown shrubs

- **General requirements:** 45-40-90/305 Nursery stock generally.
- **Supplied by:** Submit proposals.
- **Standards:** Trees and shrubs to BS 3936-1 and In accordance with the National plant specification.
- **Botanical name:** Refer to drawings and plant schedule
- **Form:** Refer to plant schedule
- **Height or spread:** Refer to plant schedule
- **Root condition and protection:** Container grown. Plants to be centred in the container, well rooted, firm and moist on delivery. Surface of the growing medium to be free of all weeds. Container to have adequate holes for drainage when placed on any substrate.
- **Size of container:** Refer to plant schedule
- **Habit:** Refer to plant schedule
- **Shape:** Refer to plant schedule
- **Origin and provenance:** British grown.
- **Execution:** 45-40-90/614 Plant handling, storage and transport;

; and 45-40-90/630 Installing shrub protection.

45-40-90/415 Container grown climbers

- **General requirements:** 45-40-90/305 Nursery stock generally.
- **Supplied by:** Submit proposals.
- **Standards:** In accordance with the National plant specification.
- **Botanical name:** Refer to plant schedule
- **Height or spread:** Refer to plant schedule
- **Root condition and protection:** Container grown. Plants to be centred in the container, well rooted, firm and moist on delivery. Surface of the growing medium to be free of all weeds. Container to have adequate holes for drainage when placed on any substrate.
- **Size of container:** Refer to plant schedule
- **Number of breaks (minimum):** Three.
- **Supports:** Submit proposals.
- **Origin and provenance:** British grown.
- **Execution:** 45-40-90/614 Plant handling, storage and transport;
;
and 45-40-90/630 Installing shrub protection.

Execution

40-35-00/642 Planting amenity trees in pits type A

- **Dimensions:**
 - **Plan size (minimum):** Wide enough to accommodate roots when fully spread.
 - **Depth (minimum):** 75 mm deeper than root system.
- **Sloping ground:** Maintain minimum depth throughout.
- **Pit bottoms:**
 - **Generally:** Break up. Slightly raise centre.
 - **Break up depth (nominal):** 150 mm.
 - **Treatment:** Work soil ameliorant into pit bottoms.
- **Pit sides:** Vertical. Scarify.

45-40-90/614 Plant handling, storage and transport

Shared by: 45-40-90/320 Bare root trees; 45-40-90/355 Rootballed trees; 45-40-90/395 Container grown shrubs; and 45-40-90/415 Container grown climbers.

- **Standard:** In accordance with HTA 'Handling and establishing landscape plants'.
- **Extreme cold:** Protect plants from frost.
- **Handling:** Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.

45-40-90/630 Installing shrub protection

Shared by: 45-40-90/320 Bare root trees; 45-40-90/395 Container grown shrubs; and 45-40-90/415 Container grown climbers.

- **General:** Do not impede natural movement of plants or restrict growth.

System completion

40-35-00/801 Operations immediately after planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Watering:** Immediately after planting, water thoroughly. Do not damage or displace plants or soil.
- **Top dressing depth (minimum):** Not required.

40-35-00/802 Establishment of new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Duration:** Until established and confirmed by Landscape Architect.
- **Soil condition:** Ensure soil remains well watered during plant establishment.

40-35-00/803 Weeding new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Weed control:**
 - **General:** Remove invasive weeds by hand.
 - **Area:** Maintain a weed free area.

40-35-00/806 Watering new planting

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Frequency:** As necessary to ensure establishment and continued thriving of planting.
- **Interval (nominal):** As necessary
- **Timing:** Evening.

40-35-00/809 Plants that have failed to thrive

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Defects due to materials or workmanship not in accordance with the Contract:**
 - **Exclusions:** Theft or malicious damage after completion.
 - **Rectification:** Replace with equivalent plants.
- **Replacements:** To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- **Timing of making good:** In accordance with an agreed defects rectification programme.

40-35-00/810 Instructions for future maintenance

Shared by: 40-35-00/110 Bed-planted annual, perennial and bulb system; 40-35-00/160 Pit-planted climber system; 40-35-00/165 Pit-planted perennial system; 40-35-00/170 Pit-planted semi-mature tree system; and 40-35-00/175 Pit-planted small tree or shrub system.

- **Recommended procedures for maintenance of planting work for one year:**

- **Format:** Printed.
- **Timing:** Submit proposals.
- **Content:** Schedule of ongoing maintenance problems experienced during the rectification period and Details of special procedures to be carried out.
- **Fertiliser:** Generally no fertiliser is required.
- **Cutting regime:** Once established cutting should be undertaken once per year in the Autumn. This should be done by strimming and raking cutting back to a length between 25-50mm. in height.
- **Clear arisings:** The cut and remove should be carried out from late summer, after the plants have set and shed their seed.

Ω End of system

40-35-00/190 Amenity planting maintenance system

System outline

40-35-00/190 Amenity planting maintenance system

- **Spot weedkilling herbicide:** Submit proposals.
- **Pest control:** Submit proposals.
- **Fertilizer:** Submit proposals.
- **Weed suppression:** Mulch refer to drawing and plant schedule
- **Mulch:** Refer to drawing and plant schedule
- **Material for making up levels and refilling at tree grilles:** Submit proposals.
- **System facility management:** 40-35-00/904 Mechanical equipment use in amenity plant maintenance operations;
40-35-00/905 Shrub and herbaceous areas;
40-35-00/907 Beds of perennials or perennials and annuals;
40-35-00/909 Reinstatement after maintenance;
40-35-00/910 Disposal of arisings;
40-35-00/912 Water restrictions;
40-35-00/913 Watering;
40-35-00/920 Applying top dressing;
40-35-00/921 Weed control generally;
40-35-00/925 Weeding loose mulch;
40-35-00/930 Applying fungicide to trees and shrubs;
40-35-00/931 Applying insecticide to trees and shrubs;
40-35-00/932 Litter removal;
40-35-00/933 Snow removal from trees and shrubs;
40-35-00/941 Digging over;
40-35-00/942 Soil level adjustment;
40-35-00/943 Maintenance of loose mulch;
40-35-00/952 Prevention of wound bleeding;
40-35-00/953 Treatment of tree wounds;
40-35-00/955 Bark damage;
40-35-00/957 Dead and diseased plants;
40-35-00/961 Tree work generally;
40-35-00/963 Pruning trees and shrubs to BS 7370-4;
40-35-00/970 Pruning ornamental shrubs;
40-35-00/971 Pruning flowering species of shrubs and roses;
40-35-00/973 Cleaning out and deadwooding;
40-35-00/979 Trimming slowly establishing hedges;
;
40-35-00/991 Maintaining plant supports generally;
40-35-00/995 Maintaining tree guards;
and 40-35-00/998 Securing climbing plants supports.

System facility management

40-35-00/901 Management objectives for amenity planting

Shared by: 40-35-00/905 Shrub and herbaceous areas; 40-35-00/907 Beds of perennials or perennials and annuals; 40-35-00/909 Reinstatement after maintenance; 40-35-00/910 Disposal of arisings; 40-35-00/912 Water restrictions; 40-35-00/913 Watering; 40-35-00/920 Applying top dressing; 40-35-00/921

Weed control generally; 40-35-00/925 Weeding loose mulch; 40-35-00/930 Applying fungicide to trees and shrubs; 40-35-00/931 Applying insecticide to trees and shrubs; 40-35-00/932 Litter removal; 40-35-00/933 Snow removal from trees and shrubs; 40-35-00/941 Digging over; 40-35-00/942 Soil level adjustment; 40-35-00/943 Maintenance of loose mulch; 40-35-00/952 Prevention of wound bleeding; 40-35-00/953 Treatment of tree wounds; 40-35-00/955 Bark damage; 40-35-00/957 Dead and diseased plants; 40-35-00/961 Tree work generally; 40-35-00/963 Pruning trees and shrubs to BS 7370-4; 40-35-00/970 Pruning ornamental shrubs; 40-35-00/971 Pruning flowering species of shrubs and roses; 40-35-00/973 Cleaning out and deadwooding; 40-35-00/979 Trimming slowly establishing hedges; 40-35-00/991 Maintaining plant supports generally; 40-35-00/995 Maintaining tree guards; and 40-35-00/998 Securing climbing plants supports.

- **Duration:** 1 year.
- **Aims:** Improved landscape visual amenity;
Opportunities for recreation and sport;
and To encourage natural woodland regeneration.

40-35-00/902 Notice periods for maintenance visits

Shared by: 40-35-00/905 Shrub and herbaceous areas; 40-35-00/907 Beds of perennials or perennials and annuals; 40-35-00/909 Reinstatement after maintenance; 40-35-00/910 Disposal of arisings; 40-35-00/912 Water restrictions; 40-35-00/913 Watering; 40-35-00/920 Applying top dressing; 40-35-00/921 Weed control generally; 40-35-00/925 Weeding loose mulch; 40-35-00/930 Applying fungicide to trees and shrubs; 40-35-00/931 Applying insecticide to trees and shrubs; 40-35-00/932 Litter removal; 40-35-00/933 Snow removal from trees and shrubs; 40-35-00/941 Digging over; 40-35-00/942 Soil level adjustment; 40-35-00/943 Maintenance of loose mulch; 40-35-00/952 Prevention of wound bleeding; 40-35-00/953 Treatment of tree wounds; 40-35-00/955 Bark damage; 40-35-00/957 Dead and diseased plants; 40-35-00/961 Tree work generally; 40-35-00/963 Pruning trees and shrubs to BS 7370-4; 40-35-00/970 Pruning ornamental shrubs; 40-35-00/971 Pruning flowering species of shrubs and roses; 40-35-00/973 Cleaning out and deadwooding; 40-35-00/979 Trimming slowly establishing hedges; 40-35-00/991 Maintaining plant supports generally; 40-35-00/995 Maintaining tree guards; and 40-35-00/998 Securing climbing plants supports.

- **Give notice before:** Applying herbicide and Visiting site during maintenance period.
- **Period of notice:** 7 days.

40-35-00/904 Mechanical equipment use in amenity plant maintenance operations

- **General:** Minimize use. Do not damage trees and shrubs.
- **Restrictions:**
 - **Proximity to plants:** Do use not mowers, nylon filament rotary cutters and similar powered tools within 100 mm of plant stems.
 - **Prohibited equipment:** Chippers and Shredders.
 - **Times during which mechanical equipment may be used:** To be agreed

40-35-00/905 Shrub and herbaceous areas

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Planted areas:** Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
- **Firming up:** Gently firm loosened soil around plants. Straighten leaning trees and shrubs.
- **Dead and damaged plants:** Remove.
- **Mulch and 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:**
 - **Size of pits and plants:** To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.

- **Details:** Submit details and cost of plants before ordering.

40-35-00/907 Beds of perennials or perennials and annuals

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Operations at end of growing season:**
 - **Older flowering stems of herbaceous perennials:** Trim.
 - **Redundant plant supports, litter, debris and arisings:** Remove.
 - **Cultivation:** Fork over the soil. Do not cause undue disturbance to plants.
 - **Firming up:** Gently firm loosened soil around plants.
 - **Top dressing application rate (minimum):** 10g/m²

40-35-00/909 Reinstatement after maintenance

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings:** Submit proposals.
- **Cleanliness:** Leave the works in a clean tidy condition at completion and after maintenance operations.

40-35-00/910 Disposal of arisings

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Scope:** Remove from hard surfaces and grassed areas.
- **General:**
 - **Biodegradable arisings:** Compost on site.
 - **Grass cuttings:** Compost on site, wildflower cuttings leave for two days before removing to allow seeds to fall.
 - **Tree roots and stumps:** Submit proposals.
 - **Shrub and tree prunings:** Remove to recycling facility.
 - **Litter and nonbiodegradable arisings:** Remove from site.
 - **Diseased plant material:** Remove from site.
 - **Surplus topsoil following routine maintenance:** Spread evenly.

40-35-00/912 Water restrictions

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **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.

40-35-00/913 Watering

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Supply:** Potable mains water.
- **Quantity:** Wet full depth of topsoil.
- **Application:** Do not damage or loosen plants.
- **Compacted soil:** Loosen or scoop out. Direct water to rootzone.
- **Frequency:** As necessary for the continued thriving of all planting.

40-35-00/920 Applying top dressing

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Locations for application:** Lawn and shrub areas, not required for wildflower areas
- **Application:**
 - **Spreading:** Evenly, carefully incorporating into surface of soil.
 - **Timing:** Start of growing season.
 - **Application rate:** 10 g/m².

40-35-00/921 Weed control generally

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Scope:** Ornamental beds;
Shrub beds;
and Trees.
Lawns
- **General:** Keep clear of weeds and prevent from seeding. Prevent perennial weeds from becoming established.
- **Method:** By hand weeding;
By hoeing;
and By maintaining full thickness of mulch.
- **Individual trees and shrubs:** Maintain weed free area around each tree and shrub to the larger of 1 m diameter or the surface of original planting pit (if any).

40-35-00/925 Weeding loose mulch

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Weeding:** Remove weeds growing on or in mulch.
- **Method:** Hand weeding.

40-35-00/930 Applying fungicide to trees and shrubs

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Fungicide application:** Submit proposals.

40-35-00/931 Applying insecticide to trees and shrubs

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Insecticide application:** Submit proposals.

40-35-00/932 Litter removal

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Extraneous rubbish not arising from the contract work:** Collect and remove from site.

40-35-00/933 Snow removal from trees and shrubs

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.

- **Standard:** To BS 7370-4.
- **Timing:** Within 24 hours of snowfall.

40-35-00/941 Digging over

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Planting beds:** Dig over. Do not damage existing plants, bulbs and roots.
- **Depth of dig (minimum):** 75 mm.

40-35-00/942 Soil level adjustment

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Level of soil and mulch at edges of beds:** Reduce to 50 mm below adjacent grass or hard surface.

40-35-00/943 Maintenance of loose mulch

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Thickness (minimum):** 50 mm.
- **Top up:** As necessary
- **Mulch spill on adjacent areas:** Remove weeds and rubbish and return to planted area.

40-35-00/952 Prevention of wound bleeding

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Standard:** To BS 3998.

40-35-00/953 Treatment of tree wounds

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **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 and sealant:** Do not apply.

40-35-00/955 Bark damage

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Wounds:**
 - **Sap bleeding:** Do not attempt to stop.
 - **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.

40-35-00/957 Dead and diseased plants

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.

- **Dead plant material:**
 - **Removal:** At the end of the growing season, check shrubs and remove dead foliage, dead wood, and broken or damaged plants, branches and stems.
 - **Timing:** Within one week of notification.
 - **Replacement:** In the next scheduled round of replacement planting.

40-35-00/961 Tree work generally

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Identification:** Before starting work agree which trees, shrubs and hedges to be removed or pruned.
- **Protection:** Avoid damage to neighbouring trees, plants and property.
- **Standards:** To BS 3998 and Health and Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
- **Appearance:** Leave trees with a well balanced natural appearance. Favour a single central leading shoot.
- **Dead, dying, diseased wood and suckers:** Remove. Prune to promote healthy growth.
- **Timing:** As appropriate to the species.
- **Chain saw work:** Operatives must hold a Certificate of Competence.
- **Tree work:** To be carried out by a member of the Arboricultural Association.
- **Tree worker:** Submit proposals.

40-35-00/963 Pruning trees and shrubs to BS 7370-4

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Standard:** To BS 7370-4.

40-35-00/970 Pruning ornamental shrubs

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **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.

40-35-00/971 Pruning flowering species of shrubs and roses

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **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.

40-35-00/973 Cleaning out and deadwooding

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Remove:** Dead, dying, or diseased wood, broken branches and stubs and Fungal growths and fruiting bodies. Rubbish, windblown or accumulated in branch forks.

40-35-00/979 Trimming slowly establishing hedges

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **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.

40-35-00/991 Maintaining plant supports generally

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Inspection:**
 - **Scope:** Check condition of stakes, ties, guys and guards.
 - **Frequency of checks:** At each scheduled maintenance visit.
- **Operations:**
 - **Broken or missing items:** Replace.
 - **Rubbing:** Prevent.
 - **Ties:** Adjust to accommodate growth.
 - **Damage to bark:** Cut back neatly with sharp knife. Prevent further damage.

40-35-00/995 Maintaining tree guards

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Loose or defective guards:** Adjust, re-fix or replace to original specification and to prevent chafing.

40-35-00/998 Securing climbing plants supports

- **General requirements:** 40-35-00/901 Management objectives for amenity planting and 40-35-00/902 Notice periods for maintenance visits.
- **Insecure growth:** Attach to supporting wires or structures.
- **Connection:** Submit proposals.
- **Supporting structures:** Check and repair as necessary.

Ω End of system

40-35-35/185 Turf planting system

System outline

40-35-35/185 Turf planting system

- **System performance:** 40-35-35/220 Performance of grass swards.
- **Preparatory work to soil:**
 - **Fill to minor hollows:** Existing.
 - **Weed suppression:** Submit proposals.
 - **Herbicide:** Submit proposals.
 - **Fertilizer:** 45-40-85/395 Inorganic fertilizer.
- **Turf:** 45-40-95/331 Cultivated turf.
- **Top dressing:** 45-40-85/410 Compost dressing.
- **Mulch:**
- **Turf netting for steep slopes:**
- **Execution:** 40-35-35/601 Notice for seeding and turfing operations;
40-35-35/602 Water restrictions;
40-35-35/612 Cultivation of topsoil for seeded and turfed areas;
40-35-35/621 Preparation of undisturbed topsoil;
40-35-35/623 Finished levels of topsoil after settlement;
40-35-35/624 Setting out of seeded and turfed areas;
40-35-35/645 Trimming turf around trees;
40-35-35/651 Laying pre-seeded matting;
and 40-35-35/677 Applying fertilizer as a top dressing.
- **System completion:** 40-35-35/803 Failures of seeding and turfing;
40-35-35/811 Watering grass swards;
40-35-35/812 Applying maintenance fertilizer for grass swards;
40-35-35/813 Applying top dressing;
40-35-35/851 Grass swards first cut;
and 40-35-35/853 Cutting amenity grass.

System performance

40-35-35/220 Performance of grass swards

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

Products

45-40-85/395 Inorganic fertilizer

- **Supplier:** Submit proposals.
- **Standard:** In accordance with The EC Fertilisers (England and Wales) Regulations 2006.
- **Fertilizer type:** General purpose.
- **Availability to plants:**

45-40-85/410 Compost dressing

- **Supplier:** Submit proposals.
- **Source:** Submit proposals.
- **Compost type:** Sanitized and stabilized compost.
- **Standard:** To PAS 100.
- **Horticultural parameters:**
 - **pH (1:5 water extract):** 7.0–8.7.
 - **Electrical conductivity (maximum, 1:5 water extract):** 200 S/m.
 - **Moisture content (m/m of fresh weight):** 35–55%.
 - **Organic matter content (minimum):** 25%.
 - **Grading (air dried samples):**
 - **Carbon:Nitrogen ratio (maximum):** 20:1.
- **Texture:** Friable.
- **Objectionable odour:** Not permitted.
- **Declaration of analysis:** Submit.
- **Additional analyses:**

45-40-95/300 Turf, pre-planted and pre-seeded products generally

- **Condition:** Materially undamaged, sturdy, healthy and vigorous.
- **Hardiness:** Grown in a suitable environment and hardened off.
- **Health:** Free from pests, diseases, discoloration, weeds and physiological disorders.
- **Species:** Refer to plant schedule

45-40-95/331 Cultivated turf

- **General requirements:** 45-40-95/300 Turf, pre-planted and pre-seeded products generally.
- **Supplied by:** Submit proposals.
- **Third party certification:**
- **Turf dimensions:** 0.3 x 1.65 m.
- **Sward:**
 - **Seed mix:** Refer to plant schedule
 - **Origin and provenance:** British grown.
 - **Thatch height:** 5–15 mm.
 - **Cut height:** 35 mm or lower.
- **Substrate:**
 - **Embedded mesh:** Where present must not project above thatch layer.
 - **Strength:** Able to be placed and unrolled without breaking.
 - **Weight:** Less than 20 kg/m².
 - **Properties of soil used for turf production:** Well drained sandy loam.
 - **Soil thickness:** Manufacturer's standard.
- **Execution:** 45-40-95/605 Inspection of turf and 45-40-95/609 Handling, storage and transport of turf.

Execution

40-35-35/601 Notice for seeding and turfing operations

- **Give notice before:** Setting out and Seeding or turfing.
- **Period of notice:** 1 week.

40-35-35/602 Water restrictions

- **Timing:** If water supply is or is likely to be restricted by emergency legislation do not carry out seeding/ turfing until instructed.

40-35-35/612 Cultivation of topsoil for seeded and turfed areas

- **Grading and cultivation:**
 - **Standard:** In accordance with BS 4428.
 - **Category:**
- **Working conditions:**
 - **Soil condition:** Reasonably dry and workable.
 - **Timing:** Within a few days before planting.
 - **Weather and ground conditions:** Suitably dry.
- **Compacted topsoil:** Break up to full depth.
- **Soil with root spread of trees and shrubs to be retained:** Submit proposals.
- **Surface:**
 - **Contours:** Smooth and flowing, with falls for adequate drainage.
 - **Hollows and ridges:** Not permitted.
- **Remove visible weeds, roots and large stones with any dimensions exceeding:** 50 mm.
- **Adjacent levels:** Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
- **Give notice:** If required levels cannot be achieved by movement of existing soil.

40-35-35/621 Preparation of undisturbed topsoil

- **Hard ground:** Break up thoroughly.
- **Remove visible roots and large stones with a diameter greater than:** 50 mm.
- **Areas covered with turf or thick sward:** Plough or dig over to full depth of topsoil.
- **Fallow period (minimum):** Three months.

40-35-35/623 Finished levels of topsoil after settlement

- **Height (maximum) above adjoining paving or kerbs:** 25 mm.
- **Height below dpc of adjoining buildings (minimum):** 150 mm.
- **Height of shrub areas (maximum) above adjoining grass areas:** 50 mm.
- **Height above adjoining lawns:**
- **Tolerance for specified levels and gradients on sportsfields:**
 - **From levels or gradients shown on drawings:**
 - **From line between boning rods 30 m apart:**
- **Within root spread of existing trees:** Unchanged.
- **Adjoining soil areas:** Marry in.

40-35-35/624 Setting out of seeded and turfed areas

- **Boundaries:** Mark clearly.
- **Delineation:** In straight lines or smoothly flowing curves as shown on drawings.

40-35-35/641 Turfing generally

Shared by: [40-35-35/645 Trimming turf around trees](#); and [40-35-35/651 Laying pre-seeded matting](#).

- **Conditions:**
 - **Time of year:** Autumn or early winter.
 - **Restrictions:** Do not lay turf when persistent cold or drying winds are likely to occur or soil is frost bound, waterlogged or excessively dry.
- **Timing of laying:**
 - **Spring and summer:** Within 18 h of delivery.
 - **Autumn and winter:** Within 24 h of delivery.
- **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.
- **Levels adjustment:** 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:**
 - **Method:** Brush well in to completely fill all joints.
 - **Mix:** 35% finely sifted topsoil, 35% compost, 30% sand.
- **Watering:** Thoroughly water completed turf immediately after laying. Check that water has penetrated into the soil below.

40-35-35/645 Trimming turf around trees

- **General requirements:** [40-35-35/641 Turfing generally](#).
- **Method:** Neatly cut away around individual trees.
- **Diameter (nominal):** Submit proposals.
- **Tree pit surface:** Mulch.

40-35-35/651 Laying pre-seeded matting

- **General requirements:** [40-35-35/641 Turfing generally](#).
- **Mesh fixing:**
- **Fixing and jointing:**
- **Time of year:**
- **Topsoil dressing thickness:**

40-35-35/677 Applying fertilizer as a top dressing

- **Locations for application:** All turf areas.
- **Submissions:** 5 kg sample before ordering.
- **Delivery to site:** In original, sealed and fully labelled containers and mix according to manufacturer's written instructions.
- **Application:**

- **Spreading:** Evenly, in transverse directions.
- **Timing:** Start of growing season.
- **Application rate:** Submit proposals.

45-40-95/605 Inspection of turf

- **Inspection:** Give notice before lifting turf for designated areas.
- **Designated areas:** All grassed areas.
- **Labelling:** Identify inspected plants as reserved for use on this project.

45-40-95/609 Handling, storage and transport of turf

- **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 to site:** Arrange to avoid need for excessive stacking.
- **Stacking height (maximum):** 1 m.
- **Dried out or deteriorated turf:** Do not use.

System completion

40-35-35/801 Grass sward maintenance up to practical completion

Shared by: 40-35-35/811 Watering grass swards; 40-35-35/812 Applying maintenance fertilizer for grass swards; 40-35-35/813 Applying top dressing; 40-35-35/851 Grass swards first cut; and 40-35-35/853 Cutting amenity grass.

- **Visits to site to inspect grass swards:**
 - **Notice:** Give notice before visiting site up to practical completion
 - **Period of notice:** 1 week.

40-35-35/802 Grass sward maintenance up to the end of the rectification period

Shared by: 40-35-35/811 Watering grass swards; 40-35-35/812 Applying maintenance fertilizer for grass swards; 40-35-35/813 Applying top dressing; 40-35-35/851 Grass swards first cut; and 40-35-35/853 Cutting amenity grass.

- **Visits to site to inspect grass swards:**
 - **Notice:** Give notice before visiting site up to practical completion
 - **Period of notice:** 1 week.

40-35-35/803 Failures of seeding and turfing

- **Defective materials or workmanship:** Areas that have failed to thrive.
- **Exclusions:** Theft or malicious damage.
- **Method of making good:** Re-cultivation and re-seeding/ re-turfing.
- **Timing of making good:** Submit proposals.

40-35-35/811 Watering grass swards

- **General requirements:** 40-35-35/801 Grass sward maintenance up to practical completion and 40-35-35/802 Grass sward maintenance up to the end of the rectification period.
- **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 seeding and turfing.

40-35-35/812 Applying maintenance fertilizer for grass swards

- **General requirements:** 40-35-35/801 Grass sward maintenance up to practical completion and 40-35-35/802 Grass sward maintenance up to the end of the rectification period.
- **Application rate:**
 - **Spring application:** Submit proposals.
 - **Autumn application:** Submit proposals.

40-35-35/813 Applying top dressing

- **General requirements:** 40-35-35/801 Grass sward maintenance up to practical completion and 40-35-35/802 Grass sward maintenance up to the end of the rectification period.
- **Locations for application:** All lawn areas.
- **Application:**
 - **Spreading:** Evenly, carefully incorporating into surface of soil.
 - **Timing:** Start of growing season.
 - **Application rate:** Submit proposals.

40-35-35/851 Grass swards first cut

- **General requirements:** 40-35-35/801 Grass sward maintenance up to practical completion and 40-35-35/802 Grass sward maintenance up to the end of the rectification period.
- **Timing:** When grass is reasonably dry.
- **Height of initial growth (nominal):** 40–75 mm.
- **Preparation:**
 - **Debris and litter:** Remove.
 - **Stones and earth clods larger than 25 mm in any dimension:** Remove.
- **Height of first cut (nominal):** 40 mm.
- **Mower type:**
- **Arisings:** Remove for composting on site.

40-35-35/853 Cutting amenity grass

- **General requirements:** 40-35-35/801 Grass sward maintenance up to practical completion and 40-35-35/802 Grass sward maintenance up to the end of the rectification period.
- **Height of growth at any time (maximum):** 50 mm.
- **Preparation:** Before each cut remove litter and debris.
- **Cutting:**
 - **Timing:** As and when necessary.
 - **Height (nominal):** 25 mm.
 - **Arisings:** Remove and compost on site.
- **Trimming:** All edges.
- **Arisings:** Remove.

Ω End of system

40-40-45/125 Green roof system

System outline

40-40-45/125 Green roof system

- **System performance:** 40-40-45/210 Design of living roofs and 40-40-45/220 Structural performance.
- **System manufacturer:** Submit proposals.
- **Protection:**
 - **Protection layer:** Submit proposals.
 - **Root barrier:** Submit proposals.
 - **Separation layer:** Submit proposals.
- **Moisture control:**
 - **Drainage layer:** Submit proposals.
 - **Filter membrane:** Submit proposals.
 - **Moisture retention mat:** Submit proposals.
 - **Drainage ancillaries:** Submit proposals.
- **Planting systems:**
 - **Planting medium:** 45-40-85/330 Manufactured growing medium weed free extensive green roof substrate designed to support both stonecrops Sedum spp.
 - **Vegetation barrier:** Submit proposals.
- **Edge restraints:** Submit proposals.
- **Execution:** 40-40-45/671 Installing protection layers;
40-40-45/680 Installing growing substrate;
and 40-40-45/710 Installing edge retaining profile.
- **System completion:** 40-40-45/801 Operations immediately after planting on living roofs;
40-40-45/802 Establishing new planting on living roofs;
40-40-45/803 Weeding new planting on living roofs;
40-40-45/804 Fertilizing new planting on living roofs;
40-40-45/806 Watering new planting on living roofs;
40-40-45/809 Plants that have failed to thrive on living roofs;
and 40-40-45/810 Instructions for future maintenance of living roofs.

System performance

40-40-45/210 Design of living roofs

- **General requirements:** 40-40-45/215 Information submittals for design of living roofs.
- **Design:** Complete the design of the green roof systems in accordance with 'GRO Green roof code'.
- **Design criteria:**
 - **Functional:** General amenity.
 - **Aesthetic:** To ensure even coverage of roof
 - **Biological and physiological:**
 - Growing conditions:** Drought tolerance.
 - Vigour:** Ease of establishment.

- **Submittals:** Technical information; Manufacturers' literature; and Calculations.
Request for inspection prior to installation of pre-seeded mat

40-40-45/215 Information submittals for design of living roofs

- **Climatic loads/actions:**
- **Information to be supplied by Contractor:** General arrangement drawings for the planting layout and Method statements for installation.

40-40-45/220 Structural performance

- **Dead loads (maximum):**
 - **Standard:** To BS EN 1991-1-1 refer to Engineer's specification
 - **Green roof layers:** Submit proposals.
- **Imposed loads (maximum):**
 - **Activity:** Submit proposals.
 - **Vegetation:** Refer to plant schedule
- **Resistance to wind uplift:**
 - **Attachment to resist to wind loads:** Determine methods of attachment. Provide for the relative movement of materials and effects of vapour pressure.

Products

45-40-85/330 Manufactured growing medium

- **Supplier:** Submit proposals.
- **Source:** Submit proposals.
- **Texture:** Submit proposals.
- **Chemical analysis:**
 - **Standard:** To BS 1377-3.
 - **pH (range):** Submit proposals.
- **Organic matter:**
 - **Standard:** To PD CR 13456.
 - **Percentage (minimum):** Submit proposals.
- **Nutrient content (minimum index values for nitrogen, phosphorus, potassium and magnesium):** Submit proposals.
- **Size in any dimension (maximum):** Submit proposals.

Execution

40-40-45/605 Installation of living roofs generally

Shared by: 40-40-45/661 Jointing of mats and sheets generally; 40-40-45/680 Installing growing substrate; and 40-40-45/710 Installing edge retaining profile.

- **Standard:** In accordance with 'GRO Green roof code'.
- **Preparation:**
 - **Previous coatings and contaminants:** Clear surfaces of debris and Remove, including dirt, dust, efflorescence, mould, oil, paint and plaster.

- **Inspection:** Visually inspect waterproof membrane. Report any damage and Notify CA about any evidence of cracking or loose or weak areas of substrate.
- **Contamination:** Do not use materials detrimental to healthy plant growth.
- **Loading:**
 - **Standard:** To BS EN 1991-1-6.
 - **Generally:** Restrict site activities to ensure that design loads are not exceeded. Refer to structural Engineer's design loads.
 - **Allowance for additional loads during construction:** Inform Structural Engineer if applicable
- **Outlets:** Do not block. Install outlet grilles prior to installation of living roof.

40-40-45/661 Jointing of mats and sheets generally

- **General requirements:** 40-40-45/605 Installation of living roofs generally.
- **Joints:**
 - **Generally:** Minimize. Prevent gaps. Do not stretch blankets.
 - **Fitting:** Submit proposals.
 - **Overlaps (minimum):** Submit proposals.

40-40-45/671 Installing protection layers

- **General requirements:** 40-40-45/661 Jointing of mats and sheets generally.
- **Extent:** Continuous over entire roof area.
- **Upstands:** Submit proposals.

40-40-45/680 Installing growing substrate

- **General requirements:** 40-40-45/605 Installation of living roofs generally . Planting of green roofs is best undertaken during the Autumn months, if planting is undertaken during the drier months care should be taken to avoid the roofs from drying out.
- **Handling conditions:** Handle in the driest condition possible. Do not handle or install when wet or frozen.
- **Depth (minimum):** 100 mm, additional 15% to allow for compaction following installation.
- **Sequence:**
 - **Layer depth (maximum):** 150 mm.
 - **Compaction:** Gently firm each layer before spreading the next.

40-40-45/710 Installing edge retaining profile

- **General requirements:** 40-40-45/605 Installation of living roofs generally.
- **Cutting:**
 - **Generally:** Neat, accurate and without spalling.
 - **Junctions:** Vertical. Secure with proprietary connectors.
- **Position:** True to line and level. Smooth continuous lines.
- **Fixing:** Submit proposals.

System completion

40-40-45/801 Operations immediately after planting on living roofs

- **Watering:** Watering will be required during initial plant establishment, once established watering will only be required during drier periods.
- **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 depth (minimum):** If applicable, submit proposals

40-40-45/802 Establishing new planting on living roofs

- **Duration:** 2 months.
- **Soil condition:** Substrate to green roof specialist's detail and recommendations.
- **Weather conditions:** Installation will be undertaken suitable weather conditions no handling of substrate and plants will be avoided during wet or frozen conditions.

40-40-45/803 Weeding new planting on living roofs

- **Weed control:**
 - **General:** Keep planting beds clear of weeds.
 - **Area:** Maintain a weed free area around each tree and shrub.
 - **Diameter (minimum):** The larger of 1 m or the surface of the original planting pit.

40-40-45/804 Fertilizing new planting on living roofs

- **Time of year:** Submit proposals.
- **Application:**
 - **Method:** Submit proposals.
 - **Application rate (minimum):** Submit proposals.

40-40-45/806 Watering new planting on living roofs

- **Quantity:** Wet full depth of substrate until established
- **Application:** Even and without damaging or displacing plants or soil.
- **Trees:** Spray crown when in leaf during warm weather.
- **Frequency:** As necessary to ensure establishment and continued thriving of planting.
- **Interval (nominal):** As necessary
- **Timing:** Evening.

40-40-45/809 Plants that have failed to thrive on living roofs

- **Defects due to materials or workmanship not in accordance with the Contract:**
 - **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:** In accordance with an agreed defects rectification programme.

40-40-45/810 Instructions for future maintenance of living roofs

- **Recommended procedures for maintenance of planting work for one year:**

- **Format:** Printed.
- **Timing:** Before end of maintenance period.
- **Content:** Procedures for maintenance of the green roof and Schedule of ongoing maintenance problems experienced during the rectification period.

Ω End of system

55-40-50/115 Drip irrigation system

System outline

55-40-50/115 Drip irrigation system

- **System performance:** [55-40-50/210 Design of irrigation systems](#) and [55-40-50/240 Information for Contractor's design of irrigation systems](#).
- **System manufacturer:** Submit proposals.
- **Standard:** To BS 7562-2.
- **Water supply:**
 - **Source:** Mains cold water.
 - **Supply pipelines:** Refer to Mechanical and Electrical Engineer's specification
 - **Storage:** Refer to Mechanical and Electrical Engineer's specification
- **Pumps:** Submit proposals.
- **Distribution system:**
 - **Distribution pipelines:** Submit proposals.
 - **Valves and controls:**
 - Check valves:** Submit proposals.
 - Isolating valves:** Submit proposals.
 - Draining devices:** Submit proposals.
 - Flow control:** Submit proposals.
 - **Controls:** Submit proposals.
- **Application devices:**
 - **Lateral pipelines:** Submit proposals.
 - **Outlets:** Submit proposals.
- **System accessories:** Moisture sensors
- **Execution:** [55-40-50/610 Installing irrigation pipelines](#).
- **System completion:** [55-40-50/810 Testing irrigation pipework](#) and [55-40-50/860 Certificates and operating manuals for irrigation systems](#).

System performance

55-40-50/210 Design of irrigation systems

Shared by: [55-40-50/115 Drip irrigation system](#); and [55-40-50/240 Information for Contractor's design of irrigation systems](#).

- **Design scope:** Complete the design of the irrigation system
- **Standards:** To BS 7562-6, BS EN 806-2, BS EN 806-3 and BS EN 12484-2.
- **Water supply:**
 - **Quality:** To BS 7562-3 and BS 7562-4.
 - **Pressure:** Refer to Mechanical and Electrical Engineer's specification
- **Irrigation requirements:** Refer to drawings
- **Pipeline design:**
 - **Factors affecting size calculations:**

Probable simultaneous demand for entire system: Submit proposals.

- **Pump duty:** Select pump at or near the most efficient part of the performance curve for required duty.
- **Discharge requirements:** Submit proposals.
- **Submittals:**
 - **Requirement:** Typical plan, elevation and section drawings at suitable scales and Typical assembly drawings showing pump units, suction and delivery fittings, supply mains and in-field equipment. Drawings (showing equipment positions and pipeline routes), technical information, calculations and manufacturer's literature.
 - **Timing:** Prior to installation
 - **Format:** Drawings and specification

55-40-50/240 Information for Contractor's design of irrigation systems

- **General requirements:** 55-40-50/210 Design of irrigation systems.
- **Standards:** To BS 7562-2, BS 7562-6 and BS EN 12484-2.
- **Site information:**
- **Water supply:**
 - **Source:** Mains water, connection through adjacent BIB tap
 - **Pressure:** Refer to Mechanical and Electrical Engineer's specification
- **Other site data:** Refer to drawings for required locations of irrigation

Execution

55-40-50/605 Installing irrigation systems generally

- **Standards:**
 - **Generally:** In accordance with the relevant parts of BS 6700, BS EN 806-4 and water supply regulations and the requirements of the water supply undertaker.
- **Method:**
 - **Fixing:** Secure and neat in locations and depths suitable for the purpose. Securely fix equipment, components and accessories parallel or perpendicular to the enclosing structure.
 - **Outlets and valves:** Adequately support to prevent pipes being strained during operation.
 - **Open ends of pipes:** Temporarily seal with purpose made plugs or blanking caps to prevent ingress of dirt, insects or rodents during installation.
 - **Storage:** Store equipment, components and accessories in original packaging in dry conditions.
- **Corrosion resistance:** In locations where moisture is present or may occur, provide corrosion resistant fittings/ fixings and avoid contact between dissimilar metals by use of suitable washers, gaskets, etc.
- **Performance:** Free from leaks and the audible effects of expansion, vibration and water hammer.
- **Access:** Allow adequate space for inspection, servicing and maintenance.

55-40-50/610 Installing irrigation pipelines

- **General requirements:** 55-40-50/605 Installing irrigation systems generally.
- **Appearance:** Install pipes straight, and parallel or perpendicular to walls, floors, ceilings, and other building elements.

- **Joints, bends and offsets:** Minimize.
- **Access:** Locate runs to facilitate installation of equipment, accessories and insulation and allow access for maintenance.
- **Electrical equipment:** Install pipelines 150 mm (minimum) clear of electrical equipment. Do not run pipelines through electrical enclosures or above distribution boards, controllers or outlets.
- **Insulation:** Allow space around pipelines to fit insulation without compression.
- **Drains and vents:** Fix pipelines to falls. Fit draining taps at low points and vents at high points.
- **Flushing out:** Insert valves at the end of lines and low points of the system to allow debris to be flushed out of the system.
- **Thermal expansion and contraction:** Allow for thermal movement of pipelines. Isolate from structure. Prevent noise or abrasion of pipelines caused by movement. Sleeve pipelines passing through walls, floors or other building elements.

System completion

55-40-50/810 Testing irrigation pipework

- **Standards:**
 - **Pipework generally:** To BS 8558 and BS EN 806-4.
- **Notice (minimum):** 3 days.
- **Condition of pipework and equipment prior to testing:** Correctly installed, secure and clean, free from leaks and signs of physical distress.
- **Test duration (minimum):** 1 hour.
- **Preparation:** Secure and clean pipework and equipment. Check it is correctly installed.
- **Pressure testing:** Joints, fittings and components must be free from leaks and signs of physical distress when tested for at least 1 hour.
- **Pressure tests:**
 - **Systems fed directly from the mains:** Apply a test pressure equal to 1.5 times the maximum pressure to which the installation or relevant part is designed to be subjected in operation.
- **Other test procedures:** As recommended by the manufacturer and required by the water undertaker.
- **Test results:** Submit.

55-40-50/860 Certificates and operating manuals for irrigation systems

- **Submit prior to completion:** Full technical description of each system installed;
Manufacturers' operating and maintenance instructions for all equipment and controls;
Manufacturers' guarantees and warranties;
Operating instructions for the system as a whole giving optimum settings for all controls;
and Record drawings showing the location of circuits, fittings, pipes, apparatus and operating controls.
- **Number of copies:** Two.
- **Timing:** Submit before practical completion.

Ω End of system