



## Bicester ECO Development

External Works: Tree Pit Specifications

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## External Works: Tree Pit Specifications

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## Q20 Granular sub-bases to roads/pavings

- 110 THICKNESSES OF SUB-BASE/ SUBGRADE IMPROVEMENT LAYERS
- Thicknesses: See sections:
    - Q23 Gravel/hoggin/woodchip roads/pavings.
- 145 PREPARATION AND COMPACTION OF SUBGRADES
- Timing: Immediately before placing sub-base.
  - Soft or damaged areas: Obtain instructions.
  - Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/ paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.
- 170 GEOTEXTILE FILTER/ SEPARATOR MEMBRANE TO RECYCLED GLASS TREE PIT
- Manufacturer: TERRAM 1000 OR SIMILAR APPROVED .
    - Product reference: TERRAM 1000 OR SIMILAR APPROVED .
  - Jointing: 300 mm overlap .
  - Protect from:
    - Exposure to light, except during laying (maximum five hours).
    - Contaminants.
    - Materials listed as potentially deleterious by geotextile manufacturer.
    - Damage, until fully covered by fill.
    - Wind uplift, by laying not more than 15 m before covering with fill.
  - Preparation: Remove humps and sharp projections and fill hollows before laying.
- 180 NOTICE
- Give notice: On completion of compaction of sub-base.
    - Period of notice: 2 working days.
- 210 HIGHWAYS AGENCY TYPE 1 UNBOUND MIXTURE FOR SUB-BASE
- Material: Type 1 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 803.
    - Recycled aggregate: Permitted.
- 211 GRANULAR MATERIAL
- Quality: Of a known suitability for use in sub-bases, free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to BS 812-111 or a resistance to fragmentation of LA50 for the Los Angeles test to BS EN 1097-2, and in any one layer only one of the following:
    - Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
    - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
    - Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
    - Natural gravel.
    - Natural sand.
  - Filling: Spread and levelled in 150 mm maximum layers, each layer thoroughly compacted.
- 230 PLACING GRANULAR MATERIAL GENERALLY
- Preparation: Loose soil, rubbish and standing water removed.
  - Structures, membranes and buried services: Ensure stability and avoid damage.

250 LAYING GRANULAR SUB-BASES TO TREE PITS

- General: Spread and levelled.
- Compaction:
  - Timing: As soon as possible after laying.
  - Method: By roller or other suitable means, adequate to resist subsidence or deformation of the sub-base during construction and of the completed paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

310A ACCURACY

- Permissible deviation from required levels, falls and cambers (maximum):
  - Subgrades:  
TREE PITS:  $\pm 10$  mm .
  - Sub-bases:  
TREE PITS: [ $\pm 5-10$  mm].

330 COLD WEATHER WORKING

- Frozen materials: Do not use.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.

340 PROTECTION

- Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
- Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

## **Q23 Gravel/ Hoggin/ Woodchip/ Resin bound roads/ paving/ overlayss**

To be read with Preliminaries/ General conditions.

### **TYPES OF SURFACING**

- 226 PROPRIETARY RESIN BONDED CHIPPINGS OVERLAY FOR RESIN BOUND RECYCLED GLASS TO TREE PIT IN HARD LANDSCAPE
- Base: ACCORDING TO MANUFACTURERS' RECOMMENDATIONS.
    - Preparation: As overlay system manufacturer's recommendations.
    - Primer: As overlay system manufacturer's recommendations.
  - Surface course:
    - Manufacturer: Sureset (web. [www.sureset.co.uk](http://www.sureset.co.uk) Tel. 0800 612 6501) or similar approved.  
Product reference: Recycled glass chippings. Colour: Pacific. Grade: 6mm.
    - Slip/ skid resistance: As manufacturers' recommendations.
    - Binder: As manufacturers' recommendations.
    - Chippings: Recycled glass.  
Colour: SEE ABOVE.
    - Application:  
Binder: Uniformly at a rate of As overlay manufacturer's recommendations.  
Clean chippings: Cover at a rate of As overlay manufacturer's recommendations.
    - Completion: Before trafficking, remove excess chippings.

### **LAYING**

- 315 MATERIALS
- Compatibility: Chippings suitable for use with respective binders/ emulsions/ resin/ epoxy.
- 340 LAYING GENERALLY
- Channels, gullies, etc: Keep clear.
  - Finished surfaces:
    - Lines and levels: To prevent ponding.
    - Overall texture: Even.
    - State at completion: Clean.
- 350 COLD WEATHER WORKING
- Frozen materials: Do not use.
  - Freezing conditions: Do not lay pavings.
  - Cold bituminous surface dressings: Do not apply when ambient temperature is below 10°C.
  - Other dressings or overlays: As manufacturers' recommendations.
- 360 DRAINAGE FALLS
- Sealed surfaces:
    - Falls and cross falls (minimum): 1:40.
    - Camber (minimum): 1:50.
  - Unsealed surfaces (minimum): 1:30.
- 390 PROTECTION FROM TRAFFIC AND PLANT
- Paved areas: Restrict access to prevent damage.

## **Q28 Topsoil, growing media and ameliorants**

### **SYSTEM OUTLINE**

- 110 TOPSOIL SYSTEM TREE PITS IN SOFT LANDSCAPED AREAS
- Topsoil: Site sourced topsoil .
  - Ameliorants: Composted materials.
  - Accessories: None.
- 120 GROWING MEDIA SYSTEM FOR ALL TREE PITS IN HARD LANDSCAPED AREAS
- Growing media: Imported urban tree soil - Greenleaf or similar approved. Refer to item 340.
  - Ameliorants: Fertilizer to be incorporated into soil/ growing media.
  - Accessories: None.

### **PRODUCTS**

- 300 PREPARATION MATERIALS GENERALLY
- Purity: Free of pests, disease, and fungus.
  - Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
  - Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
    - Corrosive, explosive or flammable.
    - Hazardous to human or animal life.
    - Detrimental to healthy plant growth.
  - Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
  - Objectionable odour: None.
  - Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.
- 310 MATERIALS NOT PERMITTED
- Materials: Products containing peat.
- 315 IMPORTED TOPSOIL TO BS 3882
- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
  - Standard: To BS 3882.
  - Classification: Multipurpose.
    - Grade: 2-4 mm.
  - Source: Submit proposals.
    - Product reference: Submit proposals.
- 340 SPECIAL IMPORTED TOPSOIL AND/ OR GROWING MEDIA FOR TREE PITS IN PAVED AREAS
- Type: Urban tree planting soil.
    - Grade: 0.6-2 mm.
  - Source: GREENLEAF (Web. [www.greenleaftrees.co.uk](http://www.greenleaftrees.co.uk) Tel. 01424 717797) OR SIMILAR APPROVED.
    - Product reference: URBAN TREE SOIL.

365 COMPOSTED MATERIALS 50MM LAYER TO TREE PITS IN SOFT LANDSCAPED AREAS

- Type: Composted bark and Composted biomaterial.
- Source: Contractor's choice.
  - Product reference: Contractor's choice.
- Horticultural parameters:
  - pH (1:5 water extract): 7.0-8.7.
  - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
  - Moisture content (m/m of fresh weight): 35-55%.
  - Organic matter content (minimum): 25%.
  - Grading (air dried samples): 99% passing 25 mm screen, and 90% passing 10 mm screen mesh aperture.
  - Carbon:Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.

390 FERTILIZERS TO BE INCORPORATED INTO SOIL/ GROWING MEDIA FOR TREE PITS IN SOFT LANDSCAPED AREAS

- Type: General fertilizer.
- Source: Contractor's choice.
  - Product reference: Contractor's choice.

**EXECUTION**

610 TOPSOIL ANALYSIS

- Soil to be analysed: Imported topsoil.
- Soil analyst: LANDSCAPE ARCHITECT.
- Samples: Collect in accordance with BS 3882.
- Submit:
  - Declaration of analysis:
    - Chemical analysis and contaminants;
    - Maximum stone content, stone size and pH value;
    - Nutrient content, pH value and textural classification; and
    - Phytotoxic and CLEA elements.
  - Report detailing soil analyst's recommendations.

625 SAMPLE LOADS FOR IMPORTED TOPSOIL

- Deliver to site a sample load: of 5 kg.
- Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
  - Notice period: 2 days.

650 NOTICE

- Give notice before:
  - Setting out.
  - Spreading topsoil.
  - Applying herbicide.
  - Applying fertilizer.
  - Visiting site during maintenance period.
- Period of notice: Three working days.

655A MECHANICAL TOOLS

- Restrictions: Do not use within Root Protection Area of existing trees or 100mm of tree and plant stems.



660 GRADING SUBSOIL

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

665 SUBSOIL SURFACE PREPARATION

- General: Excavate and/ or place fill to required profiles and levels, as section D20.
- Loosening:
  - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
  - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
  - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
- Remove from site: Arisings, contaminants and debris and Builders rubble.

690 TOPSOIL STORAGE HEAPS

- Location: Throughout the site and in accordance with BS3882:2007- Specification for Topsoil and requirements for use.
- Height (maximum): 1.0 m.
- Width (maximum): 5.0 m.
- Protection:
  - Do not place any other material on top of storage heaps.
  - Do not allow construction plant to pass over storage heaps.
  - Prevent compaction and contamination, by fencing and covering as appropriate.

705A HANDLING TOPSOIL

ALL TOPSOIL HANDLING TO BE IN ACCORDANCE WITH BS3882:2007 SPECIFICATION FOR TOPSOIL AND REQUIREMENTS FOR USE

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

715 LOOSE TIPPING OF TOPSOIL

- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.
- Depths after settlement (minimum): 400 mm.

820 APPLYING GENERAL FERTILIZER SLOW RELEASE

- Locations: TREE PITS IN SOFT LANDSACPED AREAS.
- Application: Spread evenly, carefully incorporating below mulch materials.
  - Timing: Immediately before cultivation.
  - Application rate: 25 g/m<sup>2</sup>.
  - Other requirements: NONE.

## Q31 External planting

### GENERAL INFORMATION/ REQUIREMENTS

- 118 SOIL CONDITIONS
- Soil for cultivating and planting: Moist, friable and (excepting aquatic/ marginal planting) not waterlogged.
  - Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.
- 120 CLIMATIC CONDITIONS
- General: Carry out the work while soil and weather conditions are suitable.
    - Strong winds: Do not plant.
- 125 TIMES OF YEAR FOR PLANTING
- Deciduous trees and shrubs: Late October to late March.
  - Conifers and evergreens: September/ October or April/ May.
  - Herbaceous plants (including marginal): September/ October or March/ April.
  - Container grown plants: At any time if ground and weather conditions are favourable.
    - Watering and weed control: Provide as necessary.
  - Dried bulbs, corms and tubers: September/ October.
  - Colchicum (crocus): July/ August.
  - Green bulbs: After flowering in spring.
  - Wildflower plugs: Late August to mid November or March/ April.
  - Aquatic plants: May/ June or September/ October.
- 130 MECHANICAL TOOLS
- Restrictions: Do not use within 100 mm of tree and plant stems.
- 505 TREE PITS
- Sizes: As drawing UA001881-701-800 & UA001881-701-801.
  - Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
  - Pit bottoms: With slightly raised centre. Break up to a depth of 200 mm.
    - Treatment: As drawing UA001881-701-800 & UA001881-701-801.
  - Pit sides: Scarify.
  - Backfilling material: Tree backfilling material.
  - Accessories: As drawing UA001881-701-800 & UA001881-701-801
    - Underground guying;
    - Underground root director
    - Structural Rootcell
    - Perforated plastics irrigation/ ventilation pipe; and
    - Root barrier.
- 510A TREE PIT ROOT BARRIERS
- Locations: As drawing UA001881-701-800 & UA001881-701-801.
  - Manufacturer: GREENLEAF REROOT 1000 OR SIMILAR APPROVED.
    - Product reference: GREENLEAF ROOT DIRECTOR (MEDIUM) OR SIMILAR APPROVED.
  - Installation: TO MANUFACTURER'S RECOMMENDATIONS

512 TREE PIT ACCESSORIES

- Locations: As drawing UA001881-701-800 & UA001881-701-801.
- Manufacturer: GREENLEAF ARBORVENT OR SIMILAR APPROVED.
  - Product reference: GREENLEAF ARBORVENT OR SIMILAR APPROVED.
- Type: TO MANUFACTURER'S RECOMMENDATIONS.

535 STAKING GENERALLY

- Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
  - Preservative treatment: Not required.
- Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
- Stake size (minimum): 75mm diameter.

565 LONG DOUBLE STAKING FOR ALL BUFFER ZONE TREE PLANTING

- Staking: Drive stakes vertically at least 300 mm into bottom of pit on either side of tree position before planting.
  - Backfilling: Consolidate material around stakes.
- Height of stakes: Cut off just below lowest branch of tree.
- Cross bar: Wood, as stake.
  - Firmly fix on windward side of tree and as close as possible to stem.
- Ties: Expanding ties.
- Tying: Secure tree firmly but not rigidly to cross bar.

590 MULCHING TREES

- Material: Ornamental bark mulch.
  - Purity: Free of pests, disease, fungus and weeds.
  - Recycled content: 100% to BS EN ISO 14021.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: As drawing UA001881-701-800 & UA001881-701-801.
- Finished level of mulch: As drawing UA001881-701-800 & UA001881-701-801.

790A FINAL MAINTENANCE

- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching/resurfacing, applying water where necessary.
- Planting beds: Remulch.
  - Depth (minimum): [75 mm].
- Resin bonded glass: Resurface glass/glass chippings where necessary in accordance with manufacturer's recommendations
- Trees: Remulch.
  - Depth (minimum): 75 mm.

## **Q50 Site/street furniture/equipment**

### **GATES, BARRIERS AND PARKING CONTROLS**

- 262 TREE GRILLES GREENLEAF CASTLE TREE GRILLE OR SIMILAR APPROVED - INFILL TO MATCH SURROUNDING PAVING. ADHERE TO SURROUNDING PATTERN AND COURSING
- Manufacturer: GREENLEAF.
    - Product reference: GREENLEAF CASTLE INTEGRATED TREE GRILLE 1.5M.
  - Material: Steel.
    - Finish: Hot dip galvanized to BS EN ISO 1461.
    - Colour: GALVANISED.
  - Size: 1500MM SINGLE TRAY CASTLE TREE GRILLE.
  - Accessories/ Special requirements: Concealed, vandal proof fixings and Irrigation hole with cover.
  - Method of fixing: ACCORDING TO MANUFACTURERS' RECOMMENDATIONS AND DRAWING UA001881-701-800.