17412-TLP-ExternalHardworksSpecification

Stephenson House, Camden

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Q10 Kerbs/ edgings/ channels/ paving accessories

TYPES OF KERBS/EDGINGS AND CHANNELS

112 PRECAST CONCRETE KERBS
- Standard: To BS EN 1340.
- Recycled content: As supplied.
- Designations: BN Kerb, bullnosed.
- Size (width x height x length): 150x305x915.
- Special shapes: Not required.
- Finish: As cast.
- Colour: Natural.
- Bending strength: No requirement.
- Weathering resistance: Class 2.
- Abrasion resistance: Class 3.
- Slip/ skid resistance: No requirement.
- Bedding: Fresh concrete races.
- Joints generally: Narrow mortar.
- Sealant movement joints: Not required.
- Accessories: None.

113 PRECAST CONCRETE FLAT TOP EDGING
- Standard: To BS EN 1340.
- Recycled content: As supplied.
- Designations: EF Edging, flat top.
- Size (width x height x length): 50 x 150 x 915 mm.
- Special shapes: Not required.
- Finish: As cast.
- Colour: Natural.
- Bending strength: No requirement.
- Weathering resistance: Class 2.
- Abrasion resistance: Class 3.
- Slip/ skid resistance: No requirement.
- Bedding: Fresh concrete races.
- Joints generally: Narrow mortar.
- Sealant movement joints: Not required.
- Accessories: None.

120 STONE EXISTING KERBS RELAID
- Standard: To BS EN 1343.
- Supplier: N/A.
- Types: As existing.
  - Tolerances on batter: Class 2.
- Stone type: Existing.
- Size (width x height): As existing.
  - Tolerances on overall width and height (nominal): Class 2.
- Freeze/ Thaw resistance: Resistant.
- Special shapes: As existing.
- Finish: As existing.
- Arrises: As existing.
- Bedding: As existing.
- Joints generally: As existing.
- Sealant movement joints: As existing.
- Accessories: As existing.

120A STONE UPSTAND GRANITE KERBS
- Standard: To BS EN 1343.
- Supplier: CED Ltd or similar agreed.
- Types: Rectangular with radiused exposed edges.
  - Tolerances on batter: No requirement.
- Stone type: Dark Grey Granite to match existing.
- Size (width x height): To match existing.
  - Tolerances on overall width and height (nominal): Class 2.
- Freeze/ Thaw resistance: Resistant.
- Special shapes: External radius kerbs.
- Finish: To match existing.
- Arrises: None.
- Bedding: Cement mortar and Fresh concrete races.
- Joints generally: To matching existing kerbs.
- Sealant movement joints: At 15m (maximum) centres.
- Accessories: None.

120B STONE FLUSH GRANITE KERBS
- Standard: To BS EN 1343.
- Supplier: CED Ltd or similar agreed.
- Types: Rectangular with radiused exposed edges.
  - Tolerances on batter: No requirement.
- Stone type: Dark Grey Granite to match existing.
- Size (width x height): 150(h)x150(w)x1000(l).
  - Tolerances on overall width and height (nominal): Class 2.
- Freeze/ Thaw resistance: Resistant.
- Special shapes: External radius kerbs.
- Finish: Bush hammered top, sawn on all sides.
- Arrises: None.
- Bedding: Cement mortar and Fresh concrete races.
- Joints generally: Narrow mortar.
- Sealant movement joints: At 15m (maximum) centres.
- Accessories: None.

170 LINEAR SLOT DRAINAGE CHANNEL SYSTEMS
- Manufacturer: To Architect/Engineer's Specification.
  - Product reference: To Architect/Engineer's Specification.
- Bore: To Architect/Engineer's Specification.
- Finish: To Architect/Engineer's Specification.
- Colour: To Architect/Engineer's Specification.
- Accessories: To Architect/Engineer's Specification.
- Bedding: To Architect/Engineer's Specification.
- Joints generally: To Architect/Engineer's Specification.

250 MATERIAL SAMPLES
- Samples representative of colour and appearance of designated materials: Submit before placing orders.
  - Designated materials: All .

LAYING

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

520 ADVERSE WEATHER
- Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

530 CONCRETE FOR FOUNDATIONS, RACES AND HAUNCHING
- Standard: To BS 8500-2.
- Designated mix: Not less than GEN0 or Standard mix ST1.
- Workability: Very low.

540 CEMENT MORTAR BEDDING
- General: To section Z21.
- Mix (Portland cement:sand): 1:3.
  - Portland cement: Class CEM I 42.5 to BS EN 197-1.
  - Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).
- Bed thickness: 12-40 mm.

547 BEDDING/BACKING OF UNITS ON FRESH CONCRETE RACES
- Standard: To BS 7533-6.

620 ACCURACY
- Deviations (maximum):
  - Level: ± 6 mm.
  - Horizontal and vertical alignment: 3 mm in 3 m.

625 REGULARITY OF PAVED SURFACES
- Maximum undulation of (non-tactile) paving surface: 3 mm.
  - Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
- Difference in level between adjacent units (maximum):
  - Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
  - Recessed, filled joints: 2 mm.
    Recess depth (maximum): 5 mm.
  - Unfilled joints: 2 mm.
- Sudden irregularities: Not permitted.

640 TOOLED MORTAR JOINTS
- Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled and tooled to a neat flush profile.
  - Joint width: 6 mm.

650 SEALANT MOVEMENT JOINTS
- Joint filler: Compressible cellular rubber or plastics compatible with specified sealant.
- Filler installation: Built in as work proceeds, extending through haunching and foundation. Filler positioned accurately to fully support sealant at the recommended depth below exposed faces of units.
- Joint width: 10 mm.
- Sealant: to Engineer's specification.
  - Colour: Colour match to kerbs.
- Sealant application: As section Z22.

Q23 Gravel/ Hoggin/ Woodchip/ Resin bound roads/ paving/ overlays

To be read with Preliminaries/ General conditions.

TYPES OF SURFACING

170A LOOSE GRAVEL OVERLAY to tree collar around existing and new trees to Hampstead Road
- Gravel: Loose laid around tree trunks:
  - Type: Silver Grey gravel to match resin bound gravel.
  - Source: Addagrip.
  - Colour: Silver Grey.
  - Size: 6-10mm.
  - Thickness: approx. 75mm.

225A RESIN BOUND GRAVEL TREE SURROUND To Tree Pit surrounds along Hampstead Road
- Base course: 50mm loose laid free draining gravel to manufacturer's recommendation and instruction.
- Surface course:
  - Manufacturer: Addagrip.
    Product reference: Addastone TP - Resin Bound Tree Pit System.
  - Slip/ skid resistance: PTV to BS 7976-2 of 49 (water) wet.
  - Binder: Polyurethane.
  - Chippings: Flint gravel.
    Colour: Silver Grey granite.
  - Aggregate size: 6-10mm.
  - Mix ratio (binder:aggregate): to manufacturer's recommendation and instruction.
- Application: Thoroughly mixed and uniformly spread.
  - Spreading rate: to manufacturer's recommendation and instruction.
  - Thickness: 75mm.
  - Compaction to all layers: to manufacturer's recommendation and instruction, no heavy machinery within tree root protection areas.

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.

380 LAYING GRANULAR SURFACES IN PEDESTRIAN AREAS
- Permissible deviation from required levels, falls and cambers (maximum): ±12 mm.
- General: Spread and level in 100 mm maximum layers. As soon as possible, compact each layer.
- Dry weather: Lightly water layers during compaction.

390 PROTECTION FROM TRAFFIC AND PLANT
- Paved areas: Restrict access to prevent damage.

Q25 Slab/brick/sett/cobble pavings

GENERAL

110 NATURAL STONE SLAB PAVING SYSTEM AT BUILDING ENTRANCE OFF HAMPSTEAD ROAD

- Subgrade improvement layer: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Granular sub-base: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Base: Concrete, to Engineer's specification.
  - Thickness: to Engineer's specification .
- Laying course: Site mixed mortar.
  - Accessories: None.
- Paving units: Natural stone slabs.
- Jointing: Ready mixed mortar.
  - Bond: Running Bond, 150mm staggered joints.
- Accessories: None.

120 CONCRETE FLAG PAVING SYSTEM HAMPSTEAD ROAD

- Subgrade improvement layer: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Granular sub-base: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Base: Concrete, to Engineer's specification, and LB Camden/TFL requirements.
  - Thickness: To Engineer's specification.
- Laying course: Ready mixed cement sand mortar.
  - Accessories: None.
- Paving units: Fibre Reinforced Concrete Flags as per Q315.
- Jointing: Ready mixed mortar.
  - Bond: Running bond, 150mm Staggered Joints.
- Accessories: None.

120A CONCRETE FLAG PAVING SYSTEM HAMPSTEAD ROAD

- Subgrade improvement layer: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Granular sub-base: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Base: Concrete, to Engineer's specification, and LB Camden/TFL requirements.
  - Thickness: To Engineer's specification.
- Laying course: Ready mixed cement sand mortar.
  - Accessories: None.
- Paving units: Standard Concrete Flags as per Q315A.
- Jointing: Ready mixed mortar.
  - Bond: Running bond, 150mm Staggered Joints.
- Accessories: None.

120B CONCRETE FLAG PAVING SYSTEM DRUMMOND STREET & WILLIAM ROAD

- Subgrade improvement layer: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Granular sub-base: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Base: Concrete, to Engineer's specification, and LB Camden/TFL requirements .
  - Thickness: To Engineer's specification.
- Laying course: Dry mix cement:sand to Engineer's specification & paving manufacturer's recommendations.
  - Accessories: None.
- Paving units: Concrete Flags as per Q315B.
- Jointing: Dry mix cement:sand to Engineer's specification & paving manufacturer's recommendations .
  - Bond: Stack bonded.
- Accessories: None.

140 NATURAL STONE SETT PAVING SYSTEM VEHICULAR ENTRANCE OFF DRUMMOND STREET

- Subgrade improvement layer: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Granular sub-base: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Base: Concrete, to Engineer's specification .
  - Thickness: To Engineer's specification.
- Laying course: Ready mixed fine concrete .
  - Accessories: Primer for underside of setts.
- Paving units: Natural stone setts as Q330 & Q331.
- Jointing: Ready mixed fine concrete, half-round/recessed joints as indicated on TLP Dwg.No 17412-TLP-301.
  - Bond: Stack bonded.
- Accessories: None.

140A NATURAL STONE SETT PAVING SYSTEM TREE PIT EDGE COURSES

- Subgrade improvement layer: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Granular sub-base: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Base: Concrete, to Engineer's specification .
  - Thickness: To Engineer's specification.
- Laying course: Ready mixed fine concrete .
  - Accessories: Primer for underside of setts.
- Paving units: Natural stone setts as Q330.
- Jointing: Ready mixed fine concrete, recessed joints.
  - Bond: 2No. rows, stack bonded.
- Accessories: None.

140B NATURAL STONE SETT PAVING SYSTEM OUTSIDE SME STAIR ON WILLIAM ROAD

- Subgrade improvement layer: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Granular sub-base: To Engineer's specification.
  - Compacted thickness: To Engineer's specification.
- Base: Concrete, to Engineer's specification .
  - Thickness: To Engineer's specification.
- Laying course: Ready mixed fine concrete .
  - Accessories: Primer for underside of setts.
- Paving units: Natural stone setts as Q330.
- Jointing: Ready mixed fine concrete, recessed joints.
  - Bond: 4No. rows, stack bonded.
- Accessories: None.

PRODUCTS

305 GRANULAR MATERIAL FOR LAYER OVER EXISTING BASES
- Material: To Engineer's specification.

310 NATURAL STONE SLABS AT BUILDING ENTRANCE OFF HAMPSTEAD ROAD
- Standard: To BS EN 1341.
- Supplier: CED Ltd.
  - Product reference: Blue Grey Granite.
  - Quarry: Manufacturer's choice.
- Petrographical description/ stone type: Granite.
- Finish: Flame Textured.
- Sizes: 600x900x50, Edge Course 600x200x50.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 4.
- Slip resistance: PTV to BS 7976-2 of 40.
- Skid resistance: No requirement.
- Surface treatment: None.

315 CONCRETE FLAGS HAMPSTEAD ROAD
- Standard: To BS EN 1339.
  - Manufacturer: Marshalls.
    Product reference: Fibre Reinforced Standard.
- Recycled content: As Supplied.
- Colour: Natural.
  - Finish: Pimple.
  - Nominal sizes: 900x600x63.
- Arrises: Square.
- Water absorption and freeze/ thaw resistance class: As Supplied.
- Bending strength class: As Supplied.
- Abrasion resistance class: As Supplied.
- Slip/ Skid resistance: PTV 40 min..
- Breaking load class: As Supplied.

315A CONCRETE FLAGS HAMPSTEAD ROAD
- Standard: To BS EN 1339.
  - Manufacturer: Marshalls.
    Product reference: Standard .
- Recycled content: As Supplied.
- Colour: Natural.
  - Finish: Pimple.
  - Nominal sizes: 900x600x50.
- Arrises: Square.
- Water absorption and freeze/ thaw resistance class: As Supplied.
- Bending strength class: As Supplied.
- Abrasion resistance class: As Supplied.
- Slip/ Skid resistance: PTV 40 min..
- Breaking load class: As Supplied.

315B CONCRETE FLAGS DRUMMOND STREET & WILLIAM ROAD
- Standard: To BS EN 1339.
  - Manufacturer: Marshalls.
    Product reference: Standard.
- Recycled content: As Supplied.
- Colour: Natural.
  - Finish: Pimple.
  - Nominal sizes: 400x400x50.
- Arrises: Square.
- Water absorption and freeze/ thaw resistance class: As Supplied.
- Bending strength class: As Supplied.
- Abrasion resistance class: As Supplied.
- Slip/ Skid resistance: PTV 40 min..
- Breaking load class: As Supplied.

320 TACTILE FLAGS AND SLABS AT CROSSINGS ON HAMPSTEAD ROAD
- Standard: To DD CEN/TS 15209.
- Material: Precast concrete.
  - Manufacturer: Marshalls.
    Product reference: Blister Tactile Standard.
- Recycled content: As supplied.
- Nominal sizes: 400x400x50.
- Colour: Red (Controlled Crossing) & Natural(Uncontrolled Crossing).
- Type of surface: Blister – type B1.

320A TACTILE FLAGS AND SLABS AT CROSSING ON DRUMMOND STREET
- Standard: To DD CEN/TS 15209.
- Material: Precast concrete.
  - Manufacturer: Marshalls.
    Product reference: Blister Tactile Standard.
- Recycled content: As supplied.
- Nominal sizes: 400x400x50.
- Colour: Natural.
- Type of surface: Blister – type B1.

330 NATURAL STONE SETTS VEHICULAR ENTRANCE OFF DRUMMOND STREET
- Standard: To BS EN 1342.
- Supplier: CED Ltd.
  - Product reference: Medium Grey Granite Setts.
  - Quarry: Manufacturer's choice.
    Petrographical description/ stone type: Granite.
- Finish: Cropped/Hewn.
- Sizes: 100x100x100.
  - Plan dimension and thickness deviation: Class 2.
- Special setts: Not required.
  - Tolerances on undercut of sides: Class 1.
  - Tolerances on hewn and coarse textured face irregularities: Class 1.
  - Breaking strength: No requirement.
- Slip resistance: No requirement.
- Skid resistance: To Engineer's Specification.
- Surface treatment: None.

330A NATURAL STONE SETTS FINE PICKED VEHICULAR ENTRANCE OFF DRUMMOND STREET
- Standard: To BS EN 1342.
- Supplier: CED Ltd.
  - Product reference: Medium Grey Granite Setts.
  - Quarry: Manufacturer's choice.
    Petrographical description/ stone type: Granite.
- Finish: Sawn, fine-picked.
- Sizes: 100x100x100.
  - Plan dimension and thickness deviation: Class 2.
- Special setts: Not required.
  - Tolerances on undercut of sides: Class 1.
  - Tolerances on hewn and coarse textured face irregularities: No requirement.
  - Breaking strength: No requirement.
- Slip resistance: PTV to BS 7976-2 of 40.
- Skid resistance: To Engineer's Specification.
- Surface treatment: None.

395 DRY MIX CEMENT:SAND FOR LAYING COURSE AND JOINTING OF CONCRETE FLAG PAVING DRUMMOND STREET & WILLIAM ROAD.
- Standard: To BS 7533-4
- Purity: Free from deleterious salts, contaminants, lime.
- Manufacturer: [Contractor's choice].
  - Product reference: [Contractor's choice].
- Consistency: [Workable e.g. 1:4 cement:sand ratio]

435 PRIMER FOR UNDERSIDE OF FLAGS AND SLABS ALL FLAGS
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.

440 READY MIXED MORTAR FOR MORTAR BEDDED FLAGS
- Type: to paving manufacturer's recommendations.
- Standard/ Performance requirements: In accordance with BS 7533-4.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Consistency: to paving manufacturer's recommendations.

445 READY MIXED FINE CONCRETE FOR GRANITE SETTS
- Standard/ Performance requirements: In accordance with BS 7533-7.
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
    Consistency: to paving manufacturer's recommendations.

465 SEALANT FOR MOVEMENT JOINTS ALL PAVING
- Sealant:
  - Type: to Engineer's specification.
  - Manufacturer: to Engineer's specification.
    Product reference: to Engineer's specification.
  - Colour: Grey.

470 SEALER/ STABILIZER SOLUTION FOR BLOCKS AND SETTS
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.

EXECUTION

610 MATERIAL SAMPLES
- Samples representative of colour and appearance of designated materials: Submit before placing orders.
  - Designated materials: Natural stone slab paving; reference sample to BS EN 1341.

615 CONTROL SAMPLES

- Sample areas: Complete as part of the finished work.
  - Types of paving:
    - Natural stone slab paving;
    - Concrete slab paving; and
    - Natural stone sett paving.
  - Location: Contractor's choice.
  - Size (minimum): 1mx1m.
  - Included features: Edging course.
- Approval of appearance and surface: Obtain before proceeding.

620 ADVERSE WEATHER

- 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.
- Paving with mortar joints and/ 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.

625 LAYING PAVINGS - GENERAL

- Appearance: Smooth and even with regular joints and accurate to line, level and profile.
- Falls: To prevent ponding.
- Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.
  - Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.
- Slopes: Lay paving units upwards from the bottom of slopes.
- Paving units: Free of mortar and sand stains.
- Cutting: Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.

630 LEVELS OF PAVING

- Permissible deviation from specified levels:
  - Generally: ± 6 mm.
- Height of finished paving above features:
  - At gullies: +6 to +10 mm.
  - At drainage channels and kerbs: +3 to +6 mm.

635 REGULARITY OF PAVED SURFACES

- Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface):
  - Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.
  - Precast concrete flags or natural stone slabs: 3 mm.
- Difference in level between adjacent paving units (maximum): 2 mm.
- Sudden irregularities: Not permitted.

637 REGULARITY OF PAVED SURFACES
- Maximum undulations in the surface of pavings (except tactile paving surfaces) under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the 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.

640 COLOUR BANDING
- General: Unless premixed by manufacturer, select from at least 3 separate packs in rotation to avoid colour banding.

645 PROTECTION
- 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.
- Mortar bedded pavings: Keep free from traffic after laying:
  - Pedestrian traffic (minimum): 4 days.
  - Vehicular traffic (minimum): 10 days.
- Access: Restrict access to paved areas to prevent damage from site traffic and plant.

650 CEMENTITIOUS BASES AND SUB-BASES
- General: Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

655 CONDITION OF SUB-BASES/ BASES BEFORE SPREADING LAYING COURSE
- Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
- Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ 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.
- Sub-base/ Roadbase level tolerances: To 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; adequately bed and haunch in mortar.
- Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

680 LAYING GEOTEXTILE SHEET PATCHES OVER DRAINAGE HOLES
- Laying: Lay geotextile patches on the base, centred over each hole.
  - Size of patch: 300 x 300 mm.

685 LAYING GEOTEXTILE SHEET OVERLAYS
- Location: Immediately below sand bedding course.
- Laying: Fit neatly at edge restraints and other features that interrupt sand bedding course, e.g. drainage fittings, channels, manholes and kerbs.
- Edge detail: Turn sheet up to form an upstand against features, height not less than thickness of sand bedding.
- Width: 1000 mm.
- Jointing: Lap by 300 mm.

710A LAYING FLAG AND SLAB PAVING - DRY MIX CEMENT:SAND LAYING COURSE AND JOINTING
- Standard: In accordance with BS 7533-4.
- Flag installation and cutting: To Interpave 'Concrete flag paving'.
- Laying course:
  - Nominal thickness after compaction: 30mm.
- Joint width: 2-5 mm.

715 LAYING FLAG AND SLAB PAVING - MORTAR LAYING COURSE AND JOINTING
- Standard generally: In accordance with BS 7533-4.
- Flag installation and cutting: To Interpave 'Concrete flag paving'.
- Laying course:
  - Nominal thickness: 25 mm after compaction.
- Laying and jointing: Half-round as indicated on detail drawings TLP-300 series.
- Joint width (nominal): 5-10mm.

730A LAYING NATURAL STONE SETT PAVING **Ready-mixed fine concrete**
- Standard generally: In accordance with BS 7533-7.
- Laying type: Rigid.
  - Laying and jointing method: Contractor's choice.
- Laying course:
  - Target thickness after compaction: 40 mm.
- Joint width (nominal): 5-10mm.

785A TOOLED JOINTS IN MORTAR BEDDED UNITS [Q310,Q315,Q315B,Q330A]
- Joints: Completely filled with bedding mortar as work proceeds.
  - Joint width: 6-10 mm.
  - Finish: Half-round

785B TOOLED JOINTS IN FINE CONCRETE BEDDED UNITS [Q330 & Q330A]
- Joints: Completely filled with bedding material as work proceeds.
  - Joint width: 6-10 mm.
  - Finish: Recessed/Half-Round as indicated on Dwg.No TLP-301

785C TOOLED JOINTS IN DRY MIX BEDDED UNITS [Q315A]
- Joints: Completely filled with bedding material as work proceeds.
  - Joint width: 2-5mm.
  - Finish: Flush as indicated on Dwg.No TLP-302

COMPLETION

915 COMPLETION OF PAVING WITH DRY SAND OR FINE AGGREGATE FILLED JOINTS
- Sand dressing: Leave a thin layer of dry jointing sand over the paving, sweep clean before practical completion.
- Final compaction of the surface course: In accordance with BS 7533-3.
- Vacuum cleaning machines: Not allowed.

930 SLIP RESISTANCE TESTING
- Surfaces to be tested: Granite.
  - Surface condition: Dry and wet.
- Timing: As agreed with contract administrator.
- Period of notice (minimum): 3 working days.
- Test standard: To BS 7976.
  - Testing authority: A UKAS accredited laboratory.
  - Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: Contract administrator.
  - Report: Submit.
    Format: As required under BS 7976.

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

145 PLANT PIT BACKFILLING SOIL SYSTEM FOR NEW TREE PIT TO HAMPSTEAD ROAD
- Composition:
  - Topsoil: Imported topsoil from a specified source.
  - Ameliorants: None.
  - Accessories: None.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY
- Purity: Free of pests and disease.
- 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.

320 IMPORTED TOPSOIL FROM A SPECIFIED SOURCE FOR NEW TREE PIT TO NORTH END OF HAMPSTEAD ROAD
- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Soil textural class: Sandy loam.
- Source: Bourne Amenity - TS6 10mm Topsoil.

EXECUTION

630 DOCUMENTATION FOR IMPORTED TOPSOIL FOR TREE PITS
- Timing: Submit at handover.
- Contents:
  - Full description of all soil components.
  - Record of source for all soil components.
  - Record drawings showing the location and depth of all soils by type and grade.
  - Declaration of analysis: in accordance with BS 3882, clause 6 and Table 1.
- Number of copies: Two.

655 MECHANICAL TOOLS
- Restrictions: Do not use within 100 mm of tree and plant stems.

660 GRADING SUBSOIL FOR new tree pit to Hampstead Road
- Standard: In accordance with BS 8601.
- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Areas of thicker topsoil: Excavate locally.
- Avoid compaction.
- Excess subsoil: Remove.

665 SUBSOIL SURFACE PREPARATION FOR new tree pit to Hampstead Road

- Standard: In accordance with BS 3882.
- General: Excavate and/ or place fill to required profiles and levels, as section D20.
- Loosening:
  - When ground conditions are sufficiently dry to allow breaking up of soils, loosen thoroughly to specified depth:
    Light and noncohesive subsoils: 400.
    Stiff clay and cohesive subsoils: 600 .
    Rock and chalk subgrades: Lightly scarify to promote free drainage.
  - Wet conditions: Do not loosen subsoils.
- Stones: Immediately before spreading topsoil, remove stones larger than 75 mm .
- Remove from site: Arisings, contaminants and debris .

705 HANDLING TOPSOIL

- Standard: In accordance with BS 3882.
- 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.

710 SPREADING TOPSOIL ON New tree pit to Hampstead Road

- Standard: In accordance with BS 3882.
- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
  - Depth (maximum): 150 mm.
  - Gently firm each layer before spreading the next.
- Depth after firming and settlement: 400 mm.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

Q31 External planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

112 SITE CLEARANCE GENERALLY
- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
- Stones: Remove those with any dimension exceeding 75 mm.
- Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Vegetation: Remove dead tree and associated rootball from northern-most tree pit to Hampstead Road - Tree 1 on Tree Survey drawing: AIA20180808-001-A-survey.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Additional requirements: n/a.

118 SOIL CONDITIONS
- Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
- Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

120 CLIMATIC CONDITIONS
- General: Carry out the work while soil and weather conditions are suitable.
  - Strong winds: Do not plant.

125 TIMES OF YEAR FOR PLANTING
- Deciduous trees and shrubs: Late October to late March.
- Conifers and evergreens: September/ October or April/ May.
- Herbaceous plants (including marginal): September/ October or March/ April.
- Container grown plants: At any time if ground and weather conditions are favourable.
  - Watering and weed control: Provide as necessary.
- Dried bulbs, corms and tubers: September/ October.
- Colchicum (crocus): July/ August.
- Green bulbs: After flowering in spring.
- Wildflower plugs: Late August to mid November or March/ April.
- Aquatic plants: May/ June or September/ October.

130 MECHANICAL TOOLS
- Restrictions: Do not use within 100 mm of tree and plant stems.

145 WATERING
- Quantity: Wet full depth of topsoil.
- Application: Even and without damaging or displacing plants or soil.
- Frequency: As necessary to ensure establishment and continued thriving of planting.

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

170 SOIL REQUIREMENTS
- Type
  - Planted beds: Planting bed soil system, as section Q28.
  - Tree pits, shrub pits and other backfilling: Plant pit backfilling soil system, as section Q28.
  - External container planting: Container planting growing media system, as section Q28.
  - Mulch applied after planting: Mulching and top dressing system, as section Q28.

200 PLANTS/ TREES - GENERAL

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Root system and condition: Balanced with branch system.
  - Standard: The National Plant Specification.
- Species: True to name.
- Origin/ Provenance: As plant schedule.
  Definition: Origin and Provenance have the meaning given in the National Plant Specification.

215 PLANTS/ TREES - SPECIFICATION CRITERIA

- Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification (available on CS Design Software Limited's website).

235 CONTAINER GROWN PLANTS/ TREES

- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
- Plants: Centred in containers, firmed and well watered.
- Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
- Hardiness: Grown in the open for at least two months before being supplied.
- Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

245 LABELLING AND INFORMATION

- General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
  - Full botanical name.
  - Total number.
  - Number of bundles.
  - Part bundles.
  - Supplier's name.
  - Employer's name and project reference.
  - Plant specification, in accordance with scheduled National Plant Specification categories.
- Additional information: Submit on request: Country of origin.

260 PLANT/ TREE SUBSTITUTION

- Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
  - Price.
  - Difference from specified plants/ trees.
- Approval: Obtain before making any substitution.

265 PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

- Standard: To CPSE '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.
- Plant packaging: Coextruded polyethylene bags with black interior and white exterior.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Planting: Upright or well balanced with best side to front.

290 SURPLUS MATERIAL

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

PLANTING TREES

500 TREE PLANTING
- Standard: Prepare trees and transplant in accordance with BS 4428.

505 TREE PITS
- Sizes: As drawings L17412-308 and L17412-100.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Excavated material: Remove arisings.
- Pit bottoms: Excavate with slightly raised centre: Break up base to a depth of 150 mm.
  - Treatment: As drawing L17412-308.
- Pit sides: Scarify.
- Backfilling material: Topsoil and subsoil, as section Q28.

512 TREE PIT IRRIGATION AND VENTILATION ACCESSORIES
- Locations: To newly planted replacement tree to north end of Hampstead Road.
- Manufacturer: GreenBlue Urban.
  - Product reference: RootRain Urban (RRURB1A) and Arbovent 100 (RRARBV1D).
- Type: Perforated plastics irrigation pipe with inlet.
- Pipe diameter: 60 mm.
- Ring diameter: 3m.
- Inlet: Cast aluminium.
- Installation:
  - Pipe: Lay in loop above root ball with slight fall away from inlet pipe. Trim length to ensure a close fit in the tree pit. Connect both ends of pipe securely into plastics tee junction on inlet.
  - Top cap of inlet: Protruding slightly above finished surround level.
  - Backfill material: Carefully compact in layers.

515A TREE PIT DRAINAGE
- Locations: To new tree pit to north end of Hampstead Road.
- Depth of excavation: Increase from specified size to allow for aggregate layer, with base slightly falling to outlet.
- Aggregate layer: Clean gravel or broken stone, with no fines, graded 40 to 20 mm.
  - Depth: 100.

526 UNDERGROUND GUYING FOR New tree to north end of Hampstead Road.
- Manufacturer: Platipus.
  - Product reference: Rootball Fixing System - Plati-Mat® RF1P.
- Anchoring system: 3 no drive-in anchors.
- Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

580A TREE PIT SURFACING - BOUND AGGREGATE (TO ALL TREE PITS NEW & EXISTING ALONG HAMPSTEAD ROAD)
- Surfacing material: Resin-bound aggregate, as section Q23.
- Area: Full extent of tree pit surface.
- Collar: Install protective tree collar around base of tree prior to installing surfacing. Allow clearance for tree growth.
- Collar infill: Loose fill gravel (same gravel as resin bound, but loose laid), as section Q23.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

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

720 FAILURES OF PLANTING

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

735 PROTECTIVE FENCING

- Fencing type: As per Arboriculturist's recommendations.
- Erection: Before commencement of paving works
- Removal: After practical completion .

740 CLEANLINESS

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

Q50 Site/street furniture/equipment

SITE AND STREET FURNITURE

210 CYCLE STANDS
- Manufacturer: Broxap.
  - Product reference: Camden M.
- Type: Single stands.
- Material: Steel.
  - Finish: Stainless Steel .
  - Colour: Brushed.
- Accessories: None.
- Method of fixing: Root, 300 mm below ground, set in concrete base.

INSTALLATION

510 CONCRETE FOUNDATIONS GENERALLY
- Standard: To BS 8500-2.
- Concrete: to Engineer's specification.
- Admixtures: Do not use.
- Foundation holes: Neat vertical sides.
- Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

515 SETTING COMPONENTS IN CONCRETE
- Holes: to Engineer's specification.
- Components: Accurately positioned and securely supported.
- Concrete fill: Fully compacted as filling proceeds.
- Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
- Temporary component support: Maintain undisturbed for minimum 48 hours.